Source : https://searchbusinessanalytics.techtarget.com/definition/business-intelligence-BI

Business Intelligence (BI)

Business intelligence (BI) is a technology-driven process for analysing data and presenting actionable information which helps executives, managers and other corporate end users make informed business decisions. BI encompasses a wide variety of tools, applications and methodologies that enable organizations to collect data from internal systems and external sources, prepare it for analysis, develop and run queries against that data and create reports, dashboards and data visualizations to make the analytical results available to corporate decision-makers, as well as operational workers.

Importance of business intelligence

Overall, the role of business intelligence is to improve all parts of a company by improving access to the firm's data and then using that data to increase profitability. Companies that employ BI practices can translate their collected data into insights of their business processes. The insights can then be used to create strategic business decisions that improve productivity, increase revenue and accelerate growth.

Other potential benefits of business intelligence tools include:

- accelerating and improving decision-making;
- optimizing internal business processes;
- increasing operational efficiency;
- driving new revenues;
- gaining competitive advantage over business rivals;
- assisting companies in the identification of market trends; and
- spotting business problems that need to be addressed.

BI data can include historical information stored in a data warehouse, as well as new data gathered from source systems as it is generated, enabling BI tools to support both strategic and tactical decision-making processes.

Initially, BI tools were primarily used by data analysts and other IT professionals who ran analyses and produced reports with query results for business users. Increasingly, however, business executives and workers are using business intelligence platforms themselves, thanks partly to the development of self-service BI and data discovery tools and dashboards. The BI market is expected to experience continuous growth as tools increasingly incorporates both artificial intelligence (AI) and machine learning (ML).

Types of business intelligence tools

Business intelligence combines a broad set of data analysis applications, including:

- Ad hoc analytics
- Online analytical processing (OLAP)
- Mobile BI
- Real time BI
- Operational BI
- Software-as-a-service BI (SaaS BI)
- Open source BI (OSBI)
- Collaborative BI

- Location intelligence (LI)

In addition, BI technology includes:

- data visualization software for designing charts and other infographics;
- key performance indicators in an easy-to-grasp way; and
- tools for building BI dashboards and performance scorecards that display visualized data on business metrics.

Data visualization tools have become the standard of modern BI in recent years. A couple leading vendors defined the technology early on, but more traditional BI vendors have followed in their path. Now, virtually every major BI tool incorporates features of visual data discovery.

BI programs typically incorporate forms of advanced analytics, such as data mining, predictive analytics, text mining, statistical analysis and big data analytics. In many cases, though, advanced analytics projects are conducted and managed by separate teams of data scientists, statisticians, predictive modelers and other skilled analytics professionals, while BI teams oversee more straightforward querying and analysis of business data.

Business intelligence data is typically stored in a data warehouse or in smaller data marts that hold subsets of a company's information. In addition, Hadoop systems are used within BI architectures as repositories or landing pads for BI and analytics data; especially for unstructured data, log files, sensor data and other types of big data.

Before it is used in BI applications, raw data from different source systems must be integrated, consolidated and cleansed using data integration and data quality tools to ensure that users are analysing accurate and consistent information.

Business intelligence for big data

BI platforms are increasingly being used as front-end interfaces for big data systems. Modern BI software typically offers flexible back ends, enabling them to connect to a range of data sources. This, along with simple user interfaces (UI), makes the tools a good fit for big data architectures. Users can connect to a range of data sources, including Hadoop systems, NoSQL databases, cloud platforms and more conventional data warehouses, and can develop a unified view of their diverse data.

Because the tools are typically fairly simple, using BI as a big data front end enables a broad number of potential users to get involved rather than the typical approach of highly specialized data architects being the only ones with visibility into data.

Business intelligence trends

In addition to BI managers, business intelligence teams generally include a mix of BI architects, BI developers, business analysts and data management professionals. Business users are also often included to represent the business side and make sure its needs are met in the BI development process.

To help with that, a growing number of organizations are replacing traditional waterfall development with Agile BI and data warehousing approaches that use Agile software development techniques to break up BI projects into small chunks and deliver new functionality to business analysts on an incremental and iterative basis. Doing so can enable companies to put BI features into use more quickly and to refine or modify development plans as business needs change or as new requirements emerge and take priority over earlier ones.

Business intelligence vs. data analytics

Sporadic use of the term business intelligence dates back to at least the 1860s, but consultant Howard Dresner is credited with first proposing it in 1989 as an umbrella phrase for applying data analysis techniques to support business decision-making processes. What came to be known as BI tools evolved from earlier, often mainframe-based analytical systems, such as decision support systems and executive information systems.

Business intelligence is sometimes used interchangeably with business analytics. In other cases, business analytics is used either more narrowly to refer to advanced data analytics or more broadly to include both BI and advanced analytics.