Business intelligence

Business intelligence (BI) combines business analytics, data mining, data visualization, data tools and infrastructure, and best practices to help organizations to make more data-driven decisions.

Modern business intelligence when you have a comprehensive view of your organization's data and use that data to drive change, eliminate inefficiencies, and quickly adapt to market or supply changes.

Modern BI solutions prioritize flexible self-service analysis, governed data on trusted platforms, empowered business users, and speed to insight.

Business intelligence is the term that covers the processes and methods of collecting, storing, and analyzing data from business operations or activities to optimize performance. All of these things come together to create a comprehensive view of a business to help people make better, actionable decisions.

Over the past few years, business intelligence has evolved to include more processes and activities to help improve performance. These processes include:

- **Data mining:** Using databases, statistics and machine learning to uncover trends in large datasets.
- **Reporting:** Sharing data analysis to stakeholders so they can draw conclusions and make decisions.
- **Performance metrics and benchmarking:** Comparing current performance data to historical data to track performance against goals, typically using customized dashboards.
- **Descriptive analytics:** Using preliminary data analysis to find out what happened.
- **Querying:** Asking the data specific questions, BI pulling the answers from the datasets.
- **Statistical analysis:** Taking the results from descriptive analytics and further exploring the data using statistics such as how this trend happened and why.
- **Data visualization:** Turning data analysis into visual representations such as charts, graphs, and histograms to more easily consume data.
- **Visual analysis:** Exploring data through visual storytelling to communicate insights on the fly and stay in the flow of analysis.
- **Data preparation:** Compiling multiple data sources, identifying the dimensions and measurements, preparing it for data analysis.

Importance of Business Intelligence

Business intelligence can help companies make better decisions by showing present and historical data within their business context.

Analysts can leverage BI to provide performance and competitor benchmarks to make the organization run smoother and more efficiently.

Analysts can also more easily spot market trends to increase sales or revenue.

Used effectively, the right data can help with anything from compliance to hiring efforts.

A few ways that business intelligence can help companies make smarter, data-driven decisions:

- Identify ways to increase profit
- Analyze customer behavior
- Compare data with competitors
- Track performance
- Optimize operations
- Predict success
- Spot market trends
- Discover issues or problems

Top BI Capabilities

1. Data Collection and Analysis

All BI software capabilities, functionalities and features focus on data. But first, that data has to be collected. This is done through a variety of web traffic monitoring actions like social media tracking. BI tools do this by utilizing algorithms to quickly sort unstructured data, cutting out duplicate entries and errors as it goes. Then, once it has turned the raw, unstructured data into a structured data set, it can analyze that data.

Data analysis dashboard from SAS

After collection and organization, BI software develops and runs queries against data sets in order to draw actionable insights from the chaos of unstructured data. Then those insights can be presented in data visualizations like charts, graphs, infographics, dashboards and animations. These visualizations make the analytical results easy for the human mind to process and understand, which helps organizations make data-driven decisions.

2. Data Lineage Tracking

Like I mentioned earlier, we create an unfathomable amount of data every day. Understanding how that data is created, how it moves and what becomes of it is crucial to properly utilizing it. Data lineage is a process that tracks data from its origin to wherever it moves over its lifetime. Tracking data lineage creates a complete, ongoing record of system activity as it undergoes various processes — think of it as a thumbprint. It can be represented visually to follow its movement from source to destination in order to help organizations understand how different data points changed and why. This BI capability is especially crucial when dealing with Big Data.

Another use of data lineage tracking is to follow the process backwards, starting with end results and following the data back to its source. By standardizing the methods for retrieving and tracking data, organizations can save themselves time and money — not to mention headaches.

