Business Intelligence

Definition

- Business intelligence (BI) combines business analytics, data mining, data visualization, data tools and infrastructure, and best practices to help organizations to make more data-driven decisions.
- Modern BI solutions prioritize flexible self-service analysis, governed data on trusted platforms, empowered business users, and speed to insight.

Factors driving BI

- Real-time analysis
- Data security and access management
- Data collection from many sources and systems
- Possibility to share created reports and insights
- Ad-hoc analytics for self-serving users
- Predictive analytics
- Intuitive and clear user interface, requiring no training
- Use of mobile devices
- Data mining options

Real time analysis

- In real-time BI applications, data is analyzed as it's created, collected and processed to give users an up-to-date view of business operations, customer behavior, financial markets and other areas of interest.
- The real-time analytics process often involves streaming data and supports decision analytics uses, such as credit scoring, stock trading and targeted promotional offers.

Ad hoc analysis

- Ad hoc querying - this is one of the foundational elements of modern BI applications and a key feature of self-service BI tools.
- It's the process of writing and running queries to analyze specific business issues. While ad hoc queries are typically created on the fly, they often end up being run regularly, with the analytics results incorporated into dashboards and reports.

Mobile business intelligence

- Mobile business intelligence makes BI applications and dashboards available on smartphones and tablets.
- Often used more to view data than to analyze it, mobile BI tools typically are designed with an emphasis on ease of use.
- For example, mobile dashboards may only display two or three data visualizations and KPIs so they can easily be viewed on a device's screen.

BI and related techniques

- OLAP
- Data Visualization
- Data Mining
- Reporting
- Analytics
- Multi cloud
- ETL
- Statistical Analysis

OLAP

- Online Analytical Processing (OLAP) is an important business intelligence technique, that is used to solve analytical problems with different dimensions. A major benefit of using OLAP is that its multi-dimensional nature provides leniency for users to look at data issues from different views. By doing so, they can even identify hidden problems in the process.
- OLAP is mainly used to complete tasks like budgeting, CRM data analysis, and financial forecasting.

Data Visualization

- Data is often stored in form of numbers that are put together as a matrix. But interpreting the matrix to make business decisions is a critical task.
- Data visualizations help professionals look at data from more than one dimension and help them make informed decisions. Therefore, visualization of data in charts is an easy and convenient way to understand.

Data Mining

- Data mining is the process of analysing large quantities of data to discover meaningful patterns and rules by automatic or semi-automatic means.
- In a corporate data warehouse, the amount of data stored is very huge. Finding the actual data that could drive business decisions is quite critical. Therefore, analysts use data mining techniques to unravel the hidden patterns and relationships in data.
- Knowledge discovery in databases is the whole process of using the database along with any required selection, processing, sub-sampling, choosing the proper way for data transformation.

Reporting

- Reporting in business intelligence represents the whole process of designing, scheduling, generating the performance, sales, reconciliation, and saving the content.
- It helps companies to effectively gather and present information to stand by the management, planning, and decision-making process.
- Business leaders get to view the reports at daily, weekly, or monthly intervals as per their needs.

Analytics

- Analytics in Business Intelligence defines the study of data to extract effective decisions and figure out the trends. Many business perspectives, from marketing to call centers to use analytics in different forms.
- For example, call centers leverage speech analytics to monitor customer sentiments and improve the way answers are presented.

Multi_Cloud

- Companies across the globe started moving their routine working into cloud modes. The rise of cloud technology has greatly impacted many businesses. However, even after the restrictions are lifted, companies still prefer to work over the cloud because of its lenient accessibility and easy-to-use attributes.
- Moving a step forward, even Research & Development initiatives are being moved to the cloud, thanks to its cost-saving and easy-to-use nature.

ETL

- Extraction-Transaction-Loading (ETL) is a unique business intelligence technique that takes care of the overall data processing routine.
- It extracts data from storage, transforms it into the processor, and loads it into the business intelligence system. They are mainly used as a transaction tool that transforms data from various sources to data warehouses.
- ETL also moderates the data to address the need of the company. It improves the quality level by loading it into the end targets such as databases or data warehouses.

