Introduction to BI

A real-time enterprise without real-time business intelligence is a real fast, dumb organization.

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Business Intelligence - Definition

- **Business intelligence (BI) is** a set of theories, methodologies, processes, architectures, and technologies that transform raw data into meaningful and useful information for business purposes.
- It is a suite of software and services to transform data into actionable intelligence and knowledge.
- BI has a direct impact on organization's strategic, tactical and operational business decisions.
- BI supports fact-based decision making using historical data rather than assumptions and gut feeling.
- Business intelligence (BI) can add value to almost any business process, creating a comprehensive view and empowering teams to analyze their own data to find efficiencies and make better day-to-day decisions.
- Digital transformation is now seen as a key strategic initiative and business intelligence tools have evolved to help companies make the most of their data investments. The response is the rise of modern business intelligence platforms that support data access, interactivity, analysis, discovery, sharing, and governance.

Why BI is important?

- ✓ Measurement: creating KPI (Key Performance Indicators) based on historic data
- ✓ Identify and set benchmarks for varied processes.
- ✓ With BI systems organizations can identify market trends and spot business problems that need to be addressed.
- ✓ BI helps on data visualization that enhances the data quality and thereby the quality of decision making.
- ✓ BI systems can be used not just by enterprises but SME (Small and Medium Enterprises)

Business Intelligence- Main Purpose

The main purpose of Business Intelligence

is to help businesses to make better decisions.

Business Intelligence - Software

Business intelligence software are the tools that make it possible to create value from big data.

BI tools perform data analysis and create reports, summaries, dashboards, maps, graphs, and charts to provide users with detailed intelligence about the nature of the business.

Business Intelligence - Applications

The use of Business Intelligence will help to:

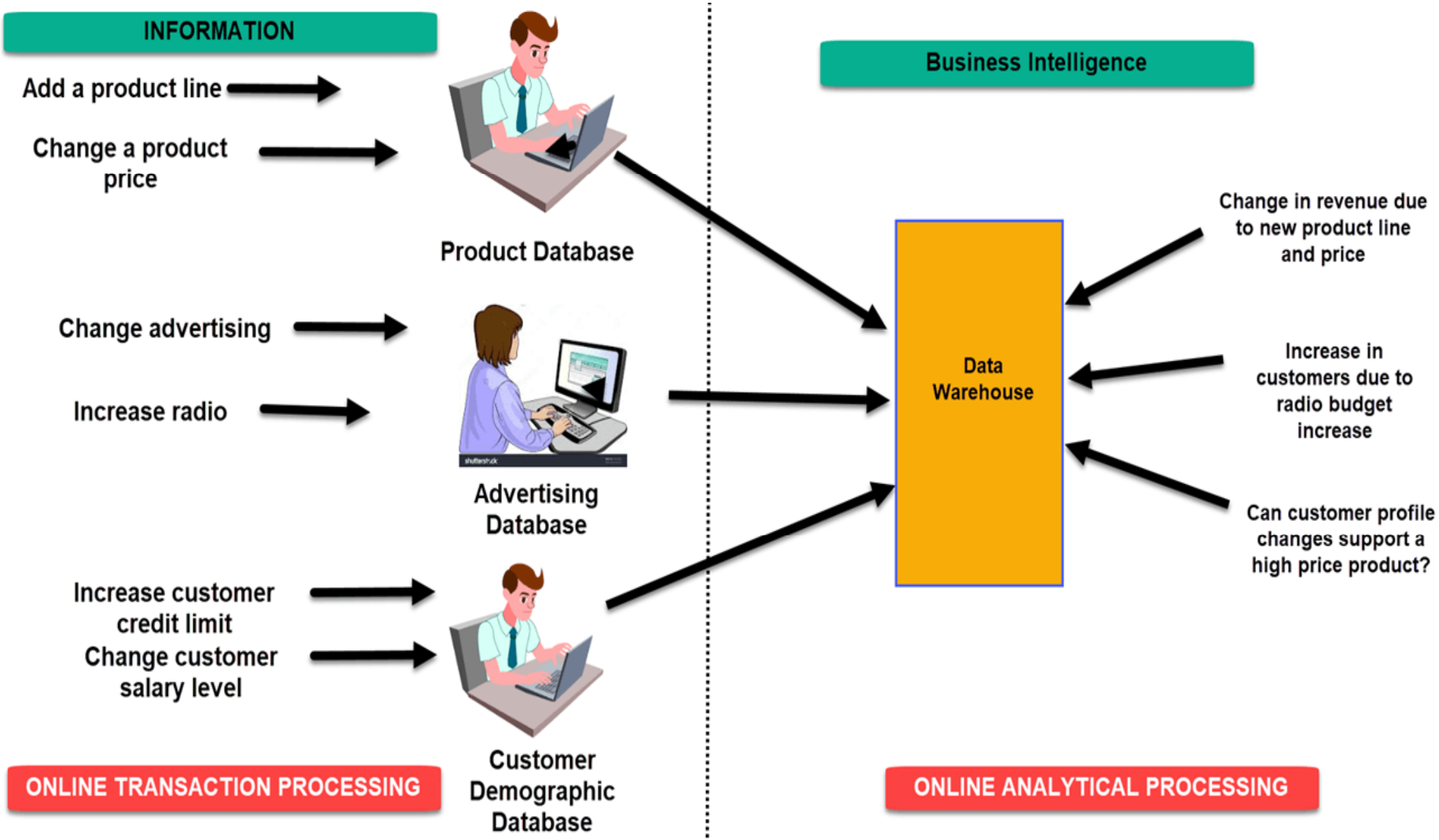
- ✓Improve the Decision-making Process
- ✓Uncover fresh business insights
- ✓Boost Productivity
- ✓Increase Performance