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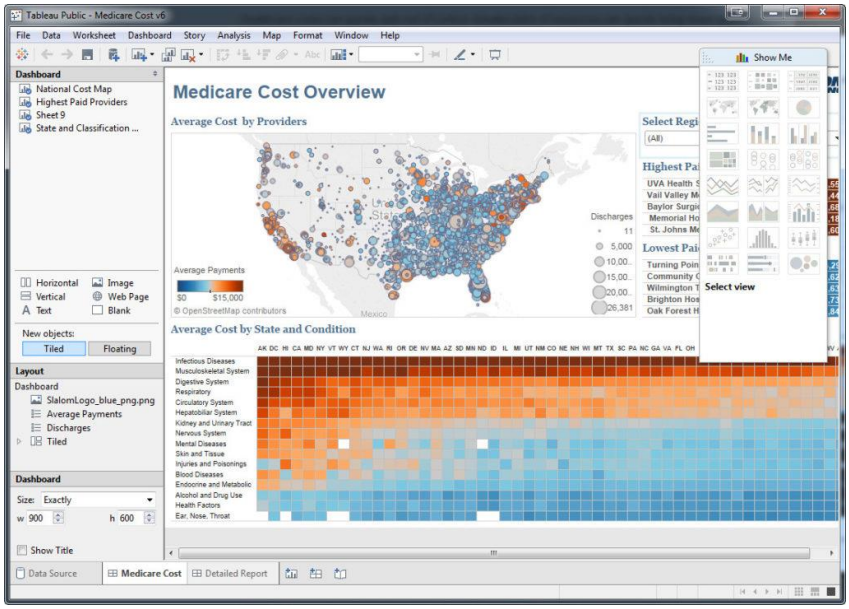
3. Interactive Data Visualizations

This is the core of our business intelligence capabilities list. Both business intelligence and business analytics — a subset of BI — offer a range of data visualization capabilities to transform the chaotic sets of unstructured data into vibrant visuals that communicate meaning. These visuals can range from bar and pie charts to scatter plots to engaging interactive animations.

Transforming data into visuals is crucial to making any sense of it. The human mind processes visual data 60,000 times faster than text data, which means a simple bar graph can make a big difference in communicating information.



A data visualization from Tableau

Data visualization can be applied to a range of situations: trying to explain sales projections? There's a visual for that. Want to boost employee morale by gamifying their performance? There's a visual for that too. The versatility of visualizations is only as limited as the imagination.

Making data visualizations interactive ups the sophistication of your data presentation significantly. Interactive graphics apply elements of exploration, learning and gamification to transfer data in a memorable way. I first clicked on this interactive graphic from Visual Capitalist several months ago, but I can still recall some key data points (each of which is strongly correlated with a visual image) from memory. When it works, it works!

4. Cloud Deployment

Deployment refers to the method in which the software is implemented — the typical options are on-premise, cloud/web-based or hybrid. While many industries have been reluctant to leave on-premise-based deployment models, cloud-based is quickly becoming the predominant option.

In SelectHub's recent survey of BI software buyers, 23 percent of respondents firmly preferred cloud-based deployment. Of the 69 percent who were on the fence, 10 percent leaned towards the cloud.

So we know the cloud is up-and-coming — but why? Cloud-based deployment offers a range of benefits that are too sweet to pass up. First, it allows complete customization in terms of size, storage, functionality and access — in a word, scalability. This is a significant advantage which allows you to minimize or expand your system according to your business needs.

Cloud-based deployment is also generally cheaper than on-premise solutions. You can buy only the number of licenses you need and don't have to worry about the hardware or IT support of running the software on your premises. Most cloud-based software comes with comprehensive support from the vendor to help keep you up and running.

5. Customer Service

Speaking of getting help, BI solutions offer a range of customer support options. Whether it's live chats, phone support or email correspondence, most BI provides some form of help desk support. This allows you to quickly and thoroughly address any issues that arise during daily operations and get back to business.

When implementing BI, make sure to take advantage of any on-site training options as well as the virtual libraries of training materials many BI vendors supply. Most include a set support package with your purchase and charge extra for additional training.

