***“A Critical Evaluation of the Big Data Approach to Car Fuel's Data Analytics”***

This research shows us how we can use Big Data technologies to solve the problems presented in the different areas of the public and private sector. In the scenario presented for this task, we have a car research company that is launching a new exploration project based on data sets and fuel economy for the 2015 models. The data provide 19 attributes with information on the diversity models of automobiles among the 729 entries that were provided, which will be reviewed through the use of the Tableau software as a tool that allows us to analyze the data according to the requirements demanded by the company.

This process will help us to obtain assumptions and explain how this information can be useful for the car research company to find answers to the questions that were asked, such as "Find out which car manufacturer produces the most models" or "Find out what Automobile manufacturers have 4WD models (4-wheel drive = and 2WD (2-wheel drive), whose engine power is more than 3.5 ".

In addition, we can obtain relevant information to make assumptions about future events with the help of this tool, from stored data from different sources and display the information through the obtained graphs, showing as a result the data calculated through the processes of data manipulation. .

These assumptions can help the company improve and optimize its resources and processes, reduce operating costs and observe business opportunities for its benefit with the help of the various technologies that make up Big Data.

When we talk about Big Data, we will refer to data sets or combinations of these, whose volume, complexity and growth are very fast and difficult to capture, manage, process and analyze through traditional technologies and tools, such as the basics of relational data or visualization methods that last a long period of time in giving answers. The complexity of Big Data is due to the great diversity of existing data such as images, sounds, videos, among others; that come from several devices and applications of massive use and that its way of storing data is not structured.

Big data is very useful for many companies because it provides answers to many questions they did not know they had. In other words, it provides a point of reference with a large amount of information that can be analyzed to identify existing problems in a more understandable way. The collection of large amounts of data and the search for trends within them, allows companies to move more quickly without problems and effectively identifying new business opportunities and how to more intelligently manage their processes to obtain great benefits such as:

* Reduce costs: technologies like Hadoop provide a significant cost advantage when we try to store a large amount of data and manage it to identify more effective ways of doing business.
* Faster and better decision making: with the rapidity of Hadoop and memory analytics combined with the ability to analyze new data sources, companies can investigate more in depth the information immediately and make decisions based on what has been learned. .
* New products and services: with the ability to measure customer needs and their satisfaction through analysis, they can give customers what they want and need.

Big Data is into several areas and uses in the private and the public sectors, such as:

* Tourism: giving joy to customers is key to the industry, but customer satisfaction can be difficult to measure; For example, resorts and casinos only have a small opportunity to give a bad customer experience. With the Big Data analysis, these companies are offered the ability to collect data from clients, apply the respective analysis and identify immediate solutions to the possible problems they may face before they occur.
* Medical care: patient registration, health plans, claims and other information may be difficult to administer, but they are full of key data that can be applied to the analysis giving a diagnosis or treatment options almost immediately. they can help to prevent or counteract future diseases as well as to see the progress of them in patients.
* Manufacturing companies: these can deploy sensors among their products to receive data directly from customers. Sometimes they are used to offer communication, security and navigation services, discovering usage patterns, failure rates and other opportunities to improve products / services and reduce development costs.

To help the car research company, it was possible to use the Tableau tool to analyze the information provided and answer the questions asked about fuel economy between the different car manufacturers.

First, the given data set was imported into the program as an Excel document where all the contained data and the attributes that belonged were viewed; then a worksheet was created for each question where all the data of the Excel document divided into the dimensions and measures fields were available, with this information the questions were solved using the fields and calculation functions necessary for the development of each one.

The representation of the result of each question was through a graph chosen to represent in the best way, the values ​​obtained from the analysis with the help of the tool and that the end user could achieve an understanding of its meaning.

The graphic result obtained in the assignment 1 of each one of the questions, allows us to see clearly that with the help of Big Data we can obtain faster answers for the decision making within the investigation; and with a deeper analysis of this data set, we can determine which are the most effective car models in fuel consumption or what are the characteristics that allow to reduce the costs of the same in a faster way.

We can also obtain other information based on these data such as the emission of CO2 emitted by each car model or which is the manufacturer that produces the most polluting models in the market.

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