Business Intelligence Technologies- Examples

Some examples of business intelligence technologies include

- ✓ data warehouses,
- ✓ dashboards,
- ✓ ad hoc reporting,
- ✓ data discovery tools and
- ✓ cloud data services, etc...

Business Intelligence - Examples



Previous Slide BI Example Explained

In an Online Transaction Processing (OLTP) system information that could be fed into product database could be

✓add a product line

✓change a product price

Correspondingly, in a Business Intelligence system query that would be executed for the product subject area could be - **Did the addition of new product line or change in product price increase revenues?**

In an advertising database of OLTP system query that could be executed

✓Change in advertisement options

✓Increase radio budget

Correspondingly, in BI system query that could be executed would be - **How many new clients added due to change in radio budget?**

In OLTP system dealing with customer demographic data bases data that could be fed would be

✓increase customer credit limit

✓change in customer salary level

Correspondingly in the OLAP system query that **Could be executed would be can customer profile changes support support higher product price?**

Example 2

A hotel owner uses BI analytical applications to gather statistical information regarding average occupancy and room rate.

It helps to find aggregate revenue generated per room.

It also collects statistics on market share and data from customer surveys from each hotel to decide its competitive position in various markets.

By analyzing these trends year by year, month by month and day by day helps management to offer discounts on room rentals.

Example 3

- ✓ A bank gives branch managers access to BI applications.
- ✓ It helps branch manager to determine who are the most profitable customers and which customers they should work on.
- ✓ The use of BI tools frees information technology staff from the task of generating analytical reports for the departments.
- ✓ It also gives department personnel access to a richer data source.

Example 4

HelloFresh centralized digital marketing reporting to increase conversions
Company: HelloFresh
Problem: Digital marketing reporting was time-intensive, manual, and inefficient.
Solution: For meal kit company HelloFresh, a centralized business intelligence solution saved the marketing analytics team 10-20 working hours per day by automating reporting processes. It also empowered the larger marketing team to craft regional, individualized digital marketing campaigns.
Based on aggregate analyses of customer behavior, HelloFresh created three buyer personas to guide their efforts. Being able to see and track real-time data means the team can react to customer behaviors and optimize marketing campaigns. As a result, they saw increased conversion rates and improved customer retention.

