



ROLE OF MACHINE LEARNING AND ANALYTICS ON DATA-DRIVEN DECISION MAKING AND PROFITABILITY IN THE RETAIL GOODS SECTOR

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Abstract

Information analysis is now a critical component in every practitioner and researcher's evaluation, as it reflects the impact and magnitude of the data-related problems being addressed by organizations such as list businesses. The study identified four key factors: information source, data evaluation equipment, protection of economic and financial outcomes and data, and security. It was designed to evaluate the influence that Big Data has on list businesses. The study examines how big data can affect list businesses that make data-driven decisions using information analytics and other business intelligence. This study has concluded that list companies' business analytics tools have a significant impact on the economy and finances. Information was collected for analysis by conducting a survey on various business practices, and the investments made in IT technology by companies listed. Information analysis showed that data-driven decision (DDD) organizations have higher outputs and productivity. The relationship between DDD, inventory usage, consumer engagement and the market value of the list business can be clearly seen using Smart PLS techniques and excellent evaluation guidelines.

Keywords: *Data Source, Data Analysis Tools, Data Security, Economic and Financial Outcomes, FMCG Industry*

INTRODUCTION

Information on Earth is growing exponentially each day. PCs can store vast size of information. Researchers from the University of Los Angeles estimated recently that about 10 exabit of data is generated per year. Of this, 99.27% of it can be accessed only electronically. Data collected by companies is abundant in the marketing and advertising sector. The rise of multimedia and social networks will also result in an exponential growth in the future. FMCG is probably one of the most important industries in the world. The FMCG industry will continue to grow as middle-class incomes and size increase. The number of list purchases made via m-commerce or ecommerce is increasing rapidly due to the rapid growth of ecommerce. This can be attributed to the high speed of online connections and the advancements of smartphone and Online Technology. Sanyika J. and others claim that e-commerce is growing

at a rapid rate. This can be attributed to the emergence of fast internet, advances in technology and smartphone technology, changes made by ecommerce regarding their product collections, numerous delivery options as well as enhanced transaction options.

The increase of data is now feasible because of introduction of rapid Internet and various types of data for research. The dissemination of this data is feasible with the advent of mobile phones, gadgets and tablets. List businesses, including those in various e-commerce sectors, gather the information because they see it as an important source of information. This information can be used to gain a competitive advantage. Big Data lists are a great way to achieve their goals. In the last two years, business intelligence, analytics and the closely related area of big data analysis have gained increasing importance in the academic and corporate communities. These powerful tools can help differentiate between information worth collecting and data that's not. These brand new data types, when analyzed can help improve marketing decisions. Advertising research was lacking in software and algorithms until recently. With the rapid developments in tools and techniques that are a part of Big Data can now be used to analyze articles that have been uploaded on different sites and contain audio and video, as well as images/photos. Analysis of such massive data sets will be crucial for success in innovation, growth and the competition. The large details will affect data analysts, administrators and other information specialists, as well as the whole list industry.

IBM Tech Trends Report classified enterprise analytics as 2010s technology phenomenon. Bloomberg Businessweek's 2011 study on business analytics found that 97% of businesses with annual revenues over \$100m used some type of analytics. This type of analysis was made possible by skilled resources and techniques such as graphic detail exploration. These methods and tools allowed data visualization to generate insights and new hypotheses. Graphic details exploration has many benefits, including the immediate engagement of users and printer learning. IBM's SPSS and SAS are among the most impressive data analysis software.

LITERATURE REVIEW

The section evaluates Big Data and its use by business, then deals with several key areas that were located during the this review. This leads to the formulation of research hypotheses. The qualitative method of data analysis used by organizations is combined with statistical methods. As part of a continuous iterative process, data is continuously collected and analyzed. Data analysis requires patterns to be found in data collected during the collection phase. Qualitative strategy determines the form in which the evaluation will be carried out. Content analysis can be applied to field notes, videos, audiotapes and documents.

Data evaluation is not complete without ensuring the integrity of all information. A valid and accurate evaluation of information is also essential to maintain data integrity. Data analysis is impacted by issues of data integrity. This includes both statistical and non-statistical information. The wrong data analysis can have a negative impact on the scientific findings as well as public perceptions of investigations. Below is a description of the evolution of information business analysis strategies. Ad-hoc is a technique of information analysis used to support a mission. This type of analysis is rarely directly used to analyze active production methods. Individual abilities are what determines the strategy.

