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# MSBI Tutorial for Beginners

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## MSBI Tutorial for Beginners

Microsoft Business Intelligence, or MSBI, allows us to organize and visualize multi-dimensional data. It turns the unprocessed data into insightful knowledge. Learn the fundamental concepts in this MSBI tutorial.

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## Introduction to MSBI

Microsoft Business Intelligence is referred to as MSBI. This program can load, extract, and transform many types of data. We cover the following in this MSBI tutorial:

- Overview of MSBI
- Architecture of MSBI
- Installation of MSBI
- SSIS
- SSAS
- SSRS
- Advantages of MSBI

## Overview of MSBI

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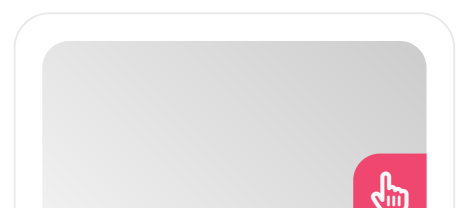
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Microsoft Business Intelligence, or MSBI, is a technology that assists businesses in deriving insights from data analysis. It is capable of

- **Data extraction, transformation, and loading** are all possible with MSBI, which enables data conversion into useful business intelligence.
- **Data organization and visualization:** Multi-dimensional data can be arranged and shown using MSBI.
- **Use Microsoft Excel:** MSBI can create reports and assist with data collection and analysis using Microsoft Excel.

MSBI is composed of three entities and is based on SQL Server and Microsoft Visual Studio data tools:

- SQL Server Integration Services, or SSIS
- SQL Server Analytical Services, or SSAS
- SQL Server Reporting Services, or SSRS

One of the most widely used tools for data mining and business intelligence (BI) is MSBI. The need for BI tools like MSBI will rise in tandem with the need for data transformation. Enroll in our [business intelligence and data analytics job seeker program](#) to kickstart a promising career.

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### Architecture of MSBI

The ETL tools (SSIS, SSRS, and SSAS), data warehouse, various formats of data, and other components make up the MSBI architecture. Some of its key terms are as follows:

- **Information and Data:** Information is the starting point for any study about events or transactions. Information is created when properly evaluated data is used with various business intelligence tools.
- **Database:** An ordered set of data that can be obtained with various tools or queries is

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referred to as a database.

- **Database Management Systems:** They are specifically created software applications that can communicate with users, other tools, or the database itself under the needs of the organization.
- **Data warehouse:** It works well for reporting and business analytical needs. It serves as MSBI's main repository and is an output of integrated data from many sources.

A data warehouse is a technically sound technology that helps organizations merge data from various sources by separating the analytical workload from the transactional workload.

- **Database Engine:** Relational databases are created and driven by the database engine, which is a component of it.
- **Data Mart:** A data mart comprises condensed information and is a section of a data warehouse.
- **ETL:** Extract, transform, and load is referred to as ETL. Data is extracted in various formats from various sources, formatted for ease of use, and loaded into a destination, which may be a data warehouse or data mart. Become an ETL professional with our [ETL training course](#).

## Installation of MSBI

Installing MSBI SQL Server is a must before you begin learning it. It will support you in thoroughly practicing concepts.

### Hardware Prerequisites:

- It is advised to use a processor with 2 GHz or above.
- 512 MB of RAM minimum or more.
- All SQL Server files can be installed on a 1 GB hard disk.

### Software Prerequisites:

- You can use any supported OS.
- Click on SETUP, the first option on Windows, as soon as you launch it. Select the stand-alone installation of the New SQL Server.
- Select the box labeled “Components Required.”
- After that, proceed with the server and instance configurations.
- To install each service, you can use the same ID or password; if not, you can change it. Depending on how convenient you are.

[Microsoft.com/en-us/evalcenter/evaluate-sql-server-2014](https://Microsoft.com/en-us/evalcenter/evaluate-sql-server-2014) is the downlink connection for MSBI.

- Select the file type in the following step. It may be Azure, CAB, or ISO. You need to exercise extra caution while selecting the type of file.
- When installing MSBI on your computer, choose the preferred language.
- After extracting the installation files, look for any issues.
- Now choose one of the three options.
  - Installation of SQL Server Features
  - Power of SQL Server for SharePoint
  - All features with defaults.

Structured Query Language, or SQL for short, is a standardized programming language that may be used to manage relational databases and carry out various operations on data.

- Click the Next option after all features have been successfully deployed.
- Now is the moment to set up an instance. To proceed, select the “Default Instance” option here.
- In the database engine configuration, choose the Windows authentication mode.
- In the setting of the analysis service, select the multidimensional and data mining options.
- Installing SSIS, SSRS, and SSAS tools is now necessary.
- Accept all terms and conditions in the end. After installing MSBI, you’re done!

- Select the “Finish” option. You’ve installed MSBI SQL Server on your system successfully.

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### **SSIS: SQL Server Integration Services**

Every day visitor information from multiple locations is combined and kept in one central database. It is carried out using the database’s OLTP component.

Data from several data stores must be combined, updated, and cleaned as part of the work integration process before being loaded to the destination.

- High-performance integration and superior workflow solutions, including ETL processes for data warehousing, are promised by the SSIS tool.
- It uses a wizard or graphical tool to build and debug packages.
- Data integration between databases, such as SQL Server and Oracle or Excel, is possible using it. Hone your skills with our [SQL Server course in Chennai](#).
- Adding hundreds of records to the database at once is only one example of the bulk operations that may be carried out using the tool.