Example 5

REI increased membership rates for co-op retailer
Company: REI
Problem: Difficulty tracking membership metrics with 90 terabytes of data.
Solution: In this example, Outdoor retail co-op REI uses a business intelligence platform to analyze their co-op membership. Co-op members contribute to REI's account for more than 90 percent of purchases with the retailer, so it is critical to track metrics like acquisition, retention, and reactivation. All of this information equates to over 90 terabytes of data. The ability to parse all of this data means that operations teams can determine whether to invest more in brick-and-mortar retail or digital experiences for their members.
This leads to greater customer satisfaction and positive associations with the brand.
"We've seen a complete turnaround in 2017 with new member acquisition," observed Clinton Fowler, Director of Customer and Advanced Analytics at REI. The team also uses their BI platform to analyze customer segmentation, which helps inform decisions like shipping methods, member lifecycle management, and product category assortments.

Example 6

Coca-Cola Bottling Company maximized operational efficiency

Company: Coca-Cola Bottling Company (CCBC), Coca Cola's largest independent bottling partner

Problem: Manual reporting processes restricted access to real-time sales and operations data.

Solution: Coca-Cola's business intelligence team handles reporting for all sales and delivery operations at the company. With their BI platform, the team automated manual reporting processes, saving over 260 hours a year—more than six 40-hour work weeks.

Report automation and other enterprise system integrations put customer relationship management (CRM) data back into the hands of sales teams in the field through mobile dashboards that provide timely, actionable information and a distinct competitive advantage.

A self-service BI implementation fosters more effective collaborations between IT and business users that maximize the expertise of participants. Analysts and IT can focus on big-picture strategy and long-term innovations such as enterprise data governance rather than manual research and reporting tasks.

Example 7

Chipotle created a unified view of restaurant operations
Company: Chipotle
Problem: Disparate data sources hindered teams from seeing a unified view of restaurants.
Solution: Chipotle Mexican Grill is an American restaurant chain with more than 2,400 locations worldwide. Chipotle retired their traditional BI solution for a modern, self-service BI platform. This allowed them to create a centralized view of operations so they can track restaurant operational effectiveness at a national scale.
Now that staff have more access to data, the speed of report delivery for strategic projects has tripled from quarterly to monthly and saved thousands of hours. “This was the ticket to take all metrics and understanding to that next level,” explained Zach Sippl, Director of Business Intelligence.

Example 8

Des Moines Public Schools identifies and helps at-risk students
Organization: Des Moines Public Schools
Problem: Manual Excel reporting meant administrators couldn't see up-to-date data like attendance, preventing timely intervention.
Solution: Des Moines Public Schools (DMPS) used advanced analytics to improve dropout intervention rates and better understand the impact of various teaching methods on individual student outcomes.
The DMPS Research and Data Management team used a multiple linear regression model—nicknamed the dropout coefficient—to weigh student indicators to predict which students might be at risk of dropping out of school. They used a business intelligence platform to leverage the model. Data visualization made it easy for staff to identify individual, at-risk students and get those students the attention they need. Dashboards set up by the Research and Data Management Team delivered real-time analytics to 7,000 DMPS teachers and staff so they could adapt and intervene sooner, dramatically improving the intervention success rates. The real-time analytics were supported by five years of historical data. This meant that staff could dig into historical data on the spot to validate insights on current students.

Now is your time for a Business Intelligence revolution

- ✓Business intelligence (BI) is a way to reveal actionable insights in your data.
- ✓If you keep a sales spreadsheet and do forecasts, you're already practicing BI on a limited scale.
- ✓If you ever wonder about the "why" behind your spreadsheets, you need BI to help you understand the drivers powering the numbers you see.
- ✓And if you need BI, you need a modern solution that enables you to generate expertly authored, stunning reports; visualize results; and share those results.
- ✓You need to be able to ask questions of your data in plain language and get answers you can understand.

