



DATA ANALYTICS PLAYBOOK

NEXT GENERATION SEARCH AND AI-POWERED ANALYTICS





INTRODUCTION ---

Getting fast, easily accessible business insights is the dream of every organization, but most companies fall well short of that goal. This eBook explores the top 5 ways you can upgrade your analytics and business intelligence programs with next-generation search and AI-powered analytics, and help your company move beyond simple dashboards and reporting to get intelligent insights on-demand.

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THE ESCALATING VALUE OF DATA AND ANALYTICS



The information explosion of recent years has radically transformed the business landscape. Big data, business intelligence, and predictive analytics are now at the core of business models in many industries, from finance and healthcare to manufacturing and telecommunications. The average company currently manages **163 terabytes of data**, and also expects this number to grow by more than 50 percent in the near future.

What's more, access to data and analytics has spread well beyond the IT department. Sales and marketing, R&D and customer service are just a few of the business functions that have come to depend on enterprise data. IT research and advisory firm Gartner has coined the phrase "**citizen data scientists**" to describe employees who take analytics into their own hands and unlock insights for the business as a whole.

Simply put, enterprise data and analytics solutions can be incredibly effective at driving growth and revenue, when optimized for an organization. **According to consulting firm McKinsey & Company**, "data-driven" organizations are 23 times more likely to acquire new customers, six times more likely to retain them and 19 times more likely to be highly profitable.

THE PROBLEM WITH TODAY'S BI PROJECTS

Unfortunately, bringing this deluge of information under control is a significant challenge for many businesses. Organizations' thirst for data and analytics far exceeds the volume of insights that they can currently generate. In a 2017 survey, **less than half of Fortune 1000 executives** reported that their recent big data projects have made a measurable improvement to the company.

Business users typically rely on specialized data analysts to crunch the numbers for them. The greater the need for data-driven insights, the larger these analysts' backlog becomes. As demand continues to increase, many organizations are struggling to keep up with these requirements. According to IBM, there will be **700,000 new positions** for data scientists, data developers and data engineers by 2020.

In many cases, the need for data-driven analyses is outpacing the rate at which analysts can produce reports. This means that employees are forced to operate on incomplete information, and the entire business suffers from this lack of insight and direction. Technology research firm Forrester says that although 74 percent of companies want to be "data-driven," **only 29 percent of them achieve this goal.**

HOW TO FIX THE BI BLUES

If you recognize the challenges above in your own business, you've more than likely been aware of them for some time. Not every business problem can be solved simply by throwing software and consultants at it, and it's much better to recognize the issue early on instead of trying to force square peg solutions into round holes.

This white paper details the five most common ways to transform your analytics and business intelligence program. Instead of sticking with an outdated tools that are not working for your company, considering making the switch to a next-generation analytics platform that gives business users data-driven insights when they need it.

Play #1

SEARCH-DRIVEN ANALYTICS



PROBLEM: THE DISMAL BI ADOPTION RATE

Although many businesses have been quick to deploy business intelligence projects, actually earning user buy-in is another story. Gartner research vice president Cindi Howson estimates that BI adoption rates among employees hover around **22 percent** – far from managers’ expectations when embarking on a new project.

Gartner has also identified two main causes behind the alarming **70 percent** failure rate for BI projects. First, the IT and business teams are often disconnected, approaching the project from two different angles without a common language or an understanding of the other’s position. Second, members of the project may fail to comprehend the true needs of the business, arriving at a “solution” that hardly addresses the real challenges.

“BI adoption is only at 21% of employees;
basically flat for a decade.”

CINDI HOWSON, GARTNER

POOR USER EXPERIENCE STIFLES ADOPTION

One of main reasons BI tools are not used by more individuals or as much as companies would like is because they continue to be too difficult for mere mortals to use. Especially in this digital age when people have become accustomed to business and consumer applications – both mobile and desktop – that offer engaging and informative user experiences, even data visualization tools can appear to make it difficult for users to ask questions and explore their data.

