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RESEARCH PAPER

Business Intelligence Tools in 2024: A Comparative Analysis and Market Insights

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***Abstract*—Business Intelligence (BI) tools support today's organizations by helping them make important choices based on advanced analysis, visual reports and different ways to see data. I have conducted an in-depth comparison of Power BI, Tableau, Qlik Sense, Looker, Sisense, Domo and SAP BusinessObjects by focusing on how they look, the cost, how scalable they are, their user-friendliness and how they work. Also, the move toward using cloud-based systems, insights from artificial intelligence and ongoing analytics is talked about. It covers the most recommended tools for small, midsize and big organizations and gives suggestions for individuals, small companies and large companies.**

Keywords—Power BI, Tableau, Qlik Sense, Looker, Sisense, Domo, SAP Business Objects.

I. INTRODUCTION

The importance of making decisions based on data is driving increased use of BI solutions in businesses [1]. BI gives companies the ability to analyze information visually, quickly review large amounts of data and decide in a way that improves efficiency and growth. Selecting the perfect BI tool for a company is very important, given the wide range of tools from complex enterprise choices to those made for new users. Getting insights from a lot of information is necessary for companies aiming to compete in today's data world [2][3]. Using these tools for BI helps companies convert raw data into useful knowledge, make better decisions and streamline operations. Companies must identify the right BI tool from a variety, depending on their budget, need for expansion and what data they deal with. Six BI solutions, Power BI, Tableau, Qlik Sense, Looker, Sisense, Domo and SAP Business Objects, are reviewed by considering four important factors: cost, how easily they can be used, how advanced their analytics are and how easy data is to visualize [4]. Because every technology has its strengths and weaknesses, it is useful in many different business situations, from startups to well-established companies. Also, changes are ongoing in the BI sector with the rise of real-time processing of data [5]. The role of AI in analytics and cloud-native systems affects business use of them [6].

The purpose of this analysis is to help organizations decide on the right BI tool by highlighting their pros and cons and looking into current industry trends.

II. LITERATURE REVIEW

A. Importance of BI Tools

BI tools have made handling and reviewing data much easier for businesses [7]. Raw data can be transformed into useful insights by businesses to improve their workflow, how they deal with customers and recognize new trends in their markets [8]. By using the visualization, dashboard building and analysis tools in BI, users are able to handle data and make rapid decisions.

B. Evolution of BI Tools

It offers everything from simple software for reporting to systems with cloud design, intelligent AI insights and predictive functions [9], BI tools have developed a lot over the years. Companies in many fields are using more BI tools now that they depend heavily on big data and advanced analytics tools [10]. BI is now using natural language processing (NLP) and ML to allow for better interaction and gather deeper information from data [11].

C. Market Trends

The BI market is now driven by real-time processing, cloud-native designs and advanced capabilities in AI and ML [12]. SAP Business Objects is a traditional system that works in on-premise settings where reporting has to be planned, but Looker and Domo meet the needs of modern companies choosing real-time analytics and the cloud [13].

III. METHODOLOGY

The famous BI tools were benchmarked in this study by considering important metrics:

- **Usability:** The way the user interacts with and learns to use the tools.
- **Features:** Digital tools that use AI, provide instant analysis and show data in graphics.
- **Integration:** Apps and data sources must be consistent with the application.
- **Scalability:** Ability to handle large amounts of data and provide access to the whole organization.
- **Pricing:** The expenses involved for different groups of users, including small, mid-sized and large corporations.
- **There are three deployment options:** The technologies used are hybrid, on-premises and cloud.
- **Performance Speed:** The speed and accuracy of looking up data in large-scale databases.

Official website content, reports, user experiences and official documentation were used to gather information. All tools were examined considering the assistance they provide to medium enterprises, large corporations and small businesses.