Source : https://www.ibm.com/in-en/analytics/business-intelligence Accessed on 20-01-2020

How Business Intelligence systems are implemented?

Here are the steps:

Step 1) Raw Data from corporate databases is extracted. The data could be spread across multiple systems heterogeneous systems.

Step 2) The data is cleaned and transformed into the data warehouse. The table can be linked, and data cubes are formed.

Step 3) Using BI system the user can ask queries, request ad-hoc reports or conduct any other analysis.

Business Intelligence Users

Four types of BI users

Following given are the four key players who are used Business Intelligence System:

1. The Professional Data Analyst:

The data analyst is a statistician who always needs to drill deep down into data. BI system helps them to get fresh insights to develop unique business strategies.

2. The IT users:

The IT user also plays a dominant role in maintaining the BI infrastructure.

3. The head of the company:

CEO or CXO can increase the profit of their business by improving operational efficiency in their business.

4. The Business Users:

Business intelligence users can be found from across the organization. There are mainly two types of business users

- **Casual business intelligence user**
- **The power user.**

The difference between both of them is that a power user has the capability of working with complex data sets, while the casual user need will make him use dashboards to evaluate predefined sets of data.

Advantages of BI

Here are some of the advantages of using Business Intelligence System:

1. Boost productivity

With a BI program, It is possible for businesses to create reports with a single click thus saves lots of time and resources. It also allows employees to be more productive on their tasks.

2. To improve visibility

BI also helps to improve the visibility of these processes and make it possible to identify any areas which need attention.

3. Fix Accountability

BI system assigns accountability in the organization as there must be someone who should own accountability and ownership for the organization's performance against its set goals.

4. It gives a bird's eye view:

BI system also helps organizations as decision makers get an overall bird's eye view through typical BI features like dashboards and scorecards.

5. It streamlines business processes:

BI takes out all complexity associated with business processes. It also automates analytics by offering predictive analysis, computer modeling, benchmarking and other methodologies.

6. It allows for easy analytics.

BI software has democratized its usage, allowing even nontechnical or non-analysts users to collect and process data quickly. This also allows putting the power of analytics from the hand's many people.

Disadvantages of BI

1. Cost:

Business intelligence can prove costly for small as well as for medium-sized enterprises. The use of such type of system may be expensive for routine business transactions.

2. Complexity:

Another drawback of BI is its complexity in implementation of dataware house. It can be so complex that it can make business techniques rigid to deal with.

3. Limited use

Like all improved technologies, BI was first established keeping in consideration the buying competence of rich firms. Therefore, BI system is yet not affordable for many small and medium size companies.

4. Time Consuming Implementation

It takes almost one and half year for data warehousing system to be completely implemented. Therefore, it is a time-consuming process.

Trends in BI

The following are some business intelligence and analytics trends that you should be aware of.

Artificial Intelligence: Gartner' report indicates that AI and machine learning now take on complex tasks done by human intelligence. This capability is being leveraged to come up with real-time data analysis and dashboard reporting.

Collaborative BI: BI software combined with collaboration tools, including social media, and other latest technologies enhance the working and sharing by teams for collaborative decision making.

Embedded BI: Embedded BI allows the integration of BI software or some of its features into another business application for enhancing and extending it's reporting functionality.

Cloud Analytics: BI applications will be soon offered in the cloud, and more businesses will be shifting to this technology. As per their predictions within a couple of years, the spending on cloud-based analytics will grow 4.5 times faster.

Summary

✓BI is a set of processes, architectures, and technologies that convert raw data into meaningful information that drives profitable business actions.

✓BI systems help businesses to identify market trends and spot business problems that need to be addressed.

✓BI technology can be used by Data analyst, IT people, business users and head of the company.

✓BI system helps organization to improve visibility, productivity and fix accountability