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Data
Analytics

Analyzing Big Data — a platform to
comprehend customers

Winston Churchill said, "A pessimist sees the difficulty in every opportunity; an optimist sees the opportunity in every difficulty." Retail marketers may observe the availability of Big Data either as an opportunity to transform them into business intelligence or it may be arduous and agonizing for them to capture it to any actionable intelligence.

Every time a customer swipes a loyalty card or visits a shopping

portal, data gets generated in the form of Big Data and retailers are able to capture that data and construct a platform wherein they can distinguish which product is selling better, whether recommendations should be created, or simply, if there's a requirement to run a promotion.

THE CUSTOMER

Our customer happens to be one of the biggest US based Fortune 500 Retail Company. The company offers products such as apparels, footwear, bedding and furniture. Besides the brick-and-mortar stores, the company presents multi-channel shopping experience through its website, store-side kiosks and mobile app.

THE 'OPPORTUNITY' GALORE (CHALLENGE FOR SOME)

The customer observed that the plethora of Big Data available with them could be put to better use by closely studying the buying patterns of individuals on the company shopping portal, mobile app, store- side kiosks and the brick-and-mortar stores. What they also noticed was that, customers only bought what they had probably pre-decided or they would simply browse through and drop off without purchasing. The 'impulse' or 'why-not-these-too' factor was clearly missing. The number of products bought was restricted resulting to a flat average purchase basket size. The company realized that there were ways available to increase the revenue return by making product recommendations,
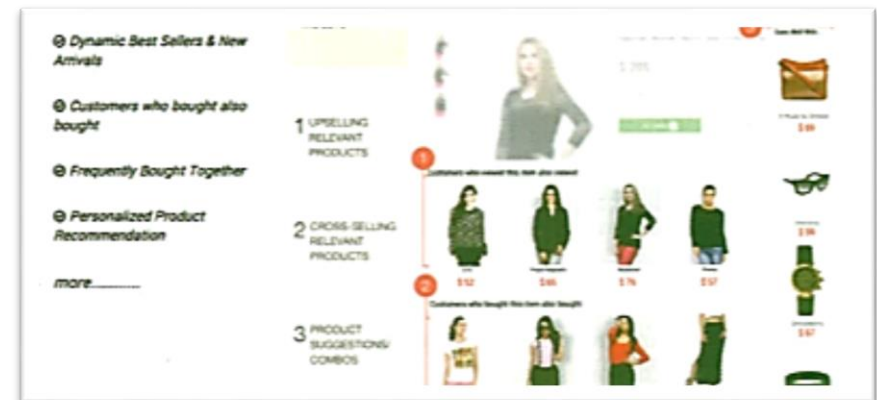
BASED ON DATA SCIENCES CONSULTING THE ENGINE WAS DEPLOYED RAPIDLY.

running promotions/discounts on certain categories, thus, opening up opportunity to cross sell or up sell products.

What they failed to garner was an intelligent solution which would enable them to understand the customer's mind. They had a vague impression that deploying Business Analytics, could actually personalize a product recommendation. For example, a customer is browsing through apparels in a company's e-commerce portal currently. At this time, realizing who the customer is, based on his/her buying history, the e-commerce/ retail company can immediately flash other product suggestions keeping in mind what he/she is presently looking at. The recommended products could vary from wrist watches, shoes, bags, tie and etc.

Source: Google Images

THE DEPICTION AND FUNCTIONING OF P&R MODEL

The P&R model has primarily three stages on how it detects and uses the available data; recognizes and converts the data points to make product recommendations basis an individual customer's purchase history:

- **Big Data Ingestions and Processing -** At this level, the platform indentifies the data points, customers' past transaction behavior, detects similar customers to distinguish if products were advised for cross-sell or up-sell or on customer demographics. Data is also harmonized from different sources like click stream, transaction history and social media.

- **Algorithm Development -** This is a stage where the mathematical logic is developed from data points to derive the resemblance between products and users. The algorithm development process increases the propensity of buying a particular product at a particular time.

- **Implementation -** Once the algorithm is developed, it ties back to the exiting IT system, for example the website. The website then gets connected to the engine and picks up the recommendations and displays it back to the users.