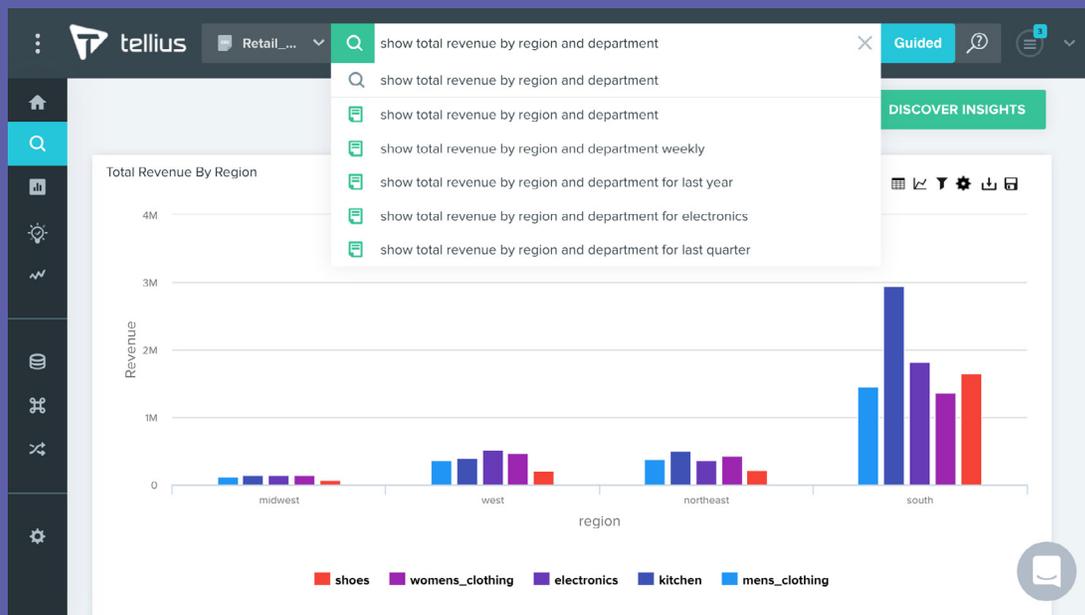
Offering a fast and easy way to acquire information and engaging users is critical to raising the adoption of analytics. The reason is because analytics is really a journey, and it is one that usually begins a question. For example, let's say a sales manager wants to know, "What is sales revenue in Texas last year?" This can easily be satisfied by a standard report or dashboard that displays these metrics. But once this basic need is satisfied, then there are follow-up questions. "What about other states, other timeframes, splits by product line, and how do these metrics compare to other scenarios?" If these are not already set up as a report in the BI system beforehand, most business users would leave the BI system. Creating a new report would be deemed as too difficult a task, and they would get an analyst or power user to answer their questions by creating a new report in the BI system.

This scene plays itself out over and over in countless organizations every day. People want to walk on this journey to use data to inform their everyday decision-making, but because BI tools have not delivered on the promise of self-service analytics, users are ejected off the path before they get very far. In the mind of the users, they think, "This stuff doesn't work."

PLAY #1: INTUITIVE SEARCH-DRIVEN ANALYTICS

In the face of these barriers to user adoption, organizations need to adopt a simple and intuitive analytics solution that gives all employees quick access to the insights they require. One interface that everyone knows how to use is a search engine, such as Google, to find the information they're looking for in their everyday lives.

Search-driven analytics platforms take advantage of users' familiarity with search engines to deliver the right data and insights. Instead of manipulating database columns and measures, which requires a good deal of technical knowledge, non-technical users can ask a business question in natural language. By massively improving the user experience, search-driven analytics can increase engagement and significantly boost user adoption.



Intuitive search-driven analytics gives users an easy way to ask questions, receive suggestions on what to query, and visualize their data.

Play #2

AUTOMATED DATA ANALYSIS POWERED BY MACHINE LEARNING



PROBLEM: BUSINESS USERS WAIT TOO LONG FOR ANSWERS

When business users have new questions not answered by pre-created dashboards and reports, or have questions which require complex analysis not easily performed by self-service visualization tools, they turn to their analysts. And data analysts perform a vital role for organizations looking to capitalize on their enterprise data. Unfortunately, the growing demand for answers means that users wait longer and longer for the analysis they need.

Many companies' analytical processes are far too manual, too slow and too subject to interpretation. **72 percent of business and analytics leaders** say that they aren't satisfied with the time that it takes for users to get back the results they asked for. Some of the problem can be traced back to difficulties with data blending and outdated processes such as ETL (extract, transform, load) that prevent them from doing real-time data analysis.

