Critical Elements for Implementing Self-Service BI Analytics

Democratizing self-serve data analytics at scale via the BI tool of a user's choice.

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Introduction

Businesses today have vast amounts of data from different sources that are a potential gold mine if analyzed. In the past, C-level and other executives relied on data analysts and data scientists to deliver insights via dashboards, reports, or other methods. Now, in addition to upper management, many individuals and groups want and need analytics-derived insights of their own. That is impractical using the methods of the past. What businesses need today is a way to empower all business users and power users so that they may carry out their own data analytics on massive datasets.

Such capabilities open up a wide range of use cases that can help a business. It might include a manager of a regional store doing a highly focused sales analysis of that store's customer base rather than taking insights derived for the company as a whole. Or it could include an HR team using analytics to track the performance of new employees and how satisfied they are with their jobs. In another case, a marketing team might use analytics to assess the effectiveness of different campaigns to drive more engagement and sales. The possibilities are endless.

However, such users and groups cannot wait for IT or data engineers to set up access to the tools and data they need. Nor can they wait for developers to craft the analysis algorithms required. Modern business simply moves too fast. Approaches of the past would put a business at a competitive disadvantage.

Instead, businesses today must enable the broad use of analytics in a way that individuals and groups that lack analytics skills and the highly skilled data scientists and business analysts can all quickly and easily carry out analysis of large datasets on their own in an efficient way.

What's Standing in the Way?

Given the great need for more pervasive analytics within a business, the question is, what is holding businesses back from implementing easy-to-use analytics for all?

There are several issues that businesses must address to enable self-serve BI analytics. Any solution must be useful for both the power users and the non-technical individuals that also need to run their own analytics. But there are many challenges to overcome to accommodate such diverse users.

First, **any approach must allow power users to do interactive analytics on large datasets** (often in the petabyte range these days). Working with such large datasets can strain most infrastructures. Traditional approaches involve downloading data for power users to conduct their work. That is increasingly impractical considering the size of datasets in businesses today.

Expanding analytics to many users via self-serve BI can impact data query performance. Many traditional solutions cannot support the high concurrency that would occur as more and more users run their own analytics. In large organizations, there will be a need to support hundreds or thousands of simultaneous efforts on the same datasets.

Then, **there are the challenges of supporting a variety of BI tools and providing access to all relevant data**. Many businesses force particular BI tools on their users. Many business users will likely have a particular tool they already use, and they do not have the expertise to use some of the higher-level BI tools. That limits who can do BI on their own. Additionally, it was quite common for analysts to be limited to one dataset. They could not derive insights on cross-domain datasets, and the number of analytic dimensions they could explore was limited.

What's Needed?

Providing all users, including power users and business users who are not data scientists, with access to data for analysis can be a formidable task. Addressing the previously noted issues and overcoming technical obstacles can be done if a solution has some basic core characteristics and features. That includes:

1 **An online analytical processing (OLAP) engine that can handle interactive analytics and provide high concurrency.** Such an OLAP engine lets different users easily and selectively extract and query data to analyze it from different points of view. It does that by rolling up large datasets into a multi-dimensional database known as an OLAP cube.

An OLAP cube is typically optimized for easy analysis and lets users "slice and dice" data from different viewpoints for a streamlined query experience. Each OLAP cube can contain data categorized by different dimensions (e.g., customers, geographic sales region, and time period). The dimensions are then populated by members (such as customer names, countries, and months).

That approach has played a critical role in business intelligence analytics for years, especially when very large datasets were involved. The data aggregation and precomputation that OLAP and OLAP cubes enable are a great way to avoid the excessive processing times and slow query speeds that plague modern BI tools and complex big data infrastructures.

2 **A unified semantic layer or semantic data model makes it possible to pull data from disconnected sources with minimum effort regardless of the type of user.** Why is this important? Many critical data assets end up siloed. Unifying them poses a significant challenge. Often, there are no standardized data and business definitions, and this makes it so much harder for a business to get the full value of its data.

A semantic layer allows end users to access data using conventional business words. The semantic layer accomplishes this by translating complex data into standard business terms like the product, customer, and revenue, resulting in a uniform, consolidated view of data across a business. Specifically, a semantic layer is an abstraction that frees business users from concerns about the technical complexity and implementation of the underlying data source. It allows a data consumer of any skill level to easily discover, understand, and use data.