IV. Present Scenario and Discussion

The importance of data and the need for fast business decisions have all played a big role in the development of BI tools today [14]. The situation for some of the best BI tools is briefly laid out here:

- **Cloud BI Adoption:** The move to cloud systems is being spearheaded by BI platforms such as Looker, Domo and Sisense.
- **AI and Advanced Analytics:** Integrating AI and machine learning is becoming more popular among BI solutions to offer automated insights and predictions. Looker and Qlik Sense are considered leading examples of this trend.
- **Real-Time Data Processing:** Because businesses are looking for fast insights to make decisions, systems such as Domo and Looker, that can analyze data right away are gaining popularity.
- **Embedded Analytics:** These kinds of tools are being widely adopted to bring analytics into various parts of a business [15], supporting enterprises in sharing insights from data among their different departments without difficulties.

A. *Key Insights*

Here are the key insights of Power BI are as follows:

- **Best for Novices:** Power BI is the most user-friendly product available at a cheap entry cost, which makes it perfect for novices and small enterprises[16].
- **Best for Enterprises:** Because of their scalability, sophisticated visualization, and AI-driven analytics capabilities, Tableau and Qlik Sense are excellent options for businesses.
- **Cloud-First Enterprises:** Looker is a great option for companies that are cloud-native and use cutting-edge technology[17], such as AWS or Google Cloud.
- **Real-Time Data Collaboration:** Domo is more expensive but performs exceptionally well in real-time data collaboration, particularly for non-technical teams.
- **Best for SAP-Centric Organizations:** Businesses that require extensive reporting and governance and are heavily involved in the SAP ecosystem should choose SAP BusinessObjects.

B. *Ranking according to Enterprise Suitability and Performance*

Tableau leads in enterprise analytics, followed by Qlik Sense for AI and big data. Looker suits cloud-native firms, Power BI fits SMBs, Sisense enables embedded analytics, Domo supports real-time collaboration, and SAP BusinessObjects is ideal for SAP-based reporting [18]. Here are the Suitability and Performance as follows:

- **Tableau:** The best platform for enterprise analytics and sophisticated visualization.
- **Qlik Sense:** The best tool for AI analytics and large-scale data processing.
- **Looker:** The best option for real-time insights and cloud-native businesses[19].
- **Power BI:** The best option for small to medium-sized companies with moderate data requirements.
- **Sisense:** The best platform for integrating analytics into apps.
- **Domo:** The best platform for real-time analytics collaboration.
- **SAP Business Objects:** The best option for structured reporting with an SAP focus.

This table makes it easier for enterprises to determine which BI tool best suits their unique needs by giving a fast [20], and comparative overview of each tool's key features and which tool is best for enterprises are shown in Table I below.

TABLE I. Comparison of Top BI Tools for Enterprises:

Tool	Best For	Key Features
Tableau	Data Visualization & Enterprise Analytics	Advanced visualizations, multi-source data integration, collaboration tools
Qlik Sense	Large-Scale Analytics & Associative Data Engine	AI-powered analytics, multi-source integration, large dataset handling
Looker	Cloud-Native Analytics & Real-Time Insights	Cloud-first architecture, Look ML for data modeling, real-time data insights
SAP Business Objects	SAP-Centric Enterprises & Structured Reporting	Strong SAP integration, enterprise reporting, data governance
Power BI (Enterprise)	Cost-Effective BI for Large Organizations	Scalable with Power BI Premium, Microsoft ecosystem integration
Sisense	Embedded Analytics & In-Chip Processing	Embedded analytics, fast query execution, hybrid deployment options

Pricing Structure: Based on common price patterns, here is a cost comparison breakdown of the key BI tools in the Table II that were analyzed: SAP BusinessObjects, Tableau, Qlik Sense, Looker, Power BI, Sisense, and Domo. Although the precise price may change depending on licensing terms, business requirements, and other features, this provides a basic estimate of how much these tools will cost.