This delay is also due to the fact that business users want insights that usually require a good deal of in-depth, complex analysis. Root cause analysis, customer segmentation, or customer churn forecasting are by no means easy tasks with spreadsheets and traditional BI tools, especially when using large data sets or data at scale.

HOW DATA LAG CREATES VERY REAL PROBLEMS

Businesses need data-driven answers delivered as quickly as possible. According to research firm IDC, **seventy-six percent of IT executives** said that data lag has negatively affected their business, and more than half said that the delays reduced the company's operational efficiency.

Data analysts are often the only employees who understand their current workflow and technology setup at a proficient level, and they pride themselves on being able to answer questions about the company. However, for organizations that have more demand for information than supply, analysts are perceived as gatekeepers who stand between employees and the information and insights they need.

The bottled-up expertise of data analysts comes at a cost to the business as a whole. If every employee has even a single quick question that they need answered by the end of the day, then your backlog can rapidly grow out of control.

So how can organizations save time and empower analysts and more business users to get answers from their data faster?

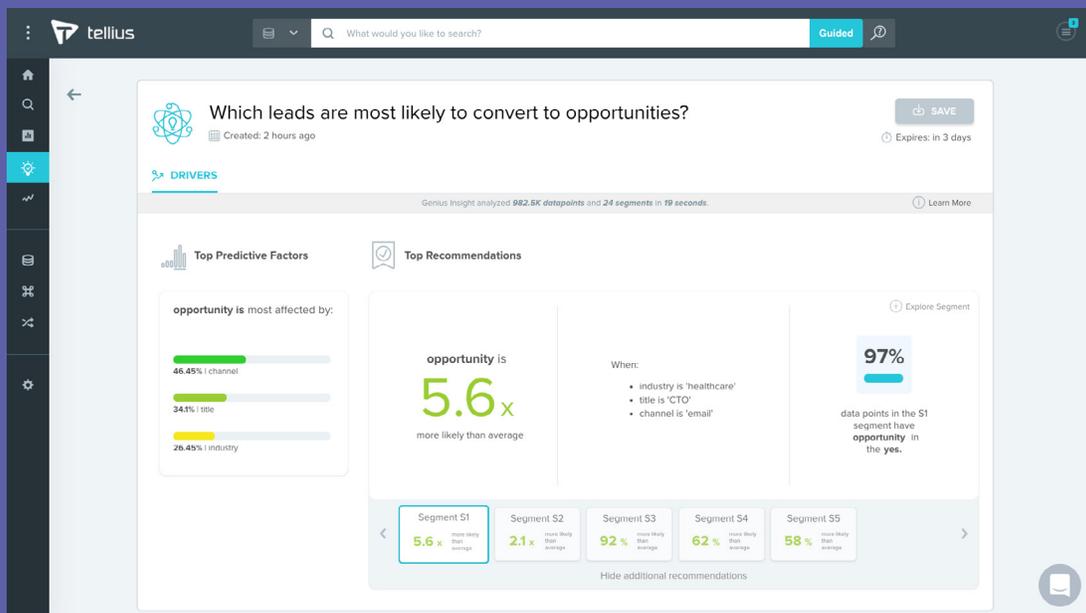
76% of IT executives say that data lag has negatively affected their business.

IDC

PLAY #2: AUTOMATED DATA ANALYSIS POWERED BY MACHINE LEARNING

Providing all employees with the ability to answer questions and uncover insights on their own will make them feel empowered and slash the high levels of demand placed on data analysts. Going beyond just self-service reporting, however, is self-service analytics software that can automatically discover insights for its users.

As organizations mature and move up the analytic curve, businesses need to know more than just “what” is happening in the business, but “why” performance is the way it is, and ultimately decide what action to take. With analytics tools made available to analysts and business users powered by artificial intelligence and machine learning algorithms, information workers can identify significant trends, relationships, and other important findings that typically take days or weeks to uncover. In addition to the speed increase, analysts no longer rely on guesswork and biased intuition when using spreadsheet and traditional visualization tools to surface such insights. By automatically discovering valuable insights, you’ll make better decisions faster and build a culture that is empowered by data.



