World of Business Analytics

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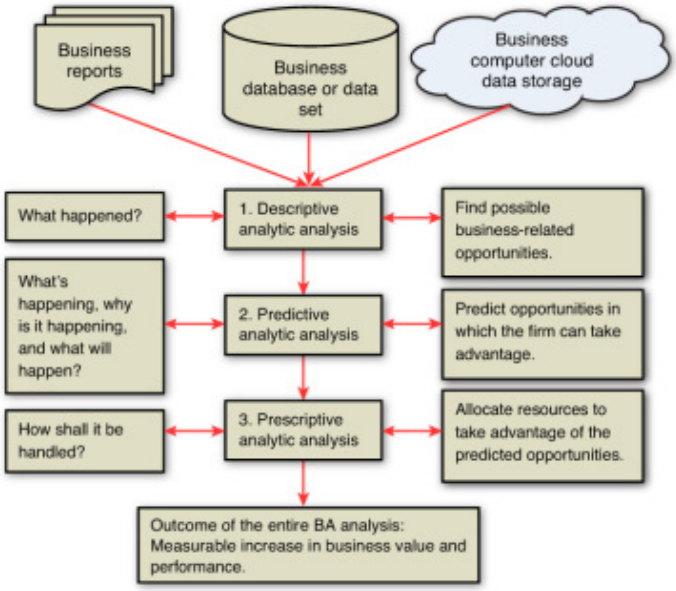
Abstract:Business analytics begins with a *data set* (a simple collection of data or a data file)or commonly with a *database* (a collection of data files that contain information onpeople, locations, and so on). As databases grow, they need to be stored somewhere.Technologies such as *computer clouds* (hardware and software used for data remote storage, retrieval, and computational functions) and *data warehousing* (a collection of databases used for reporting and data analysis) store data. Database storage areas have become so large that a new term was devised to describe them. *Big data* describesthe collection of data sets that are so large and complex that software systems arehardly able to process them.Little data describes thesmaller data segments or files that help individual businesses keep track of customers.As a means of sorting through data to find useful information, the application ofanalytics has found new purpose.

Keywords: Analytics, Big Data, Data Mining, Text Mining

1 INTRODUCTION

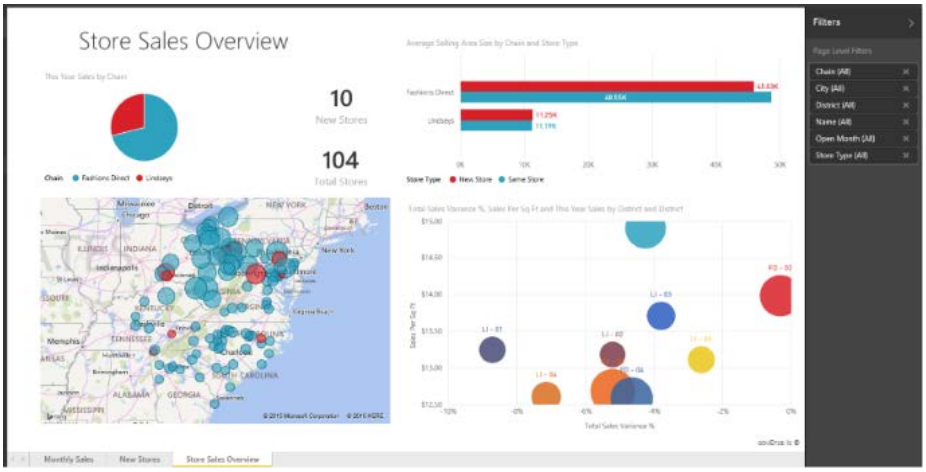
Business Analytics refers to skills,technologies,applications and practices for continuous iterative exploration and investigation of past business performance and to gain insight and drive business planning.Business analytics focuses on developing new insights and understanding of business performance based on data and statistical methods.Some aspects to emphasize on this definition are that the focus of Business Analytics is to develop new insights based on data and statistical methods and it is a continuous and iterative exercise.We no longer live in an era where decisions can be made on gut instinct alone.The world is far more connected and complicated than we think at times!For example, Amazon uses Business Analytics to come out with next purchase recommendation for each and every customer on the basis of the behavior shown by him in the past. Have you ever wondered how social networking sites like Facebook and Linkedin can suggest you friends in real time? How can Google use its search query data to identify areas under pandemic influence? Business Analytics provides cheap computational power, cheap storage and increased data generation and presence of sensors. All of these applications are driven by engine of Business Analytics in the background! Business Analytics helps in being competitive in this fast moving world.

2 PROCESS



2.1 Reporting

The domain of Analytics starts from answering a simple question – What happened? This activity is basically known as reporting. It is a snapshot of what has happened. Majority of elementary reporting happens on MS Excel across the globe.



2.2 Detective Analysis

Detective analysis starts where reporting ends. In this you start looking for reasons for unexpected changes. In order to find these, we look into the past trends.This is basically backward looking. This helps in preparing business plans. It requires structured thinking.

