

The Role of Data Analytics in Driving Business Decision Making and Performance Improvement

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Abstract- Online businesses particularly websites like Amazon and Flipkart are in constant need and supply of data analytics which will identify the present loyal customers and also target out potential new customers based on their browsing habits and purchase pattern. It is the job of data analytics to track down these browsing habits. Sales of any company can tremendously augment when data analytics results are mingled with complex algorithms, machine learning, and business analytics. Businesses can identify client need and preferences both on the basis of their own customer base and through market analysis but the data obtained by market analysis should also be subjected to data analytics and the recommendation system needs to work on the data obtained from the customer base of any business. Predictive analysis and target marketing by the association or organization will further enhance customer satisfaction and build loyalty towards the company which can be done very effectively used of data analytics and the overall result will be better firm performance.

Key words- Data Analytics, Predictive Analysis, Firm Performance, Browsing History,

Introduction- We are living in a highly turbulent and competitive global market where different associations and firms are constantly under pressure to adapt and experiment so that they can flourish and survive [1]. Businesses are inconsistently working towards approaches and methods that can improve their firm performance and constantly searching solutions to respond and meet ever increasing competitive demands [2]. Firms and businesses should be able to identify and develop methods with which they are able to efficiently milk opportunities and exploit them in the most beneficial way so that firm performance can enhance and use of Big data analytics is the latest fad [3]. To enhance firm performance information system and big data can be highly important because it results in quick timely decisions that are

able to render insight which will accelerate competitive advantage, bring about innovation, and provide solutions to handle and environmental uncertainty [4]. All this will elevate firm performance by improving decision quality [5]. Hence, to leverage usefulness of insightful information businesses are constantly hunting technologies that are capable to enhance firm performance and use of data analytics has become dominant and prominent in most businesses now-a-days [6]. Modern business environments are highly under influence of it and timely and resourceful use of information that includes data analytics has become so cardinal that it can be considered as the foundation for innovation and agility in modern business scenario [7, 8].

Review of literature

Gigantic amount of data availability in heaps and cartloads have led to data revolution which has ultimately improved decision making performance of firms and is also associated with competitive advantage. This has made many firms and companies to leverage data analytics so that they are better able to deal with macroscale data amassed by them which can lead to fulfill their growing desiderata and proves ameliorative in better and faster decision making [9]. Data analytics is a complex process that includes predictive analytics, data mining, statistics, also artificial intelligence is one of the main branches and besides that natural language processing [10].

When they all assemble under one umbrella and applied to enormous dataset then exorbitant canniness can be obtained to emend decision making process of firm. In recent years data analytics have become an inseparable part of organizational information technology competency because now multitude of data is available in gigantic amount [11]. So, it becomes mandatory for the firms to enhance their data analytics competency which is the firm's ability to milk data and its favor so that the firm can remain informed and is able to make faster decisions [12].

Methodology

This was an interview-based study. There were chosen 12 professionals/managers belonging to various sectors and industries related to Data Analytics. Mean age of all participants was at least 30 years and each had at least 5 years of work experience in related field. Interviews were personally conducted, and recorded after consent. The information collected was thoroughly studied, scrutinized and subjected to appropriate statistical tools including SPSS 2.0 The results obtained have been presented in following section.

Specific qualities required -

- ✂ Data analytics in the field of marketing should be apt in cross selling. They should have detailed knowledge of location-based marketing; should be able to analyze in-store behavior and customer micro-segmentation. They should be able to perform sentiment analysis and also enhance multi-channel consumer experience.
- ✂ Data analytics when applied in the field of merchandising should be able to perform assortment optimization along with price optimization. They should have the ability to optimize placement and design as well.
- ✂ Data analytics dealing with field of supply chain should be very efficient in inventory management and dissipation of products and logistic optimization. One more important aspect with supply chain associated with data analytics is it should be able to inform supplier negotiations.
- ✂ Data analytics on the basis of previous shopping history by customers can offer tailor made services and recommendations also personal product advice. Any business that can track the previous history of customer is able to give feedback to potential customers who had been at some point of time a customer to that platform for example Amazon had created 360 degree user account and was able to identify personal products that were based on desires and needs of target customers.
- ✂ Customer problems were handled very smoothly because of simple access to client profiles and their recent buying/ browsing pattern. Also, adapting zappos by Amazon in 2009 further enhanced use of big data and enabled data analytics to polish the level of customer support. Data analytics can also be used to check fraud at corporate level