Automated discovery of insights utilizes machine learning algorithms to analyze billions of data points in seconds to perform complex segmentation, anomaly detection, and trend-based analysis without coding.

Play #3

AUTOMATED DISCOVERY OF INSIGHTS



PROBLEM: TRADITIONAL BI ONLY SUCCEEDS WHEN YOU KNOW THE RIGHT QUESTIONS TO ASK

Traditional BI tools generally present answers to questions that you know to ask and deliver the information that you frequently need to know. Underneath every visualization or table cell is a rigid structure where a specific database query is written to retrieve data and calculate a value. For example, if you are a sales manager, this might mean that your dashboards and reports tell you overall sales by week/month/quarter/year, and present those in a breakdown by geography, salesperson, or product type.

With such a BI system in place, you're relying on these high-level metrics to help run the business. But when you're focused on keeping the lights on and the engine humming, it's very easy to miss things happening right under your nose that require your attention. You are not in the mindset of asking additional questions that might uncover new ways to improve the business. And you may not have an analyst by your side alerting you to interesting patterns in your data, so shouldn't your *business intelligence* solution be looking out for you?

BI can't help you unless you ask exactly the right question. You don't learn anything outside of what you ask for.

How much of the story are you missing?



MISSED OPPORTUNITIES ARE HIDDEN IN YOUR DATA

Back in our example, what if sales of Product A in the northeast was tanking, or sales of Product B was spiking in the northwest? Your dashboards won't tell you that, because they were not configured that way. And even if they were, you probably have to dig around and find that key insight – it was not clearly highlighted to you as something you should know.

And what about things happening in your business outside the scope of your reports? For example, you would expect that a sales manager to know that Product C sells best on Mondays. But that's not a metric that is tracked in a report, so the sales team is not equipped to ensure stock is always available or ready to cross-sell/upsell based on the product's popularity.

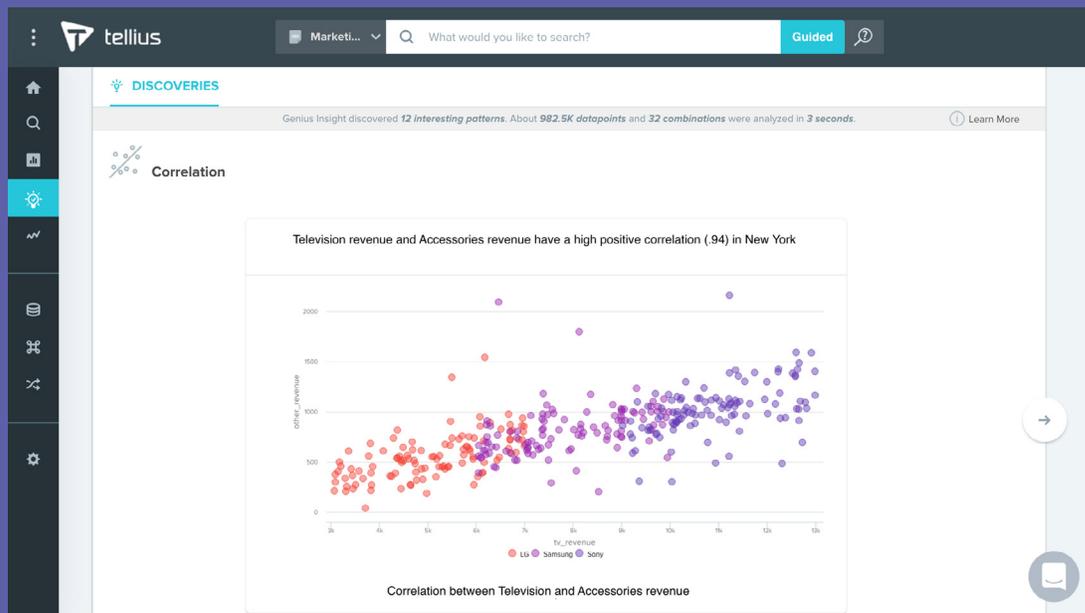
These types of insights are hidden from the business only because no one asked the question beforehand. Therein lies the issue: BI tools only give you a complete picture of your business *that you know to ask*. What businesses are missing is the business intelligence hidden in their data that they have *not explicitly asked about*.