TABLE II. Pricing Structure and Cost Breakdown

BI Tool	Pricing Structure	Cost Breakdown	Best for
Power BI	• Free version for individuals • Pro: $10/user/month • Premium: Starting at $20/user/month or $4,995/month per capacity for enterprises	Free version offers basic features Pro is affordable for small teams Premium is required for large datasets and scaling	Small to medium businesses (SMBs) and individuals
Tableau	• Creator: $70/user/month • Explorer: $42/user/month • Viewer: $15/user/month	Creator provides full functionality Explorer offers less customization Viewer is for basic report viewing	Enterprises requiring advanced visualization
Qlik Sense	• SaaS pricing: $30/user/month for Business • Enterprise: Custom pricing (generally $40-$70/user/month)	Business tier for SMBs Enterprise provides scalable pricing with advanced features, higher cost for AI-driven capabilities	Enterprises needing complex data analytics

Looker	• Custom pricing based on company size, data volume, and users • Estimated: $3,000-$5,000/month for small enterprises	Looker pricing is generally higher due to its cloud-first architecture and strong integrations with Google Cloud, AWS, etc.	Cloud-first enterprises and real-time analytics
Sisense	• Custom pricing, based on users, features, and deployment • Estimated: Starting around $1,000/month for SMBs	Custom pricing reflects scalability, embedded analytics, and deployment type (cloud or on-premise)	Companies requiring embedded analytics
Domo	• Custom pricing, typically high-end • Estimated $2,000-$10,000 per month depending on users and data volume	Domo's pricing reflects its premium collaboration and real-time features, making it suitable for large-scale enterprises	Large enterprises focused on real-time collaboration
SAP BusinessObjects	• Custom pricing based on the size of the SAP environment • Enterprise packages starting from $15,000 per year	Pricing is high, typically for SAP-centric organizations with extensive data needs and ERP integration	Large, SAP-driven organizations requiring structured reporting

The future of business intelligence will be shaped by trends like artificial intelligence, real-time analytics, and cloud-first strategies as BI tools continue to advance [21]. To fully realize the benefits of data-driven decision-making, companies must select the appropriate tool and take into account specific needs including scalability, performance speed, ease of use, and integration capabilities.

V. Result Analysis and Findings

The result analysis reveals that Power BI is the most cost-effective and beginner-friendly BI tool, offering ease of use, Microsoft integration, and affordable pricing. Tableau and Qlik Sense provide advanced analytics for larger enterprises but come at a higher cost. Looker and Domo suit cloud-first, large-scale businesses needing real-time insights. Sisense excels in embedded analytics, while SAP BusinessObjects is ideal for structured SAP reporting despite its high cost.

A. Important Findings from the Price Comparison

Here are the key findings of price comparison are as follows:

- Power BI is the most cost-effective alternative, particularly for individuals and SMBs, with variable pricing ranging from free to $20 per person per month for premium capabilities.
- Because Tableau and Qlik Sense offer enterprise-grade analytics and sophisticated visualization features, they are more expensive and are best suited for mid-to large-sized businesses.
- Because of their unique pricing structures and higher costs, Looker and Domo are better suited for large-scale businesses due to their emphasis on real-time analytics and cloud-first infrastructure [22].

Though usually less expensive than Domo, Sisense offers customized pricing that adapts to deployment choices and embedded analytics requirements. It is nevertheless enterprise-focused.

Because of its emphasis on organized, compliance reporting, SAP Business Objects is typically the most expensive option. Its high licensing prices are indicative of its position in large, SAP-centric enterprises. Here is the Result and findings of the comparative analysis of BI tools in the Table III:

