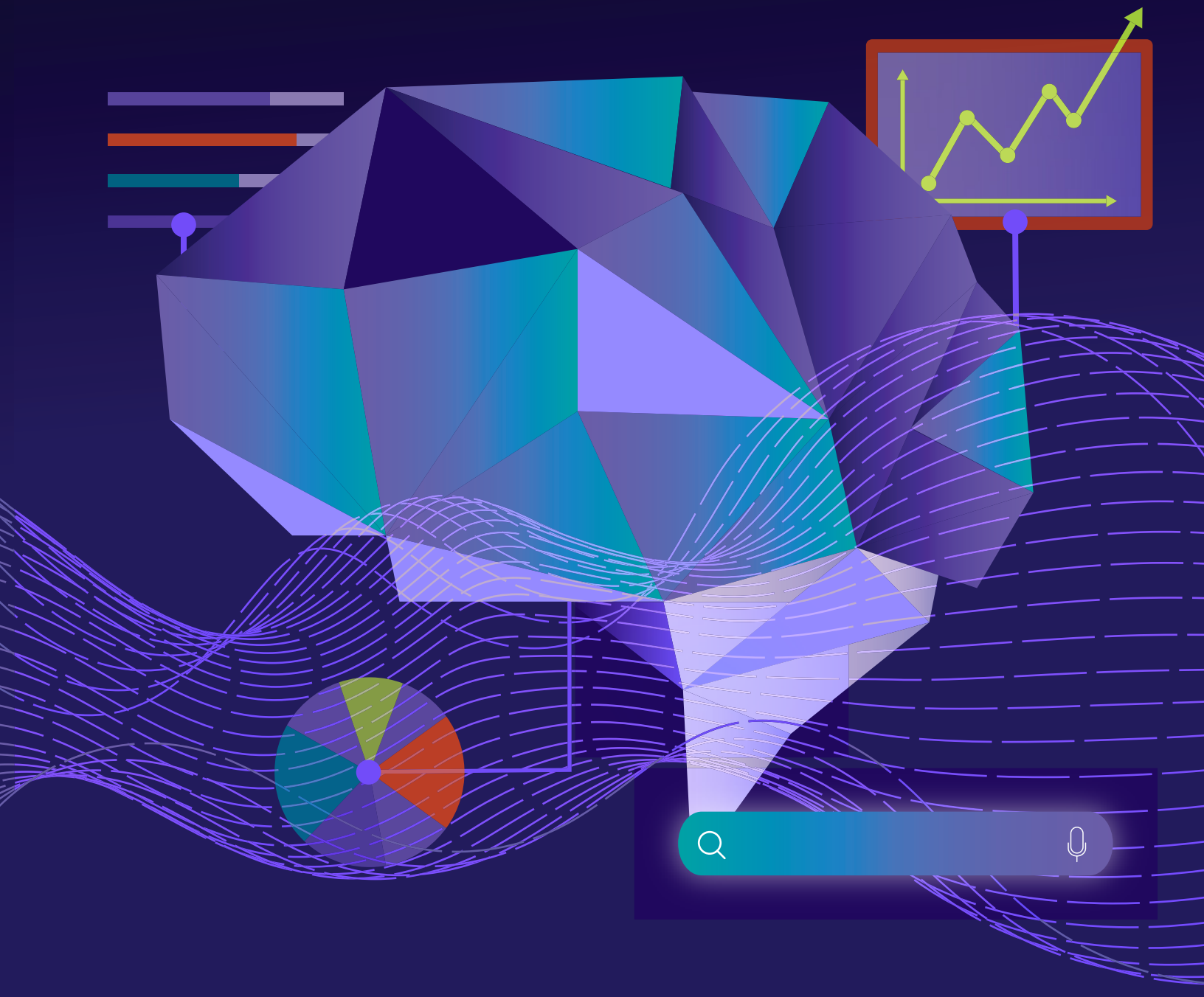


The Ultimate Guide to **Decision Intelligence**



The Ultimate Guide to Decision Intelligence

Using AI and Augmented Analytics to Drive Better Business Outcomes

Introduction

Over the past few years, the concept of decision intelligence has skyrocketed from a nebulous term to a common driving force behind effective decision-making for large organizations.

To drive success, every single organization needs to make decisions—there's no way around it. As they amass more and more data (data that's growing in complexity, too), it's only becoming more difficult for companies to extract the right insights to make data-driven decisions.

Decision intelligence is making data-driven decision-making a reality for organizations of all shapes and sizes, unlocking access to AI-powered analytics for every business user (even those without technical expertise). Business and analytics leaders should understand what decision intelligence is, why it matters, and how it can benefit their organization.

Defining decision intelligence

Decision intelligence is the application of machine learning and automation to augment human decision-making for better, faster insights-driven business decisions. To accomplish this, decision intelligence equips anyone to ask and answer *what*, *why*, and *how* types of questions of vast amounts of disparate data. This drastically reduces the time and effort necessary for them to make strategic, tactical, and operational decisions.

Why is decision intelligence important?

