UNIT I INTRODUCTION TO BUSINESS ANALYTICS (BA)

Business Analytics - Terminologies, Process, Importance, Relationship with Organisational Decision Making, BA for Competitive Advantage.

Business Analytics – Introduction

Business analytics is one of the most growing fields in the modern era. Due to the deadly combination of statistics and computer science, the scope of business analytics has been growing wider and wider. This evolution of business analytics has resulted in various kinds of career opportunities. That's why it is very important to understand the meaning and the importance of business analytics

.Business analytics refers to the processes, tools, and techniques used to gain valuable insight and improve business decisions using data analysis. It involves examining past and current data to find trends, patterns, and opportunities that can influence strategic planning and performance improvements across all levels of an organization.

Business analytics is about transforming numbers and facts into plans that create progress. It enables turning raw data into actionable information so that organizations can take advantage. Common areas in which it provides valuable perspective include operations, budgeting, management, sales, logistics, and more.

Definition

As per a popular definition from authors Michael J Beller and Alan Barnett, "Business analytics refers to the skills, technologies, and practices for continuous iterative exploration and investigation of past business performance to gain insight and drive business planning".

Meaning

Business Analytics is the process of collecting, organizing, analyzing, and interpreting data to gain insights that can be used to make informed business decisions.

Components of Business Analytics

Modern-world business strategies are centered around data. Business Analytics, Machine Learning, Artificial Intelligence, Data Science, etc. are used to arrive at solutions for complex and specific business problems. Even though all of these have various components, the core components still remain similar. The following are the core components of Business Analytics:

Data Storage– The data is stored by the computers in a way that it can be further used in the future. The processing of this data using storage devices is known as data storage. Object storage, Block Storage, etc. are some of the storage products and services.

Data Visualization– It is the process of graphically representing the information or insights drawn through the analysis of data. Data visualization makes the communication of outputs to management easier in simple terms.

Insights– Insights are the outputs and inferences drawn from the analysis of data by implementing business analytics techniques and tools.

Data Security– One of the most important components of Business Analytics is Data Security. It involves monitoring and identifying malicious activities in the security networks. Real-time data and predictive modeling techniques are used to identify vulnerabilities in the system

Types of Business Analytics

There are various types of Business Analytics that are performed on a daily basis across many companies. Let's understand each one of them in this section.

1. Descriptive Analytics

Whenever we are trying to answer questions such as "what were the sales figures last year" or :what has occurred before", we are basically doing descriptive analysis. In descriptive analysis, we describe or summarize the past data and transform it into easily comprehensible forms, such as charts or graphs.

2. Predictive Analytics

Predictive analytics is exactly what it sounds like. It is that side of business analytics where predictions about a future event are made. An example of predictive analytics is calculating the expected sales figures for the upcoming fiscal year. Predictive analytics is majorly used to set up expectations and follow proper processes and measures to meet those expectations.

3. Prescriptive Analytics

In the case of prescriptive analytics, we make use of simulation, data modeling, and optimization of algorithms to find answers to questions such as "what needs to be done". This is used to provide solutions and identify the potential results of those solutions. This field of business analytics has recently surfaced and is on heavy rise since it gives multiple solutions, with their possible effectiveness, to the problems faced by businesses. Let's say Plan A fails or there aren't enough resources to execute it, then there is still Plan B, Plan C, etc., in hand.

4. Diagnostic Analytics

Diagnostic analytics involves analyzing past business performance to identify the causes of certain outcomes. It helps businesses understand what has happened in the organization and why. Diagnostic analytics uses different techniques like data mining and statistical analysis to dig deeper into historical data and gain useful insights. Some common applications of diagnostic analytics include identifying factors that influence customer churn, determining reasons for project delays or budget overruns, and finding causes that impact product quality and customer satisfaction levels.

Business Analytics Process

Just like any other thing in business, there is a process involved in business analytics as well. Business analytics needs to be systematic, organized, and include step-by-step actions to have the most optimized result at the end with the least amount of discrepancies.

Business Problem Framing:

In this step, we basically find out what business problem we are trying to solve, e.g., when we are looking to find out why the supply chain isn't as effective as it should be or why we are losing sales. This discussion generally happens with stakeholders when they realize inefficiency in any part of the business.

Analytics Problem Framing:
Once we have the problem statement, what we need to think of next is how analytics can be done for that business analytics problem. Here, we look for metrics and specific points that we need to analyze.

Data:
The moment we identify the problem in terms of what needs to be analyzed, the next thing that we need is data, which needs to be analyzed. In this step, not only do we obtain data from various data sources but we also clean the data; if the raw data is corrupted or has false values, we remove those problems and convert the data into usable form.

Methodology selection and model building:
Once the data gets ready, the tricky part begins. At this stage, we need to determine what methods have to be used and what metrics are the crucial ones. If required, the team has to build custom models to find out the specific methods that are suited to respective operations. Many times, the kind of data we possess also dictates the methodology that can be used to do business analytics. Most organizations make multiple models and compare them based on the decided-upon crucial metrics.

Deployment:
Post the selection of the model and the statistical ways of analyzing data for the solution, the next thing we need to do is to test the solution in a real-time scenario. For that, we deploy the models on the data and look for different kinds of insights. Based on the metrics and data highlights, we need to decide the optimum strategy to solve our problem and implement a solution effectively. Even in this phase of business analytics, we will compare the expected output with the real-time output. Later, based on this, we will decide if there is a need to reiterate and modify the solution or if we can go on with the implementation of the same.