Result and Discussion



Participant 1- Data analytics that are involved in inventory management can help to accelerate inventory control for retailers if they are able to provide stock forecast in which is dependent on combination of multitude data sets like- history of sales, weather forecast, and seasonal cycle of scale. Data analytics who work in this field can contribute in improve management of inventory which will permit the retailer to maintain a lower stock level because the data analyst will couple the demand signal more efficiently and will be able to reduce those sales that are lost because of item not being in stock. Data analyst in this case should be able to provide full clarity at SKU level; and in parallel vein barcode solutions that are directly associated to automated replenishment process will be able to reduce chances of merchandize going out of stock. Adequate stuff in stock will definitely lead to performance improvement.



Participant 2- There are many logistic companies that are now controlling their transportation with the use of GPS control big data telematics which include - remote location monitoring, route planning, time management, and all this effort is being done to enable vehicle management and delivery. In this case transport analytics can play an important role because the information provided by them will lead to maximum fuel efficiency, control of driver behavior and vehicle routing and also in proactive maintenance. Thus, business decision making will get effected and firm performance will enhance because of timely delivery or may be delivery before expected customer time which will enthrall the customer; it may also lead to this customer approaching this same site in future because of trust in delivery time.



Participant 3: This is a world of shopping lovers where both online and offline shopping is prevalent but majority generation that belongs to present century prefers online shopping as it has multiple benefits. Many retail companies are utilizing services of data analytics to recognize and identify both client preference for goods and products and also their purchase behavior so that they can inform their dealings with suppliers. In such company's data analytics will use data on pricing and also sales data which will enable him to figure out negotiating negotiations on vital and core goods. In this way he can use big data as a highly beneficial advantage because inventory of the items that have been sold by any store is a representative of a large portion of the business.



Participant 4- Data analytics having skills and knowledge in operation of cloud computing can be very useful for diminishing infrastructure cost and time that gets utilize in storage and analysis of data. Candidates having good knowledge of machine learning techniques can put their knowledge to use so that it automatically constructs algorithms that can predict accurate predictions and can hence pave the path for fast and defined analysis.

The businesses are going global and digital at a very high pace and the customers are consistently on hunt to carry out shopping and purchase transaction across borders here. In this sense overseas purchase beyond countries and continents does not mean actually that multiple store fronts are required for any location and also there is no need of international warehousing.

The only method with which it can be achieved is prioritization of internet advertisements and advertisements that appear on social media which can easily help to explore foreign market. And this is the work of data analytics to use platforms like Twitter, Instagram, Google advertising to find out potential customers and if they succeed then. It definitely enhances the firm performance by pouring in new customers.

Participant 5- Data analytics need to be skilled and adept when it comes to data literacy which means that ability to learn data interact with at interpret and draw meaningful conclusions from it. Data analytics should also have good knowledge of mathematics and statistics. Both are very important when it comes to data literacy because data analysis of big data is complex and complicated. There are different companies that have specially appointed data scientist and chief data officer to ensure that appropriate kind of data analyst are working for that firm or company and the company is assured that full value of its data is being put to use by the data analytics because meaningful interpretation from data provided will definitely increase firm performance.



visualizing any data thinking towards he should put that carried out with prove

Participant 6- Data analytics should understand the particular purpose for which the data is to be used he should be able to absorb and conclude data by that include both graphs and charts he should have logical information that has been generated by analysis of data and then derived information to appropriate use when all the steps are efficiency from performance is bounce to accelerate.



According to participant 7 there are many incidences when data gets mis-represented or misused; data analytics should have the knowledge about this kind of malfunctioning situations and under the circumstances he should behave in a very sagacious way and not under any pressure or circumstance lead to a judgement which is inappropriate. In many firms and organizations there are found people that cannot be called as data literate and hence transmission of data information to such people is a very challenging task. But a capable data analyst has to device his own methods and means to dissipate important data related information to people who are lacking in data literacy and this process is called as data story telling. So, he/she should be very good and data story telling.



