Unit 14
Business Intelligence

04 BI - BUSINESS PROCESSES

Databases in Business Intelligence

- Databases serve as the foundation for storing and organizing vast amounts of data collected by organizations.

- They play a crucial role in business intelligence by providing a centralized repository for data from various sources, enabling analysis and decision-making.

Types of Databases Commonly Used in Business Intelligence

- **Relational Databases**: Organize data into tables with rows and columns, linked by relationships. Examples include MySQL, Oracle, and SQL Server.

- **Data Warehouses**: Specialized databases designed for analysis and reporting. They consolidate data from multiple sources for easier access and analysis.

- **NoSQL Databases**: Designed to handle unstructured and semi-structured data. Examples include MongoDB, Cassandra, and Couchbase.

Data Governance Practices

- Establishing Data Ownership and Accountability.

- Implementing Data Policies and Procedures.

- Data Lifecycle Management.

- Cross-Functional Collaboration.
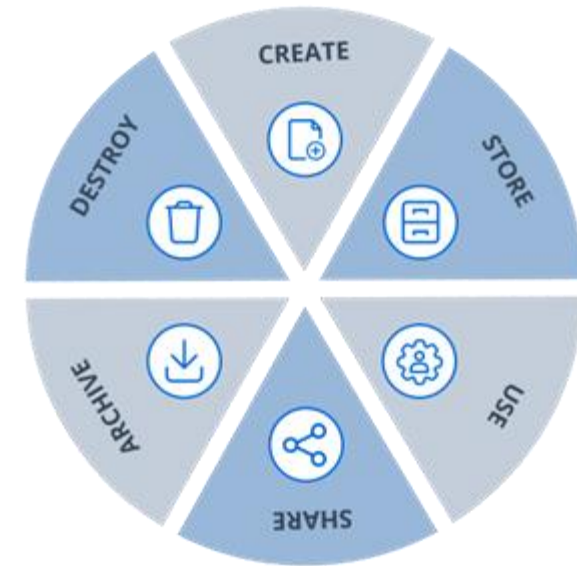
Data Lifecycle Management
Source: Netwrix Blog

Importance of Data Quality Assurance Processes

Key dimensions of data quality:

➢Accuracy.

➢Completeness.

➢Timeliness.

➢Consistency.

➢Reliability.

➢Relevance.

•Enhancing Decision-Making.

•Building Stakeholder Confidence.

•Mitigating Risks.

•Supporting Business Innovation.

Strategies for Ensuring Data Reliability in BI

- Implementing Robust Data Collection Methods.

- Data Validation and Verification.

- Establishing Data Quality Standards.

- Continuous Monitoring and Auditing.

- Regular Data Cleansing and Maintenance.

Applications Software used in Business Intelligence

1- **Reporting Tools:** Enable users to create, customize, and generate reports from various data sources. These tools often offer features for formatting, filtering, and scheduling reports for distribution. Examples include Microsoft Power BI and Tableau.

2- **Data Visualization Tools:** Data visualization tools convert raw data into interactive charts, graphs, and dashboards to facilitate data exploration and analysis. Examples include Tableau, Qlik Sense and Power BI.

3- **OLAP (Online Analytical Processing) Tools**: OLAP tools enable users to analyze multidimensional data sets, often referred to as cubes. Examples include Microsoft SQL Server Analysis Services and Oracle OLAP.

4- **Predictive Analytics Tools**: Predictive analytics tools use advanced algorithms and modelling techniques to analyze historical data and make predictions about future outcomes. These tools help businesses anticipate trends, identify risks, and optimize decision-making processes. Examples include Alteryx and RapidMiner.

OLAP

• Array-based multidimensional database (OLAP cube).

• Performing high-speed complex queries or multidimensional analysis on large volumes of data.

• Example: sales data

• Dimension:
  ➢ Location (region, country, state, store)
  ➢ Time (year, month, week, day)
  ➢ Product (brand, type)

https://www.youtube.com/watch?v=5GOjioIcs8g

Business Processes

- A structured series of activities or tasks that are carried out within an organization to achieve a specific goal or objective.

- These processes are designed to efficiently transform inputs (such as resources, information, or materials) into outputs (such as products, services, or decisions) that create value for customers or stakeholders.

- Provides a systematic framework for organizing, managing, and improving the way work is done within an organization.

- Efficient and well-designed business processes are essential for driving organizational success and competitiveness.

Business Processes Categories

Business Processes and Supporting Processes

Business processes are the core operational activities directly involved in creating value for customers, while **supporting processes** are the enabling functions that provide the necessary support and infrastructure to facilitate the execution of business processes. Both types of processes are essential for the overall functioning and success of an organization.

What is Supporting Processes?

Business supporting processes, also known as support processes, are the activities within an organization that are essential for its operation but are **not directly** involved in the production of goods or services. These processes provide the necessary support and infrastructure to ensure the smooth functioning of the core business operations. They typically include functions such as:

Human Resources (HR): Managing recruitment, training, performance evaluation, compensation, and employee relations.

Finance and Accounting: Handling financial transactions, budgeting, financial reporting, payroll, and managing financial resources.

Information Technology (IT): Providing technology infrastructure, support for hardware and software systems, cybersecurity, and data management.

Procurement and Supply Chain Management: Sourcing materials, negotiating contracts, managing suppliers, inventory management, and ensuring the timely delivery of goods and services.

Supporting Processes Levels

Supporting processes can be categorized into different levels based on their significance and impact on organizational operations.

➢ **Strategic Processes:** These processes are aligned with the **long-term goals** and objectives of the organization. They involve high-level decision-making and setting the direction for the entire organization. Examples include strategic planning, corporate governance, and business development.

➢ **Tactical Processes:** are concerned with implementing the strategies set by the organization's leadership. They involve **medium-term** planning and coordination to achieve specific objectives and goals. Examples include resource allocation, project management, and performance management.

➢ **Operational Processes:** are the **day-to-day** activities that are essential for the routine functioning of the organization. They are often **repetitive and standardized** to ensure efficiency and consistency in operations. Examples include procurement, inventory management, human resources administration, and IT support.