Considering the size of the company and the customer base and visits, the P&R model processes 27 Terabytes of Big Data in a month which meets the 4 criteria of Big Data - Volume, Variety, Ve-

UNEARTHING NEW POSSIBILITIES & THE REVELATION

Our customer had approached companies who could solve their predicament. But what they came across were "Canned Solutions". They were on the lookout for a solution provider and an adviser who would personalize the same for them.

At Happiest Minds, our strong product and solutions team, spearheaded by Data Scientists and Engineers demonstrated the Analytics Driven Personalization and Recommendation (P&R) model to our customer to be able to enhance their Top line sales and other Key Performance Indicators (KPIs). The solution is completely customizable keeping in mind the different requirements of customers. With our subject matter experts on board and with a background of industry experience, the retail company chose to implement our solution.

USING BIG DATA COULD BE PUT TO BETTER USE BY CLOSELY STUDYING THE BUYING PATTERNS OF INDIVIDUALS.

locity and Veracity. The processing and storing of data is supported by Hadoop technology stack. The core data Algorithm is written in Mahout and gathers customer information from all sources using Collaborative Filtering and/or Matrix Factorization Algorithms. This algorithm mathematically calculates the similarity or dissimilarities between customers and products. Based on our Data Sciences Consulting and Business Analytics solutions, the US retailer deployed the P&R engine six months back. Currently, the P&R model is running on the company's e-commerce website and on selected store-side kiosks and going forward, it would be extended by implementing it on all store-side kiosks. The solution completely runs on the customer's infrastructure spearheaded by their CIO.

THE COROLLARY

For a retailer with a vast consumer base, an increase of 0.1% in conversion brings about gigantic revenue returns to the company. And here, we are also talking about customer conversion and increasing the average purchase basket size. Post application of the P&R engine, the retail company has had an increase of 2% in the conversion ratio. The recommendation hits with our P&R engine has a hit ratio which is 100 to 200 times more than that of random recommendations, thus resulting to 5-10% increase in customers' average purchase basket size. Out of the number of products recommended, at least 7-8% of the recommended products get bought or go into the purchase basket.

CUSTOMERS ONLY BOUGHT WHAT THEY HAD PROBABLY PRE-DECIDED OR THEY WOULD SIMPLY BROWSE THROUGH AND DROP OFF WITHOUT PURCHASING.

THE EXPERT VIEW

According to NASSCOM, the Big Data market in India is expected to grow to $2.3 billion by end of 2017-2018. India is still at a nascent stage of adopting Analytics to derive long term values. In order to do so, it is important that at the time of finding a service provider, you look at a macro level — a solution provider who offers customizable and scalable solutions as per the requirement of your company. If a service provider offers a onesize-fits-all approach, then it's advisable to opt for a different solution provider. It's prudent to hire a consultant who comes with industry experience, network and experts. P&R is just one example of many used cases where Big Data and Analytics can have a huge impact in the digital era. Some of the other used cases of Big Data Analytics in retail are Real Time Visualization, Personalized Customer Experience, Dynamic Pricing, etc.

customer behavior to making the right product recommendations. The solution spans from advanced Data Integration and Data Warehousing to building the architecture for advanced analytics in three stages — Descriptive, Predictive and Prescriptive. This comprehensive framework forms the premise for smart Business Intelligence and Advanced Visualization that provide businesses with Actionable Insights and empowers them to devise effective, result-oriented strategies and take data-driven business decisions.

Headquartered in Bangalore, India, Happiest Minds has operations in the US, UK, Singapore, Australia and has secured $ 52.5 million Series-A funding. Its investors are JPMorgan Private Equity Group, Intel Capital and Ashok Soota.

ABOUT HAPPIEST MINDS TECHNOLOGIES

Happiest Minds enables Digital Transformation for enterprises and technology providers by delivering seamless customer experience, business efficiency and actionable insights through an integrated set of disruptive technologies: Big Data Analytics. Internet of Things, Mobility, Cloud, Security, Unified Communications, etc.

Happiest Minds Data Sciences & Business Analytics solutions are designed to help enterprises decode large quantities of structured & unstructured data to gain a competitive advantage. The solutions cover the entire lifecycle of a customer's engagement with a business — from understanding