There can be significant opportunity hidden in your data to grow revenue and profit, as well as to rectify operational issues that cost real dollars. On **Amazon Prime Day** in July 2016, Amazon noticed that sales were lower than expected and quickly realized that there was a technical glitch with the website's "add to cart" feature. These types of data discoveries for your business can only be uncovered when business intelligence software provides answers to the questions you have not asked yet.

PLAY #3: AUTOMATED DISCOVERY OF INSIGHTS

What your business needs is an intelligent analytics platform that can automatically discover valuable insights from your data. These insights could come in the form of identifying anomalies, uncovering trends, and other insights that you should know about to more effectively run your business. Unlike traditional reports and dashboards that present just the information you know to ask for, these interesting discoveries can change based on ongoing business activity.

Such a next-generation analytics platform acts as an analyst highlighting insights that help you become a more proactive organization that takes advantage of newly found opportunities instead of reacting to insights gone stale.



Tellius insight discovery surfaces important insights in your data based on your interests, essentially answering the next set of questions that you may or may not have known to ask.

Play #4

BRIDGING BUSINESS INTELLIGENCE AND PREDICTIVE ANALYTICS



PROBLEM: THE DATA SCIENCE “HOLY GRAIL”

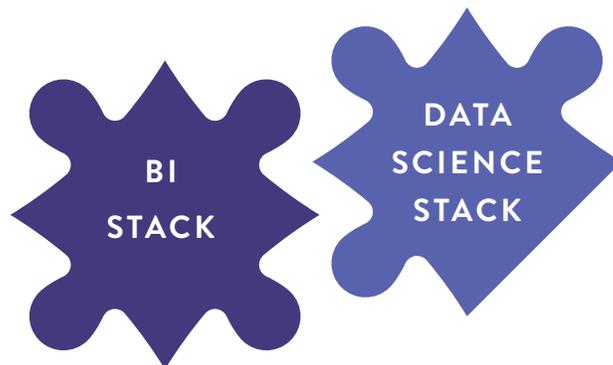
Data science is often and unfortunately perceived as some kind of “holy grail” for businesses of all sizes and industries. A common misconception is to hire one data scientist (or a team), give them access to ALL the data, and they will solve all the problems at the company.

This has driven the demand for data science through the roof. Data scientists, machine learning engineers, and big data developers, all ranked in the top five in LinkedIn’s 2017 list of the **top 20 fastest-growing jobs** in the U.S. IBM predicts that companies will need **28 percent more data scientists** by 2020, growing to a total of 2.7 million jobs in the U.S. But this shortage is only one reason that companies have not been able to reach data science nirvana.

WHY OPERATIONALIZING DATA SCIENCE INSIGHTS IS SO DIFFICULT

For companies to get value from data science, machine learning, and predictive analytics, it takes process, culture, and technology. It starts with the selection of a few problems that can be easily solved by advanced analytics techniques, followed by a process of experimentation, testing, and production-ization of predictive models. It also requires a culture of collaboration between the business who holds the domain expertise of operations, executives who must bring realistic expectations of such projects, and technologists who apply machine models to the real world.