RESEARCH METHODOLOGY

The strategy of the study focuses on variables identified through the literature review. The research was designed to understand the relationship, both direct and indirect, between dependent as well independent variables

Data source

For many years, information collection and analysis has been useful in advertising. Marketing researchers and

practitioners gather information and evaluate it. Data is seen by businesses as an important source of information which can be used to gain a competitive edge. Information about customers is one of the most important assets for a business. Quality of the information is determined by how well a schema controls it and what integrity restrictions are in place. Big Data is used to provide input for information analysis software and group data based on criteria. This could be helpful in the future to target advertising.

New data types for data classification and analysis are being created by the proliferation of tablets, smartphones and other mobile devices. Social networking has made it easy for clients to express their opinions on blogs and online forums. List businesses are interested in these consumer data to determine the level of positive or negative perceptions, and also for decision- support. These data have a significant impact on business. Information gathered by a business can be used to gain a competitive edge over competitors, improve the way a company runs its business and interacts with its current and future customers.

Data collection

After the soil analysis was done from the review of literature, we obtained secondary information, which resulted in four independent variables. A survey was then developed in order to gather key information from people working at medium-sized and large FMCG organizations around the world. The questionnaire was tested in private interviews conducted with 20 respondents, as well as selected professionals working for medium and large FMCG sellers. After the interviews were completed, the questions were revised based on their responses. The final questionnaire was then sent.

A questionnaire was used to conduct the survey, which took into account both quantitative and qualitative aspects. Previous surveys were distributed among those who are familiar with the information-analysis and list-business. The purpose of this research was explained in a concise manner at the beginning of the survey, assuring the respondents that the collected data would be kept confidential. Each section contained questions designed to gather information about the variables. Three to five questions for each variable were created using a Likert-scale of five points to evaluate the use and adoption of information analysis in enterprise decision making. The majority of literature used to support each question was ISI Journals. A large number of people were emailed the final online survey through their personal contacts. The respondents were people who are involved in the FMCG industry, especially Supermarkets and Department Stores. A total of 284 replies were received but due to the lack of information, only 238 could be evaluated. In addition to Likert-scale items that were required, there was also a list of suggested additional items such as comments.

Analysis of data

SmartPLS uses the partial minimum-squares method. This is a component-based approach for evaluating concepts and assessments without having to deal with the normality issue. PLS can be used for small data sets and unbalanced data. PLS does not make assumptions about the information division and eliminates unneeded solutions. The structural situation model is an estimation method based on components that allows testing each concept or theory. Structural modes must be compatible with the experimental forms. Hoyle recommended using a scale between 100 and 200 samples for the evaluation of path models. This unit was evaluated using a sample of 238.

First, the structure model was calculated to assess the quality of measures. Then, it was used to test the hypotheses. Browne et al. Browne et al. suggested validating a product prior to evaluating hypotheses during the initial phase. The evaluation of actions will require reliability and validity. Cronbach's alpha and composite reliability were used to assess the consistency and dependability of the product. According to Gopal, composite reliability provides a more comprehensive measure of reliability. Cronbach's Alpha of at least 0.6 is needed for

adequacy. A value over 0.7 would be suggested for composite reliability. Cronbach's alpha is greater than 0.60 and composite dependability in Table 1. The reliability and durability of the unit is shown by this value.

RESULTS

The results of hypothesis testing are shown in Table 8. Seven of the eight hypotheses are supported. The null hypothesis, H1, isn't supported by the data because of the short distance between the data source and the data evaluation device. It is not surprising that a data analysis tool can be used to make sense of data sources which are relatively simple. There are more types of information available to evaluate with the advances in technology such as Smartphones, tablets, computers, etc. Our findings show that even though more Data Sources are available, their impact on Data Analysis is less.