TABLE III. Comparative Analysis of Business Intelligence (BI) Tools

BI Tool	Strengths	Weaknesses	Best Suited For	Deployment Options	Ease of Use	Performance Speed
Tableau [23]	Best in class for data visualization, Excellent data integration Strong collaboration features	Steeper learning curve, High cost for enterprise versions	Enterprises needing advanced visualization	Cloud, On-premise, Hybrid	Moderate learning curve	High, with multi-source integration
Qlik Sense [24]	Associative data engine for large-scale analysis, AI-driven insights, Highly scalable	Requires technical expertise for complex setups. Higher pricing	Enterprises needing complex, AI-driven analytics	Cloud, On-premise, Hybrid	Requires technical expertise	Fast for large datasets
Power BI [25]	Ease of use, intuitive interface, Cost-effective, Seamless integration with Microsoft ecosystem	Less flexible for large datasets without Power BI Premium, Basic AI features compared to others	SMBs and enterprises looking for cost-effective BI	Cloud, On-premise, Hybrid	Easy	Slower with very large datasets
Looker [26]	Cloud-native, real-time analytics, Advanced data modeling with Look ML, Deep integration with Google Cloud	Expensive, Requires cloud-first infrastructure	Cloud-first enterprises needing real-time insights	Cloud-native (Google Cloud, AWS, etc.)	Moderate	High, especially for real-time queries
Sisense	Embedded analytics, In-chip processing for faster performance, Easy to scale for large datasets	Limited data visualization customization Less cloud support compared to Looker and Power BI	Organizations needing embedded analytics within apps	Cloud, On-premise, Hybrid	Moderate	High for in-memory processing

Domo [27]	Strong in real-time collaboration, Simplified user experience, Good for non-technical users	Expensive for large-scale enterprises, Less customizable visualizations	Enterprises needing real-time BI with easy collaboration	Cloud	Easy	High for real-time data processing
SAP Business Objects [28]	Best for SAP integration, Highly structured reporting, Excellent data governance.	High cost, Limited flexibility for non-SAP environments	SAP-centric enterprises needing structured reporting	Primarily on-premise, with growing cloud support	Moderate	Slower for complex setups

Most people agree that Power BI is the greatest BI tool for novices. This is the reason why:

B. Why Power BI Is the Best Option for Novices?

Here are the best options of for novices in Power BI are given below:

- **Ease of Use:** Without requiring substantial technical knowledge, creating dashboards, reports, and visualizations is a simple task with Power BI's user-friendly interface. Its drag-and-drop functionality enables users to rapidly develop insights and examine data.
- **Familiar Ecosystem:** Many customers are already accustomed to using Microsoft products like Teams, Excel, and SharePoint, with which Power BI connects easily. As a result, novices will find it simpler to get going without having to master an entirely new system.
- **Learning Resources:** Beginners may learn and troubleshoot problems more easily because to the wealth of resources accessible, which include tutorials, documentation, and community help [29].
- **Reasonably priced subscription levels:** For individuals and small teams, together with a free version, make Power BI an affordable option for both novices and small organizations.
- **Interactive Visualizations:** It provides a range of ready-made templates and visualization choices that novices can utilize without requiring highly skilled customization.
- **Q and A capability:** New users can start handling data without knowledge of query languages because Power BI provides NLP support [30], allowing users to use natural language questions and receive answers.

VI. CONCLUSION

Businesses must match their key needs to the best BI solutions, keeping in mind recent trends of using AI, instant data updates and cloud services. Ease of operation, budget, ability to handle more users or data or advanced analysis functions may be among the needs. Based on what I have seen, Power BI is the most user-friendly and budget-friendly software makes it ideal for businesses that aren't very big. When companies require advanced data visualization, Tableau is still the most recommended tool. Any business looking for AI-enabled analytics to handle huge datasets should consider Qlik Sense or Looker. Businesses that rely on cloud-based work and real-time sharing would do well with Domo. For companies that rely heavily on SAP, SAP BusinessObjects should be their choice and Sisense is the better option for embedded analytics. When companies aim to use data for strategy, increasing performance and making decisions, they rely on BI tools. As a result of this comparison, one can see that a business's size, technology infrastructure, data needs and particular use scenarios are the main factors in deciding on the right BI platform. Today, the BI sector is fast-moving and filled with competitors, since vendors often bring out new features including AI-based insights, cloud support and better user experiences. Choosing the right BI tool depends on organizational needs, existing infrastructure, and the level of data analysis required. Whether focusing on data visualization, real-time analytics, or large-scale reporting, there is a BI solution available for nearly every business scenario.

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