Statistical Analysis

- Statistical analysis uses mathematical techniques to create the significance and reliability of observed relations. It also grasps the change of behaviour in people that are visible in data with its distribution analysis and confidence intervals.
- Post data mining, analysts carry out statistical analysis to devise and get effective answers

Obstacles to BI

- Lack of BI Strategy
- Business Intelligence when you don’t know how to code
- Lack of Training & Execution
- Lack of BI impact (Low utilization)
- Business Intelligence with unstructured data
- Installation and Deployment

Lack of BI Strategy

- Organizations should proactively define the problems they trying to solve. Only then they will be able to identify the right Business Intelligence solution that will suit their requirements. This is because once BI is implemented, executives should know the pros and cons of the solution they are using and how the solution could add value to them. Hence devising a strategy before adopting a solution is very important as confusion may lead to the failure of the adoption.
- A good practice would be to go for assessment and review the existing business processes. This will help to gather critical requirements necessary for laying out a proper roadmap and devise overall Business Intelligence and Data Management strategy. This should be followed by a Proof of Concept (PoC) to validate the solution and create a business case.

Business Intelligence when you don’t know how to code

- Executives find it difficult to access the right data at right time. And even if they do find what they’re looking for, data formats are typically so complex and unstructured it’s hard to find out meaningful and relevant data. If they are using Excel extensively, they probably would not get much satisfaction (or value) from their BI system.
- A good practice would be to replace Excel Sheets with intuitive dashboards to make data more engaging, meaningful and eventually very powerful. Hence for this a BI Solution should provide the ability to create advanced filters and calculations all without coding.
- A self-service business intelligence solution enables executives to create customized reports in no time with little involvement of IT once the entire solution is implemented.

Lack of Training & Execution

- Many a times, companies might have well-articulated requirements, a sound BI strategy, and a good tool solution, but lack technical skills like designing, building, maintaining, and supporting BI applications. This results in BI applications to run slowly, break frequently, deliver uncertain results and eventually leading to rising cost of using the BI solution. The causes of lack of execution often are multiple and varied, as are its remedies.
- Organizations should more focus on helping to understand their resources why is a BI solution needed and the benefits of a BI Solution as well. Resources should be in line with the executives on the gains that they can get by the use of their newly adopted BI Technology. Organizations should spend wisely on providing ongoing training, so that users understand how to use the system.

Lack of BI impact (Low utilization)

- Management might always wonder why there is no change in business results attributable to BI and might feel that business value of BI investments not captured. This indicates that the organization is not utilizing the BI solution at par with global standards and best practices. This is because executives are unclear on how their company could benefit from BI.
- Management may not be able to use information in the system and even may not be aware that it even exist. As a result, they are not satisfied with what investments in BI have yielded the organization, and therefore are reluctant to approve any additional funding for BI. They might even pull the funding, and spend that budget somewhere else.
- What should matter to executive is how they use data and how accessible the data is in order to do something with it. It's time for business intelligence implementations to stop relying on dull, uninspired pivot tables and spreadsheets and start presenting data in compelling visuals that are easy to understand and loaded with insight.
- In such case, Executives and the BI Solution they are using to stop relying on spread sheets and start using actual BI to present the data intuitively.

Business Intelligence with unstructured data

- Most of the times data is unstructured for BI to analyze. This lead to a problem when users need to perform simple BI Processes. Businesses may invest in big data analytics but cannot complete the tasks in time. They may result to people spending hours on cleaning and structuring the data first and then using the BI solution.
- A BI solution which could be loaded with automatic ETL capabilities to process data sets that need to be restructured will be a real solution here. This will enable users to create a single source as well as a front-end with data visualization capabilities. Ideally, the back-end of the solution would be able to manipulate the data for it to be analyzed in the front-end. Hence, the front-end will then allow users to visualize data in dashboards, reports and graphs.

Installation and Deployment

- A painful BI solution installation and deployment would be difficult to maintain. Even an unplanned & rushed deployment would be unsuccessful so often. Doing this may leave users void with time to understand the system and develop the skills using the solution effectively.
- Executives can take a step by step approach to implement a BI solution. They can make a list identifying business problems and rather than expecting to solve every business problem all at once, they can try to prioritize specific outcomes they want to achieve.
- They can solve the issues consecutively until they have incrementally solved all the problems on the list and then think of implementing a BI solution

BI in Contemporary organizations and BI capabilities.

- the key benefits that businesses can get from BI applications include the ability to:
- speed up and improve decision-making;
- optimize internal business processes;
- increase operational efficiency and productivity;
- spot business problems that need to be addressed;
- identify emerging business and market trends;
- develop stronger business strategies;
- drive higher sales and new revenues; and
- gain a competitive edge over rival companies.