The H2 model is supported, which indicates a strong relationship between the impact of big data and its data source. Inaccurate information will result from using the wrong data source and could have negative effects on an organization. Incorrect data evaluation has an impact on the earnings of a business. Our findings are in line with this. The H3 model is well supported, as there exists a strong correlation between the information evaluation apparatuses and their influence on evaluation. Different tools use different algorithms, which will affect the analysis of information. Combining analysis trees allows you to analyse data from blogs and forums. The Kruskal Wallis and Brunner Dette Munk tests are likely to yield positive results. Our findings are in line with this. Information security and protection of information are important factors that influence economic and financial outcomes, as well as information provision. This supports Hypotheses 4 and 5. Assuring privacy and data security, and utilizing diverse data sources will positively impact economic and financial results. According to Ahmad's earlier findings, it is important that the privacy and individuality of men are protected. The H6 model is well supported, showing the connection between the protection of information and security as well as the impact that big data analytics has. It is in line with the previous results, and these are important issues that can affect data evaluation. The H7 program is highly supported. List business information analysis tools have a direct correlation with economic and financial outcomes. Our novel discovery contributes significantly to the Big Data literature. Hypothesis 8 is also supported, showing that there is a strong link between economic and financial results to the impact of rigorous detail examination. Bloomberg Businessweek conducted a study on business analytics. The statement confirms that we found 97% of businesses with revenue exceeding \$100m use business analytics.

Fit of the Model

ADANCO was used to evaluate the fit between the model and the data. If the design is not in line with the data, this indicates the data has more information to convey than what the unit can. Referencing, the compatibility of the product with the expected and saturated models is important. A SRMR of zero indicates a design that is perfectly healthy, and a value less than 0.05 means a good match. Authors assert that SRMR values over 0.06 are acceptable. Bentler and Hu suggested 0.08 as a SRMR threshold value. A value of approximation between 0.05 to 0.08 has also been recommended. The Table 5 shows that both the estimated and saturated SRMR are below 0.08.

Implications for the FMCG industry

FMCG industry is responsible for 67% of global GDP and encompasses an extensive ecosystem. FMCG includes speciality foodstuffs and electronics. It also encompasses discount FMCG sellers, clothing, department stores, electronic goods, FMCG pharmacies at discount prices, specialty food FMCG sellers, specialty FMCGer, ecommerce, commodities, consumer product, specialty FMCG sellers. The FMCG sector is growing every day due to new technology. E-commerce, as well as new solutions such "point, browse, and analyse", puts pressure on the business incumbents. These tools provide customers with powerful decision-making information including pricing, promotions, and product details, sometimes in real time. Reddish Laser is an iPhone and Android application that

can detect barcodes, compare prices, products, and FMCG sellers instantly. The apps can even guide consumers to nearby FMCG sellers that offer free shipping. The margins of FMCG sellers that compete on price are further eroded. It is therefore essential that businesses of any size ensure their own competitiveness. Competition increases as internet FMCG sellers interact with their customers in real-time. Big Data analysis can be beneficial to FMCG sellers in several ways. Big Data is defined by three Vs: Volume, Velocity and Variability.

CONCLUSION

Information analysis using Big Data is said to revolutionize list business. Data analysis is a powerful tool that has many advantages. Many businesses are using Big Data for information evaluation to gain insights and boost revenue. Research has been conducted on a number of businesses and the obstacles that they face in adopting information analysis for the list business. Data analysis is an integral part of covariance analysis marketing fit indexes despite these challenges. The impact of Big Data in the List Business was evaluated by this study. It analyzed four factors, namely: the information source, the information evaluation apparatuses, the protection and security of economic and financial outcomes and data, as well as the information security. This analysis shows that there have been significant changes in factors that affect data analysis within the list industry. Information sources and tools for information analysis are no longer considered differentiators, but rather a given. Information security and privacy, as well as the financial and economic impact, are important factors that businesses should consider before adopting an information analysis. Although the source of information and the tools used for information analysis are not likely to be the biggest influences in businesses adopting data analysis, they both have positive impacts on the business's adoption. Watson and Wixom, as well Kim and Park, both support the above observation. The study also found that the ability to analyze information is one of most critical factors for determining the success of a business in the listing industry. T.H. Davenport agrees with this particular observation. This study predicts that the use of information analysis in other sectors, like healthcare, could also be beneficial.

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Data Availability: The author holds all the data employed in this study and is open to sharing it upon reasonable request.

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