

# TRACING BACK THE STEPS OF BI EVOLUTION

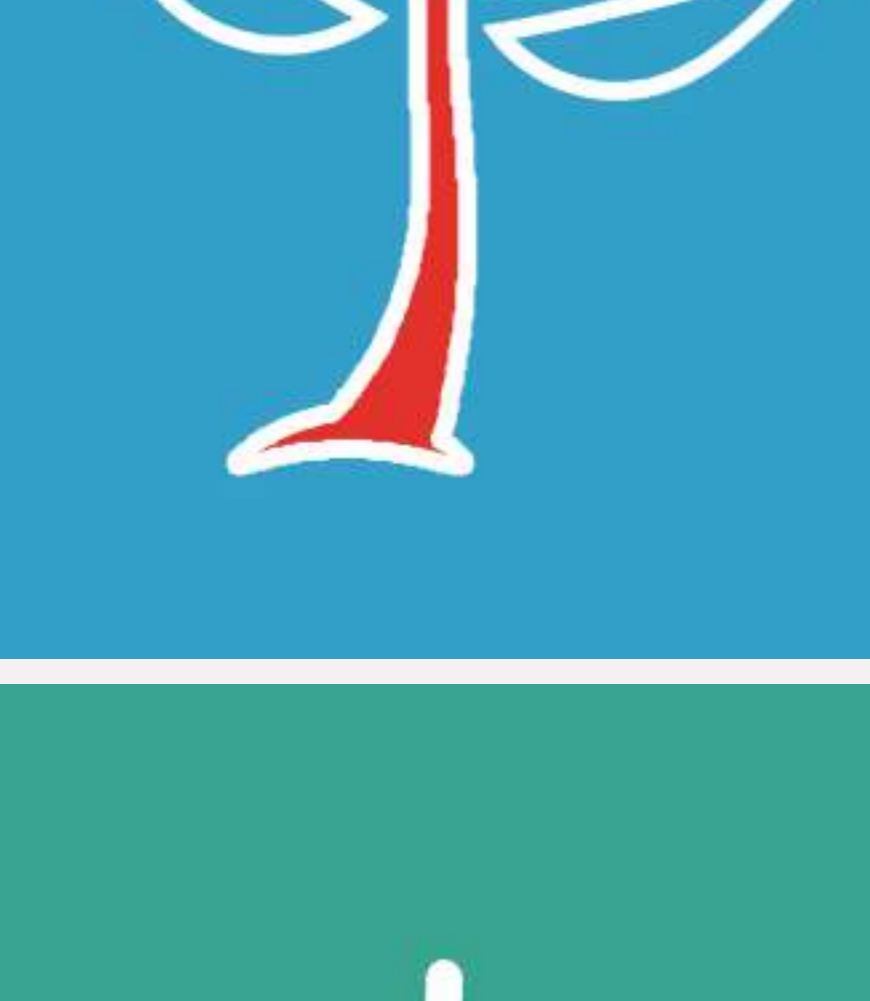
The journey from data to actionable insights



## The Origin...

The term was first coined in 1865.

**Trivia:** English politician and financier Sir Henry Furness was quite skilful in gathering information from across Europe about financial markets and political situations, to remain ahead of his competition. His antics to get hold of such information was described as BI in the book "Cyclopedia of Commercial and Business Anecdotes" by Richard Miller Devens.



## Evolution of Definition

**First ever definition of BI:** The process of gathering information for succeeding in business.

**Present day definition:** A set of methodologies, processes, architectures, and technologies that transform raw data into meaningful and useful information which enables more effective strategic, tactical, and operational insights and decision-making.



## Looking Inside The 'Intelligent' Matter

Comprising myriads of functions – some common, some customised to business needs, BI is the Pandora box of multiple technology functions coming together to provide an enhanced data experience.



## A Lowdown on Some Terminologies

**Data Discovery:** A term used to describe the act of discovering opportunities that are hidden in the data held in company business systems.

**Data Mining:** The process of analysing large batches of data to find patterns and instances of statistical significance.

**Data Warehouse:** A large store of data accumulated from a wide range of sources within a company and used to guide management decisions.

**Data Mart:** A subset or access layer of a data warehouse that is used to provide users with data.

**Dashboard:** A graphical summary of various pieces of important information, typically used to give an overview of a business.

**Data Lakes:** A storage repository that holds a vast amount of raw data in its native format until it is needed.

**ETL:** It stands for Extract, Transform and Load.

**'Extract'** function reads data from a specified source database and extracts a desired subset of data.

**'Transform'** function works with the acquired data – using rules or lookup tables or creating combinations with other data – to convert it to the desired state.

**'Load'** function is used to write the resulting data (either all the subset or just the changes) to a target database, which may or may not previously exist.