According to participant 8 business intelligence is very beneficial in assuming and predicting market trends. Alongside it also helps to analyze competitors and can be very resourceful in implementation customer targeted market. A system consisting of three tier architecture and which is called as Hadoop distributed file system can be used and data warehouse use for storing data can be eliminated. This three tier system includes tire-1 which comprises of data and consist of collecting important client information; the purchase history and reviews also includes data collected from social media with the help of e-commerce portal and noise needs to be removed so that the data can be processed further. The second tier Hadoop comprises of transmitting the gathered data into HDFS by applying map reduce which enables the data to get input in to HDFS. The map phase ensures mapping of certain set of data to certain other set of data and thereby renders ultimate final



data which is desired and can be further analyzed. Tire 3 which is data analytics and business intelligence comprises of analyzing the data obtained after application of map reduce. R statistical tool is used at this stage to analyze and recruit data and obtained results. This tool is used because it enables generation of multitude of graphical output and able to easily conduct complicated statistical computation. Data analytics need to have intense and deep knowledge of everything that has been explained in this para.

Participant 9 - It is the job of data analyst to recommend custom made advertisements based on the previous purchase pattern and browsing history. They are those people who when work for online shopping companies have to track down each and every movement and likes of the customer so that predictive analysis can be accomplished and it can be assumed what will be they next likely purchase. Data Analytics keep a track of products a customer is browsing for, the recommendations are made by the data analyst using machine learning and similar tools for



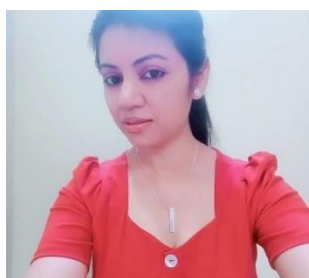
example a female who is browsing party wear dresses will be automatically targeted towards fashion jewelry, accessories, and footwear because it is assumed that she is probably preparing for an upcoming ceremony/ function.



Participant 10- There are certain businesses for example Flipkart where a particular pattern is followed where customers have one profile each and every time. They visit the site and browse items; this is a unique session in itself. Several such sessions are then conglomerated together to generate user profile that is strongly predictive about the customer journey in this particular platform and such kind of similar things can be developed for other businesses as well; which is again the job of that analyst and when the job is carried out successfully will surely lead to good performance in business.



Participant 11- Shopping of products on online basis has already achieved its next level where user experience of the customer means a lot for the retailers. And now they have switched to Chat Bots which are based on Artificial Intelligence which helps to engage the user. It is a very user-friendly method of studying and predicting digital shopping experience. Then there are images and technology based on it that helps the user to search a product by clicking at the image for e.g. Cortextica and John Lewis work on an image recognition platform that ensures visual search is made user friendly. Hence, they allow customers to hunt for fashion apparels and product with diverse colors/ shapes/ and patterns. In all these processes data analyst can play a significant role to boost performance and business of any given firm.



Participant 12- There are tools that enable suppliers to keep a check on demand in their shops and stores and they automatically get informed about when a product should be restored. This is a type of vendor managed inventory and it can lead to efficient labor productivity along with cost position of the retailer. Some similar kind of thing was done by Walmart. Following their footsteps many more online shopping companies are now gathering customer information to keep a check on shopping behavior of customers and also to look after price optimization of their supply chain. When any retailer that is having cost effective and macroscopic customer information then the retailer would be able to mine petabytes of consumer preference and shopping pattern and hence will obtain distribution concession from the company. All this is part of data analytics and when effectively carried out would enhance performance.

Conclusion-

Retail businesses that are based on specific brand are getting highly complicated and are slicing data with the help of multitude of sales channel stalls online interactions and catalogue. Data analytics enable enhanced use of granular customer data which permits the retailer to polish their marketing and merchandizing capability. Data analytics when applied in the field of logistics and supply chain can considerably bring down cost and lead to creation of new strategic advantages policies and tactics that will all lead to enhanced sale for retailers and thereby improve firm performance in retail business which is attributed to blissful use of data analytics.

Also, the manufacturers are constantly in the process to identify what customer desires are and how are they changing with rapid inflow of new information and rapid injection of new products in the market and thus they are continuously active to know and review client experience data and are consistently discovering trends which can further strengthen their position and name in retailer negotiation. When any company is so much keen in discovering new trends by use of data analytics then performance of firm is sure to augment. There are studies and examples where usage of data analytics tool did not prove their worth and there were major many firms which did not harvest its full advantage. But all-in-all Data Analytics is the ingredient that will decide the future for millions of people and thousands of businesses.

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