Businesses have massive amounts of data and increasingly complex business decisions to solve from this data, especially in the uncertain macroeconomic environment of the past few years. But the problem is they lack insights to bridge data to decisions.

Enter decision intelligence—it enables businesses to make decisions based on data rather than intuition or guesswork. By using decision intelligence to analyze large datasets and extract actionable insights, businesses can make informed decisions that are more likely to lead to favorable outcomes.

Analytical output (analysis, insights, and data stories) don't scale with data volumes because today's tools, processes, and teams are siloed along the lines of descriptive, diagnostic, and predictive analytics, with time-consuming handoffs and insights gaps.

The result? **Inefficiencies** (analytics queues or handoffs between teams and tools), **missed opportunities** (delaying decisions due to lack of analysis), and **increased business risk** (decision-making without robust analysis or, even worse, with biased analysis).

Decision intelligence offers a way to bridge these insights gaps, helping users make better, faster, insights-driven decisions at cloud scale, with continuous improvement.

Benefits of decision intelligence

Bridging this insights gap unlocks better, faster, and continuously improving insights-driven decisions.

Bridging BI & AI:

Break down internal silos within analytics functions to seamlessly iterate amongst diagnostic, predictive, and prescriptive analytics to get answers.

Enabling true self-service ad hoc analytics:

Turn analytics into a conversation with data, regardless of your technical expertise.

Reducing the analytics backlog:

Automate time-consuming or tedious aspects of analysis to get more done with less.

Supercharging analysis:

Go deeper with AI, leapfrogging analysis (e.g., consider millions of data points and interaction combinations to automatically identify segments, drivers, cohorts, and market share).

Democratizing predictive analytics:

Put predictive analytics in the hands of decision-makers (no longer reserved for just the data science teams of technology supergiants).

Who is decision intelligence for?

BUSINESS USERS

What regions/products are driving sales?

Business users deploy decision intelligence to access and explore unaggregated data to track KPIs. Decision intelligence makes it easier for them to independently answer in-depth questions with the help of machine learning algorithms.

ANALYSTS

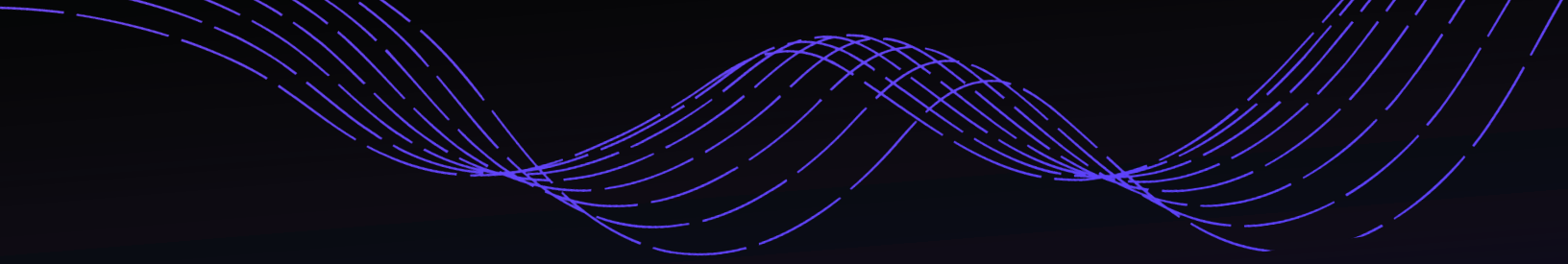
Why is our brand losing market share?

Analysts use decision intelligence to supercharge analysis and get faster answers: e.g., perform segmentation or analyze key drivers of change. Instead of having to wait for data scientists to build models or execute the automation of analysis, analysts can perform their own advanced analysis using AI automation.

DATA EXPERTS

Which doctors in which regions will prescribe our new medicine?

Data experts—analytics engineers, citizen data scientists, and data scientists—use decision intelligence to leapfrog time-consuming elements of data prep, exploration, analysis, and modeling to tackle harder problems and drive strategic decision-making for their brand.



What makes decision intelligence unique?

Here are three key ways in which decision intelligence differs from traditional business intelligence (BI) tools, manual analysis methods, and data science tools, respectively.

DECISION INTELLIGENCE VS. BUSINESS INTELLIGENCE

BI is targeted for data consumers like business users, whereas decision intelligence is suited for both data consumers and analytics creators such as analysts and data experts. Second, BI is suited for descriptive analytics to answer which KPI or metric changed, whereas decision intelligence expedites identifying the *what*, the underlying *why*, and *how* to improve. Finally, BI lacks intelligent automation that decision intelligence has, such as NLQ, automated visualizations, automated insights, automated prep, AutoML, and proactive intelligence.

DECISION INTELLIGENCE VS. MANUAL ANALYSIS (SQL/PYTHON/EXCEL)

Manual analysis is primarily done by analytics creators like data analysts and data experts, whereas decision intelligence is suited for data consumers like business users and analytics creators. Second, manual analysis is suited for diagnostic analytics to answer why KPIs changed, whereas decision intelligence expedites identifying the *what*, the underlying *why*, and *how* to improve. Third, like traditional BI tools, manual analysis lacks a number of intelligent automation features as listed above.