The end result: a semantic layer provides business users with an easy way to understand the data. In that way, data may be accessed with a user's BI tool of choice or a customized application. Enabling such flexibility of the analysis tool front means users can be data analysts, business analysts, decision-makers, and regular business managers, and they do not have to be data engineers or developers.

3 **Seamless BI integration.** As the need for analytics spreads throughout businesses, different individuals and groups will likely want to use different tools and applications of their choice. The range can be quite extensive, including Excel spreadsheets, customer relationship management (CRM) systems, supply chain management (SCM) systems, or traditional analysis tools like Power BI, Tableau, and more.

Certainly, a business can develop one-off approaches that allow each BI tool to access data and perform analysis. But in many cases, that is simply not practical. There are too many tools, and it prohibits the use of new BI tools and techniques as they emerge.

A solution that lets any tool access and analyze data is preferred. Accomplishing this is possible if a solution provides a standard interface to disparate data sources and systems. That would allow business users to easily pull together the data they need to make data-driven business decisions.

Teaming with a Technology Partner

Businesses can take a do-it-yourself approach in their efforts to support the wide range of analysis needs in their organization. There are open-source tools to help and a variety of standards that help make data access easier.

However, developing a solution takes expertise in these tools and standards and enormous amounts of time to bring together the elements and get them working together efficiently. In addition, many other issues (like performance, reliability, security, data governance, and more) must be addressed.

Given the magnitude of such an undertaking, many businesses prefer to work with a partner that offers the technology to make that happen and the technical and real-world expertise to implement the solution in today's demanding business environments.

There are all areas where Kyligence can help. Kyligence was founded by the original creators of Apache Kylin, the leading open source OLAP for Big Data. It offers an Intelligent OLAP Platform to simplify multi-dimensional analytics for cloud data lakes.

It offers a Unified Semantic Layer that frees users from concerns about the technical complexity and imple-mentation of the underlying data source. The company's AI-augmented engine detects patterns from the most frequently asked business queries, builds governed data marts automatically, and brings metrics accountability to the data lake to optimize the data pipeline and avoid excessive numbers of tables. It provides a unified SQL interface between cloud object stores, cubes, indexes, and underlying data sources with a cost-based smart query router for business intelligence, ad-hoc analytics, and data services at petabyte scale.
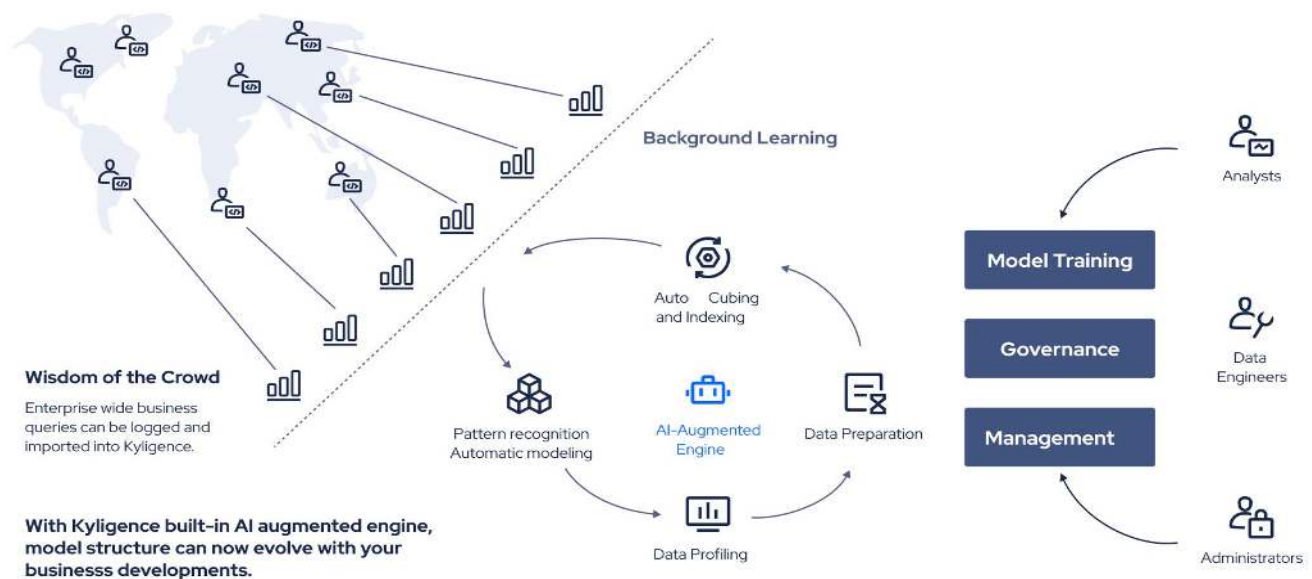
Additionally, Kyligence provides enterprise-grade security and performance. Kyligence ensures data security for on-premises and cloud data, offering enterprise-grade security management capabilities and customizable security policies that include end-to-end data encryption, controls for row and column-level data permissions, data backup, and recovery.