### **Features of SSIS**

SSIS is a Microsoft component that was first released in 20015. Later, further features were added based on input from users. SQL Server 2016, the most recent version of SSIS, has many capabilities designed to meet the demands of contemporary businesses.

- It is a crucial ETL tool for data extraction, transformation, and loading into a destination database from many sources.
- The tool’s primary features are studio

environments, fast implementation, and strong event-handling techniques. It may be applied to a range of data integration jobs.

- The following are the five main parts of the SSIS architecture:
  - The Package Explorer
  - Event Handler
  - Control Flow
  - Data Flow
  - Parameters
- Most Frequently Used SSIS Tasks:
  - Execute SQL
  - Data Flow
  - Analysis Services Processing
  - Execute Package
  - Execute Process
  - File System
  - FTP
  - Send Mail
  - Web Service
- A wide range of documents is supported, and significant enterprises use it for demanding reporting requirements.
- The tool's primary flaw is that it doesn't support other forms of data integration.

The SSIS tool's goal is to import, extract, and convert the data into some sort of useful information.

## **SSAS: SQL Server Analysis Services**

An OLAP database can be created using the BI analytical processing engine SSAS. It explores data in data warehouses, creates cubes from a data mart, conducts data analysis utilizing many dimensions, models data, and more. Get expertise with our [\*\*SQL training in Chennai\*\*](#).

In a nutshell, it's a multidimensional OLAP server that functions as an analytics engine and makes it simple to work with large amounts of data.

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## Features of SSAS

- It does data analysis using fact aggregations, which reduces the time it takes to answer queries.
- It speeds up implementation by enabling multi-dimensional analysis using cubes.
- Reports can be automatically linked and displayed by it.
- It can produce high-quality data models for reliable data reporting and enhanced data analysis.
- It guarantees superior data integrity through superior data backups.
- Robust SSAS systems ensure the security of organizational data.
- With the aid of a basic internet connection, the tool can be used anywhere, at any time.

## Types of Data Models in SSAS

In SSAS, there are two widely used data models.

- The multidimensional data model.
- The tabular data model.

SSIS packages are used to collect data from various sources, clean it up, process it, and then store it in a data warehouse, a different type of relational database, after processing. Get the full list of SSIS packages here, along with instructions on how to set up an SSISDB catalog.

<b>Factor</b>	<b>Tabular Data Model</b>	<b>Multidimensional Data Model</b>
Memory	In-memory storage	File-based storage
Structure	Loose Structured	Rigid Structure
Complexity	Simple	Complex

Uniqueness	No need to move data from the source	Data is stored in a star schema.
Size	Small	Larger
Model Types	Relational and DAX	Dimensional and MDX

## **OLAP and OLTP Data Processing in SSAS**

Online Analytical Processing, or OLAP, keeps the most recent data in a working environment. It carries out every DML function. High availability is the outcome. It is a normalized database example. As a result, data is updated often.

Online Transaction Processing, or OLTP, keeps both recent and old data from several sources. It can only execute the READ function. It makes data access flexible. This database is an illustration of a denormalized one. Periodically, data updates are the outcome. Gain expertise with database fundamentals through our [Oracle courses in Chennai](#).

## **SSRS: SQL Server Reporting Services**

SRS is an enterprise reporting platform that allows bespoke apps to be used to deliver standard and interactive reports over the web. Both two- and multi-dimensional data sources can be supported simultaneously by it.

The program is highly recommended for thorough documenting and reporting, as its name implies. The platform for generating reports is effective, and the reports produced by it may be utilized for nearly any purpose and wherever.

Here are some salient elements of the SSRS tool that you ought to be aware of.

- It is capable of retrieving data in a variety of forms from several sources.



- Reports can be accessed via the web whenever necessary.
- It provides excellent ad hoc reporting support.
- It features a report builder system that allows reports to be customized to end users' specifications.
- The tool's user-friendly subscription options draw in people from all over the world.
- Features and functionalities are exported in various formats.
- It offers several report display options, including gauge, pie charts, and tabular data.

## **Advantages of the SSRS Tool**

- You can use the tool's enterprise-level functionality even in the free edition.
- Reports can be created, shared, and accessed online with this tool.
- It is compatible with several development tools, such as ADO.net and Visual Studio.
- As the application is free to use, businesses can use it for its basic reporting features.
- There is a sizable global user base for the SSRS product in addition to Microsoft users.
- Multiple databases, including SQL, Oracle, Excel, and others, can be combined with it.
- For those who run their reports regularly, this feature is particularly handy as it enables scheduling the delivery of reports automatically.

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## **Advantages of MSBI**

Among the many benefits of Microsoft Business Intelligence (MSBI) are the following:

- **Data Visualization:** Multidimensional data can be organized and visualized using MSBI.

- **Data Transformation:** MSBI may convert unprocessed data into useful business information by extracting, transforming, and loading data points.
- **Simple Integration:** DotNet and other web services can be integrated with MSBI.
- **Self-Service BI:** Managed self-service BI is provided by MSBI.
- **Sophisticated scorecards and dashboards** are available from MSBI.
- **Excel features:** The whole range of native MS Excel functionality is supported by MSBI.
- **Complete End-to-End Business Solutions:** MSBI provides all-inclusive business solutions.
- **Cost-Effective:** MSBI is a cost-effective solution.
- **Tools for simple integration:** MSBI provides tools for simple integration.
- **Outstanding analytics solutions:** MSBI provides outstanding analytics options.

## Conclusion

Business intelligence solution development, design, and implementation fall within the purview of MSBI developers. We hope this MSBI tutorial helps you understand the fundamentals. Learn with hands-on exposure through our [MSBI training in Chennai](#).

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