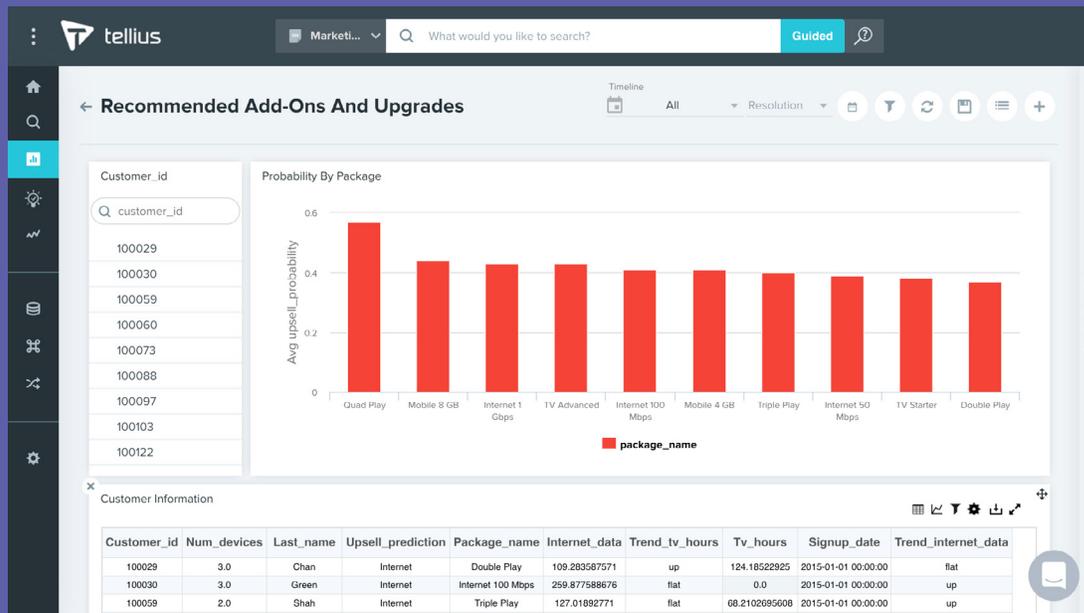
If those are not already impossible heights to climb, data science brings a completely different technology stack that the business is used to. Business users often think of anything data and analytics related as business intelligence reports, dashboards, or visualizations. Data scientists utilize a separate stack leveraging programming languages such as R and Python to produce predictive models and predictions. At best, these predictions and recommended actions come in the form of a spreadsheet, and they require another step to integrate into the business intelligence systems for consumption by the business. Next-generation analytics platforms offer a better alternative.



PLAY #4: BRIDGING BUSINESS INTELLIGENCE AND PREDICTIVE ANALYTICS

A next-generation analytics platform that includes business intelligence and automated machine learning makes it far easier to operationalize data science insights and make them consumable and actionable by business users. Under a common data and visualization platform, machine learning predictions can be incorporated into the system business users already operate in, so they can visualize and explore predicted outcomes and recommended actions through interactive dashboards and search-driven interfaces they are used to.

In addition, automated machine learning is made more intuitive through a point-and-click interface without the need for coding, making predictive modeling more accessible to the growing population of “citizen data scientists.” According to Gartner, **more than 40 percent of data science tasks** will be automated by 2020, making it easier than ever for citizen data scientists to perform sophisticated analyses. A next-generation platform helps relieve the strain caused by the lack of highly technical data scientists and improves collaboration of more team members under a common system.



With interactive BI visualization and predictive modeling in the same business analytics platform, organizations can easily collaborate on initiatives that make recommended actions accessible to the business.

Play #5

ANALYTICS FROM ALL YOUR DATA, AT SCALE

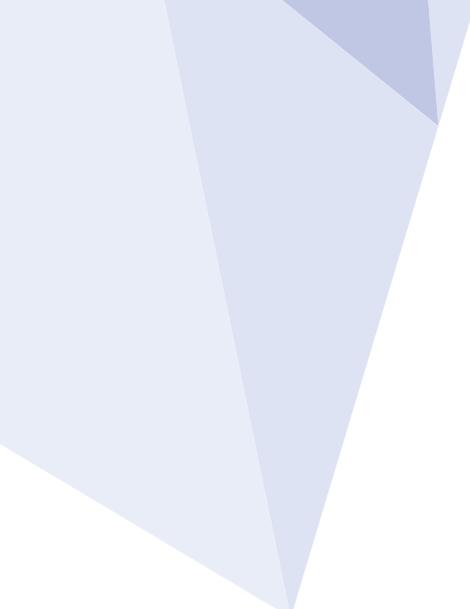


PROBLEM: LARGE AND COMPLEX DATA

One common scenario that makes data difficult to work with is when data comes from many disparate sources. This can create bottlenecks and hold-ups, as different departments and groups each have their own processes and requirements for collecting and distributing information.

Organizational “silos” can worsen the problem of data slowness. Silos occur when individual departments or sectors construct barriers between them and the rest of the organization, making collaboration and sharing more difficult. According to an MIT study, **fewer than 10 percent of employees** would describe their companies as “open” about sharing data, both internally and externally.

When you have multiple data sources — especially when data must be exported to spreadsheet files — analysts need to constantly jump from one application to another to extract data. Without a method to automate these processes and unify data, you’ll be on your own to aggregate this data, and then convert it into a format that’s digestible by those who need it.