To address performance and availability, Kyligence provides an on-premises deployed operation and main-tenance platform. Businesses can monitor the health level of Kyligence services, node resources, and system components, providing real-time warnings to ensure the system runs smoothly.

Use cases and real-world experience

Kyligence brings years of expertise in real-world deployments and uses that experience to offer its enterprise customers best practices and proven methodologies. Its solution is used by many large customers that lead their respective fields in financial services, manufacturing, and retail.

For example, one major bank was housing lots of critical customer data in disparate siloed data sources. Any attempts to bring the data together for complete analysis meant additional work for IT and days or weeks of waiting for connections to be made. Leveraging Kyligence's OLAP technology and open-source storage solutions, the bank's users no longer need to rely heavily on IT to deliver the data they need for their decisions as everything is in one centralized place. The implementation provides 12,000 business and power users with analytics capabilities. Those users can run a very large number of simultaneous queries on 1.5 PB of data and get timely results.

A large retail restaurant chain is using Kyligence to let restaurant managers who are not data scientists do analytics via Excel, a tool the managers are quite knowledgeable about and comfortable using. That type of analysis via Excel is being done by thousands of restaurants and thousands of managers to perform self-analytics to explore what combinations of products sell best together, what meals are popular, which coupons are used, and more.

In other examples, different people in a business can work together and enable self-service analytics using Kyligence and popular tools such as Tableau. In such use cases, Kyligence blends the features and capabilities of the tools into data access workflows.

A Final Word

Businesses today are data-driven. They need a way to capture the value in the wealth of data from a variety of sources that exists throughout the organization. Increasingly, businesses are trying to enable the analysis to be done deeper in the business than ever before. Specifically, they want to give all users, including their existing power users to the numerous business people in different units, the ability to develop their own analytics and run them against all the relevant data across the business.

They want to do this using Excel or one of the many BI tools, including Tableau, Power BI, MicroStrategy, and more. Those tools provide users with an easy-to-use interface and integrations to transform data into insight. Many tools allow regular business users to transform into citizen data analysts.

The big challenge for businesses will be in developing a robust, flexible, and fast data architecture that ensures all of this analysis can take place at the speed of business. Kyligence addresses that issue and enables the democratization of BI via self-serve analytics. Such capabilities are increasingly important in that they accelerate the generation of insights throughout a business.

About RTInsights

RTInsights is an independent, expert-driven web resource for senior business and IT enterprise professionals in vertical industries. We help our readers understand how they can transform their businesses to higher-value outcomes and new business models with AI, real-time analytics, and IoT. We provide clarity and direction amid the often-confusing array of approaches and vendor solutions. We provide our partners with a unique combination of services and deep domain expertise to improve their product marketing, lead generation, and thought leadership activity.

About Kyligence

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Kyligence is trusted by global leaders in financial services, manufacturing, and retail industries, including UBS, China Construction Bank, China Merchants Bank, Pingan Bank, MetLife, Costa, and Appzen. With technology partnerships with Microsoft, Amazon, Tableau, and Huawei, Kyligence is on a mission to simplify and govern data lakes to be productive for critical business analytics and data services. Kyligence is dual headquartered in San Jose, CA, United States, and Shanghai, China, and is backed by leading investors including Redpoint Ventures, Cisco, Broadband Capital, Shunwei Capital, Eight Roads Ventures, Coatue Management, SPDB International, CICC, Gopher Assets, Guofang Capital, ASG, Jumbo Sheen Fund, and Puxin Capital.