**OLAP:** Online Analytical Processing is computer processing that enables a user to easily and selectively extract and view data from different points of view.

**OLTP:** Online Transaction Processing is a class of software programs capable of supporting transaction-oriented applications on the internet.

**ODBC:** Open Database Connectivity is an open standard application programming interface (API) for accessing a database.

## Some Common Functions of BI

- ✔ Reporting
- ✔ Online Analytical Processing
- ✔ Analytics
- ✔ Data Mining
- ✔ Process Mining
- ✔ Complex Event Processing



- ✔ Business Performance Management
- ✔ Benchmarking
- ✔ Text Mining
- ✔ Predictive Analytics
- ✔ Prescriptive Analytics

## How It All Started...

1855

English social reformer and statistician, Florence Nightingale pioneered the use of applied statistics and created visual ways of displaying data around the cause of mortality in the army in the East.

Early 1900

Businesses continued collecting information about their business environment, market conditions, competitors etc. on papers.

Mid 1900

Computers came into existence in 1940s and IBM came up with first hard drive in 1956 – a new, though tedious-to-manage medium to store data.

1958

The Eureka Moment - Hans Peter Luhn, a computer scientist at IBM penned an article entitled, "A Business Intelligence System" wherein he described the aspects of BI potential. He was later termed as the Father of BI.

1970s

Leverage of database products got a major uplift with Scientist Edgar Codd publishing a paper on "Relational Database Model". The first database management system created was known as DSS, or Decision Support System.

1980s

Scientist Bill Inmon and author/ tech architect Ralph Kimbal brought in the age of structured data storage in the form of data warehouses. Foundational terminologies of BI, Extract, Transform, Load (ETL) and OLAP (Online Analytical Processing) took shape.

1989

The term 'business intelligence' or 'BI' was devised by industry analyst Howard Dresner in 1989.

1990s

This was an era of lessening complexity and complete reliance on IT for BI operations. Attempts were made to simplify the reporting and insights visualisation process.

Early 2000

This was an era of competitive and exponential upgrades and hence, of BI 2.0. Real-time data processing for insight generation and provision of data access was expanded beyond IT purview. The shift from IT-led to IT-enabled started taking shape.

2005 - Now

With big data getting bigger and bigger, emergence of cloud applications managed the complexity which would have otherwise impaired BI functionalities. Journey towards realising a self-service model for BI is now in progress.

Data Engineers are working for improving the elements of contextual insights – embedded, suggestive BI, and cognitive computing; actionable insights, and establishing a continuous feedback loop for improvement.

## A Look at The Burgeoning BI Impact

- Better planning for targeted marketing campaigns
- Impact analysis of existing campaigns
- Improved trial configuration facilitating innovation
- Easy spotting of bottlenecks
- Regular insights into changing consumer preferences
- Better operational efficiency
- An edge over competition
- Revenue enhancement with strategic insights
- Real-time intelligence for informed decision-making



The list is long and will be varied for the industry segment, scope, etc.

## Market Predictions

**Self-Service Analytics and BI users** will produce more analysis than data scientists will, by 2019. <sup>1</sup>

75% of prebuilt reports will be replaced with or augmented by automated insights delivered on a 'most needed' basis by the year 2021. <sup>2</sup>

Global Business Intelligence (BI) market is expected to reach **\$29.48 billion** by 2022 with a CAGR of 11.1%. <sup>3</sup>

90% of business intelligence platforms will feature natural-language generation and artificial intelligence by 2020. <sup>4</sup>

Unstructured Data segment is expected to dominate the global business intelligence market with **higher CAGR** owing to increasing adoption of data analytics and growing market for IoT devices. <sup>5</sup>

The newest disruption in the market is **augmented analytics** (AA) driven by artificial intelligence (AI). <sup>5</sup>



The BI and analytics market is in the final stages of a multi-year shift from IT-led, system-of-record reporting to business-led, self-service analytics. As a result, the modern business intelligence and analytics (BI&A) platform has emerged to meet new organizational requirements for accessibility, agility and deeper analytical insight. <sup>6</sup>

## The Drivers of Change

- Collaborative / Cooperative BI
- Establishment of Data-Driven Culture
- Embedded Analytics in BI
- Predictive Analytics BI
- Cloud BI

## The Future Kaleidoscope

The next level is all about **democratizing BI** and making it **more accessible** and **simpler** to understand even for people with limited to no technical or statistical knowledge.

Enhancements in the **data quality** with the provision of bringing data together from **disparate applications** or data silos and compiling it in a usable system without affecting the validity of the **original source data**.

Advancements in **machine learning** and **data analysis** are enabling this process of creating **Self-Service Business Intelligence (SSBI)**.

**AI** will reduce the **interface-learning barrier** and provision more **open access** to technology and insights even by non-technical users.



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