ANALYTIC SLOWDOWN

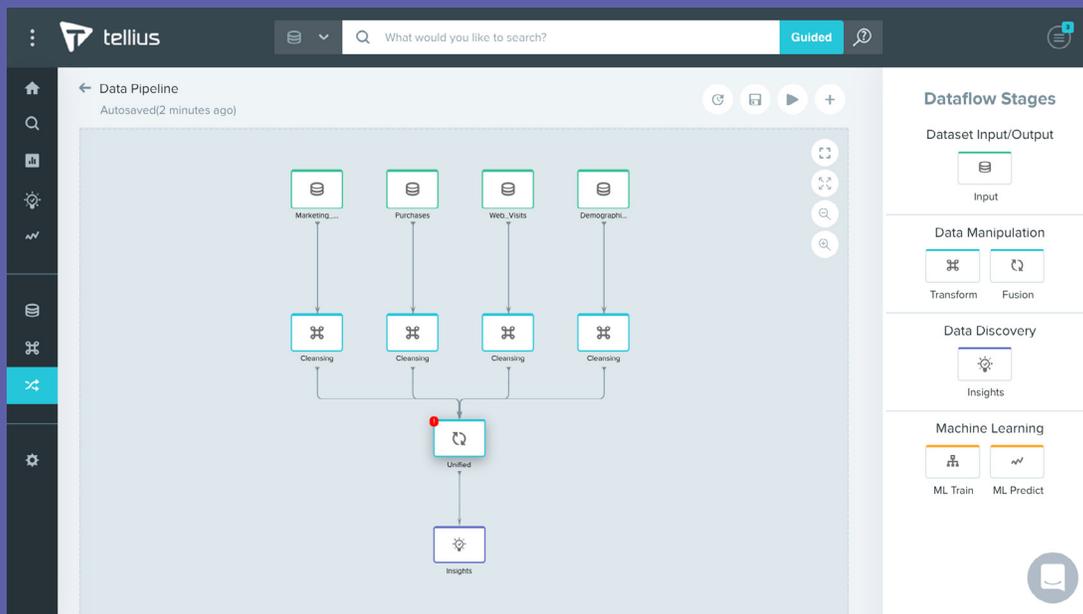
Oftentimes, your analytics tools are not designed to process and analyze the volume and complexity of your data at the speed you want. What's worse is that you may have simply accepted your fate and lived with these problems instead of seeking out appropriate solutions to get your business moving again.

For example, popular visualization tools such as Tableau and Power BI have hard limits on the amount of data they can process at one time, which can add significant effort to work around such product constraints and cause delays in properly analyzing data. Not only does this slowness waste your time while you wait for your dashboards to load, it's also a serious business issue by preventing you from getting real-time insights. In some cases, your findings are already outdated by the time you've completed the analysis.

PLAY #5: ANALYTICS FROM ALL YOUR DATA, AT SCALE

Next-generation analytics platforms are built from the ground up to handle data from all your sources, at scale. This includes data coming from databases, applications, files, and other sources across the enterprise. Self-service data preparation capabilities are built-in, so data can be easily profiled, shaped, and combined for analysis.

An innovative data platform can scale to meet the high-performance requirements of its end users and maintain flexibility in deployment. Fast response times are offered with in-memory computation as well as on-disk data. Use cases may also call for leveraging data in-place in some scenarios or ingesting data in other scenarios. Finally, you should expect that big data scenarios are easily accommodated whether that is a current or future requirement.



Powered by the high-performance computation engine of Apache Spark, the Tellius data platform connects to a wide variety of data sources, automates the data preparation workflow, and scales to big data scenarios.

FINAL THOUGHTS

The growth of data is accelerating, and companies are constantly on the hunt for best-in-class analytic solutions that give them incisive, actionable business insights. Gartner estimates that the worldwide BI and analytics market will reach **\$23 billion in 2020**, growing by 19 percent year over year. Despite the growing demand, however, many organizations are not prepared to deliver insights to the business as fast as they would like.

Tellius provides a next generation analytics platform that will accelerate the velocity of analytics for any organization. By leveraging the power of search, machine learning, and a high-performance data platform, Tellius gives everyone across the business the peace of mind that their answers will be fast, accurate, and informative, all while providing your organization with easy and effortless access to insights.