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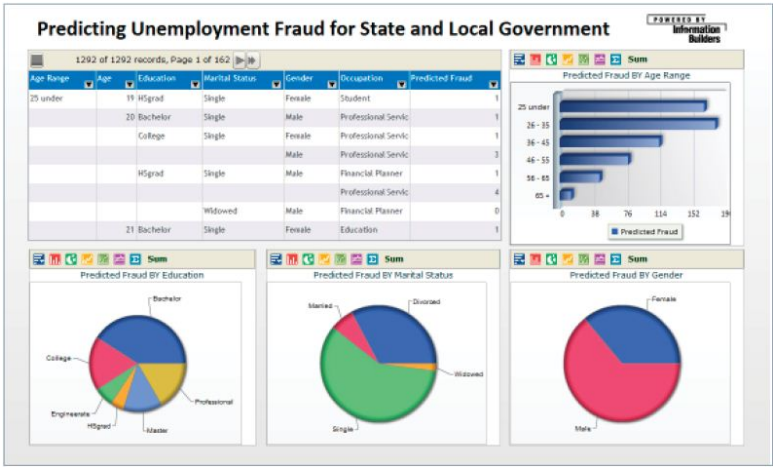
2.3 Predictive Analysis

Here we take all the historical trends and information and apply it to predict the future. You try and predict and customer behavior based on past information. It requires strong structured thinking and problem solving.



2.4 Big Data

Imagine applying predictive modeling with a microscope in hand. What if you can store, analyze and make sense out of every information about every customer. Not only this, any analysis you perform would be at customer level and hence you can roll out highly relevant personalized information quickly. What kind of social media community is your customer attached to? What kind of searches is he performing? Big data problems arise when data has grown on all three Vs(Volume, Velocity and Variety). You need data scientists to mine this data. This is a very dynamic domain right now. It requires strong structured thinking, programming skills and ability to work with unstructured data.

3 IMPORTANCE IN INDUSTRY

3.1 Data Mining

Create models by uncovering previously unknown trends and patterns in vast amounts of data e.g. detect insurance claims frauds, Retail Market basket analysis. Today's statistics applications involve enormous data sets: many cases (rows of a data spreadsheet, with a row representing the information on a studied case) and many variables (columns of the spreadsheet, with a column representing the outcomes on a certain characteristics across the studied cases). A case may be a certain item such as a purchase transaction, or a subject such as a customer or a country, or an object such as a car or a manufactured product. Here are a few types of data sets that one encounters in data mining. In marketing applications, we observe the purchase decisions, made over many timeperiods, of thousands of individuals who select among several products under a variety of price and advertising conditions. Social network data contains information on the presence of links among thousands or millions of subjects; in addition, such data contains demographic characteristics of the subjects (such as gender, age, income, race and education) that may have an effect on whether subjects are "linked" or not.

Data mining attempts to extract useful information from such large data sets. Data mining explores and analyzes large quantities of data in order to discover meaningful patterns. The scale of a typical data mining application, with its large number of cases and many variables, exceeds that of a standard statistical investigation. The analysis of millions of cases and thousands of variables also puts pressure on the speed that is needed to accomplish the search and modeling steps of a typical data mining application. Data mining uses a combination of pattern-recognition rules, statistical rules, as well as rules drawn from machine learning (an area of computer science). Data mining has wide applicability, with applications in intelligence and security analysis, genetics, the social and natural sciences, and business. Many data mining problems deal with categorical outcome data (e.g. no/yes outcomes), and this is what makes machine learning methods, which have their origins in the analysis of categorical data, so useful.

3.2 Text Mining

Text mining can be broadly defined as a knowledge-intensive process in which a userinteracts with a document collection over time by using a suite of analysis tools. In a manner analogous to data mining, text mining seeks to extract useful information from data sources through the identification and exploration of interesting patterns. In the case of text mining, however, the data sources are document collections, and interesting patterns are found not among formalized database records but in the unstructured textual data in the documents in these collections. Certainly, text mining derives much of its inspiration and direction from seminal research on data mining. Therefore, it is not surprising to find that text mining and data mining systems evince many high-level architectural similarities. For instance, both types of systems rely on preprocessing routines, pattern-discovery algorithms, and presentation-layer elements such as visualization tools to enhance the browsing of answer sets. Further, text mining adopts many of the specific types of patterns in its core knowledge discovery operations that were first introduced and vetted in data mining research.

3.3 Forecasting

Analyze and forecast processes that take place over the period of time e.g. predict seasonal energy demand using historical trends, Predict how many ice creams cones are required considering demand.

3.4 Optimization

Use of simulations techniques to identify scenarios which will produce best results e.g. Customer churn and retention, Predicting failure in shop floor machinery.

3.5 Visualization

Enhanced exploratory data analysis and output of modeling results with highly interactive statistical graphics.

4 ISSUES WITH 'ANALYTICS'

Analytics can be used to serve a variety of business purposes, but the stereotype of the term involves back-office quantitative analysis that may lack sufficient orientation to business objectives. If a popular view of business intelligence is that it yields reports and scorecards that are commonly used by senior executives, analytics is sometimes viewed as being used by hard-core "quants" who have difficulty explaining their techniques to non-quantitative managers.Part of the problem in this view of analytics is that the quantitative approaches are insufficiently linked to decision-making. When there is no clear process forproceeding from analysis to decisions, many dysfunctional behaviors emerge.

5 CONCLUSION

We live in a world in which many amazing feats of data manipulation and algorithmic transformation are possible. The name for these activities might as well reflect their power and potential. "Business analytics" seems the term with the best fit, at least for the moment.

6 REFERENCE

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