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6. Integration

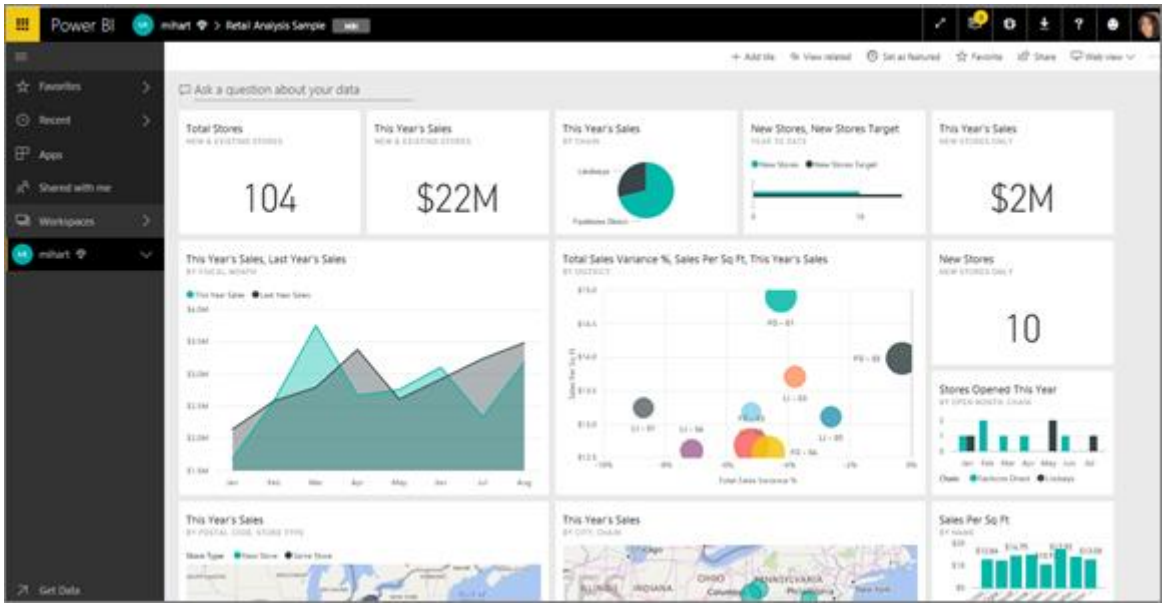
Integration is the ability to cooperate and communicate with other systems. These can be anything from websites to email to your CRM. BI integrates and works with your existing

infrastructure, including 3rd-party data warehouses, internal SQL server configurations and other data sources.

Full integration also means data processes are intuitive, simple and easy to deploy through your system's dashboards and collaboration platforms. Find out which integration features are important for your company using our interactive requirements template.

7. Reporting

Through business intelligence, you have the ability to generate accurate and thorough reports on any facet of your business's data. For example, self-service BI allows users to generate reports on financials, goal management, productivity and customer service data to help in many areas of the decision-making process. These reports are intuitive and richly visualized, which means that all levels of staff can understand the information and act on it.



Power BI offers a range of reporting options

Users can also run customized reports on industry-specific KPIs to glean valuable insights from their data. One type is an ad-hoc report, which is a highly-targeted, single-use report. These are particularly useful for a number of day-to-day tasks — for example, if a user wants to identify specific demographics of a set region for sales numbers. Users can specify and zoom in as deeply as they like to get an in-depth understanding of their business operations.

8. Dashboard Management

Dashboards are what you would get if data visualization and task management systems had a visually interactive, workflow-streamlining baby. Dashboard software works on the principle of data visualization: it makes Big Data results "digestible." It takes the raw data and presents it in a way that allows for actionable results. This makes it a core part of greater enterprise software systems that are aimed at delivering insight and decision support to a business.

The dashboard feature can also be assigned to task management functions. By offering employees a common interface to perform tasks, interactive dashboards ensure easy collaboration and increased productivity. In this survey by SelectHub, dashboards were the most frequently requested feature by BI software buyers: a resounding 90 percent of respondents wanted this capability.

9. Intuitive Use

The only thing worse than not having BI software is having it and not knowing how to use it. While training videos and on-site visits from vendors can go a long way to achieving successful implementation, a software system with an unintuitive UX isn't going to perform as well and may leave users frustrated. This hurts productivity, morale and your overall business performance. Plus, it's one of the main causes of incomplete or improper BI software implementation.

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10. Decision Services

This is a lesser-known business intelligence capability that can really pack a punch. First, some BI systems offer a financial management module for tracking and visualizing your organization's funds. Business intelligence can help users develop strategies for financial health and growth by predicting future scenarios based on gathered data. In the present, users can generate financial reports, spot financial anomalies and monitor funds.

Another of BI's capabilities comes in the form of promoting security. This is done through a combination of targeted data monitoring activities. Some offer integrated apps that ensure compliance with regulatory standards, acts and policies by monitoring user activity. This promotes fraud detection from within as well as without as the system monitors data points for suspicious activity.

11. Workflow Collaboration

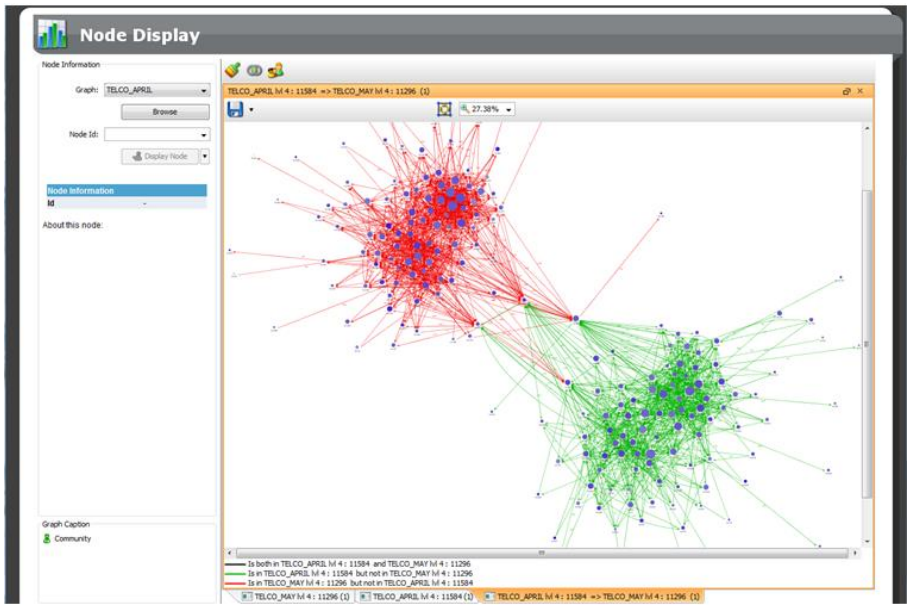
We've said it before and we'll say it again — work smarter, not harder! BI software allows you to do just that by promoting collaborative and streamlined workflows throughout your organization. You no longer need to hire an analyst or outside consultant to study your data — anyone within your organization can create and share information like never before.

Workflow collaboration simplifies workflow processes by allowing all users to access the system via a single common portal. This reduces the need for other communication systems like emails that get buried, paper reports that increase your company's carbon footprint or other outdated memo systems. Solid workflow collaboration results in better efficiency and productivity.

BI systems offer document management services that replace a variety of paper-based organization and information systems. Anything relating to the storage, tracking or management of documents — all those reports you're generating, for example — can be done through your BI system! Some features included in this module are version control, roll-back, access check-in and check-out, audit trail, annotations, stamps, and storage.

12. Predictive Analytics and Modeling

Predictive analytics refer to a group of analytical capabilities that predict future trends and scenarios from historical data. BI extracts this information by analyzing a vast set of data, ensuring reliable and usable information.



SAP's predictive analytics modelling

Predictive analytics is one of the most valuable features of BI software. This capability allows your business to predict market trends, staffing needs, sales, profits and losses, to name just a few. Implementing these features can seem daunting, so here are some tips for getting the most out of your predictive analytics software.

13. API

API, or application programming interface, is a set of subroutines, tools and protocols for building software. Basically, it's a language that lets different software systems communicate with each other. With an API, business intelligence software pushes application data directly into your data set. In short, this makes it incredibly easy to integrate and use new functions and capabilities into your existing BI solution.

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