DECISION INTELLIGENCE VS. DATA SCIENCE TOOLS

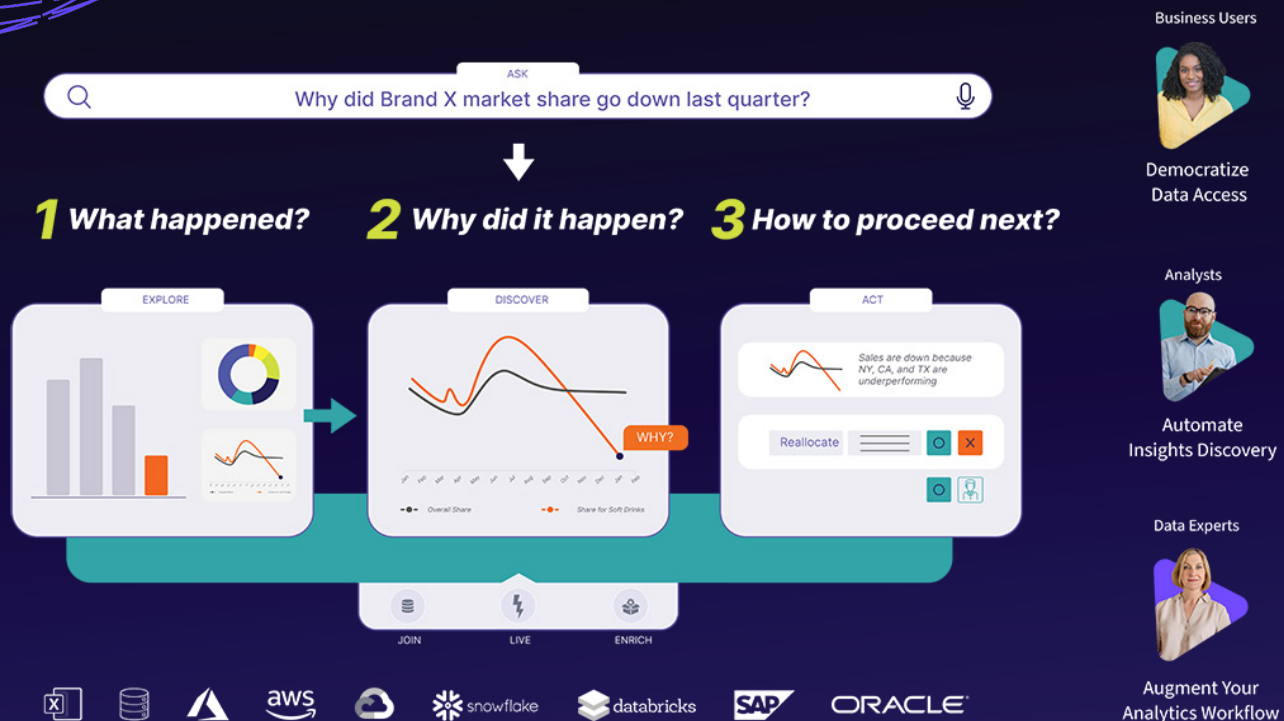
First, data science tools are primarily in the purview of analytics creators—typically, advanced analytics creators like data scientists—whereas decision intelligence is suited for data consumers and analytics creators alike. Second, data science tools are suited for predictive and prescriptive analytics to model the future and identify ways to improve outcomes, whereas decision intelligence expedites all forms of analytics (descriptive, diagnostic, predictive, and prescriptive). Third, although data science tools are growing more in their automation in the form of AutoML, they're still heavily manual, whereas decision intelligence is marked by intelligent automation.

How does decision intelligence improve analytics workflows?

Current analytics workflows are typically siloed along the lines of people, tools, and processes.

PEOPLE	BUSINESS USERS	ANALYSTS	DATA EXPERTS
Tools	• Spreadsheets • Reports and dashboards	• SQL • Traditional BI	• IDEs/notebooks (Fython/R) • Data science platforms
Processes	Combing through dozens of dashboards or reports to retroactively see what happened. Rely on analysts to get to the drivers: the <i>why</i> behind what happened	Running SQL queries to aggregate data and slice & dice for hypothesis testing on a handful of variables, searching for the <i>why</i>	Running time-consuming statistical and ML-based analyses in IDEs/DSML to spot the <i>why</i> and determine how to best proceed
Challenges	• Backward-facing analysis • Limited drilldowns/paths • Can't get to <i>why</i> alone	• Highly manual and inefficient • Not scalable with large amounts of data • Prone to biases	• Complex technical skills needed • Siloed, often disconnected • Inaccessible to the rest of the business

Decision intelligence breaks down these barriers in people, tools, and processes, allowing anyone to quickly and collaboratively answer the what, why, and how types of questions of their unaggregated data to ultimately make better decisions.



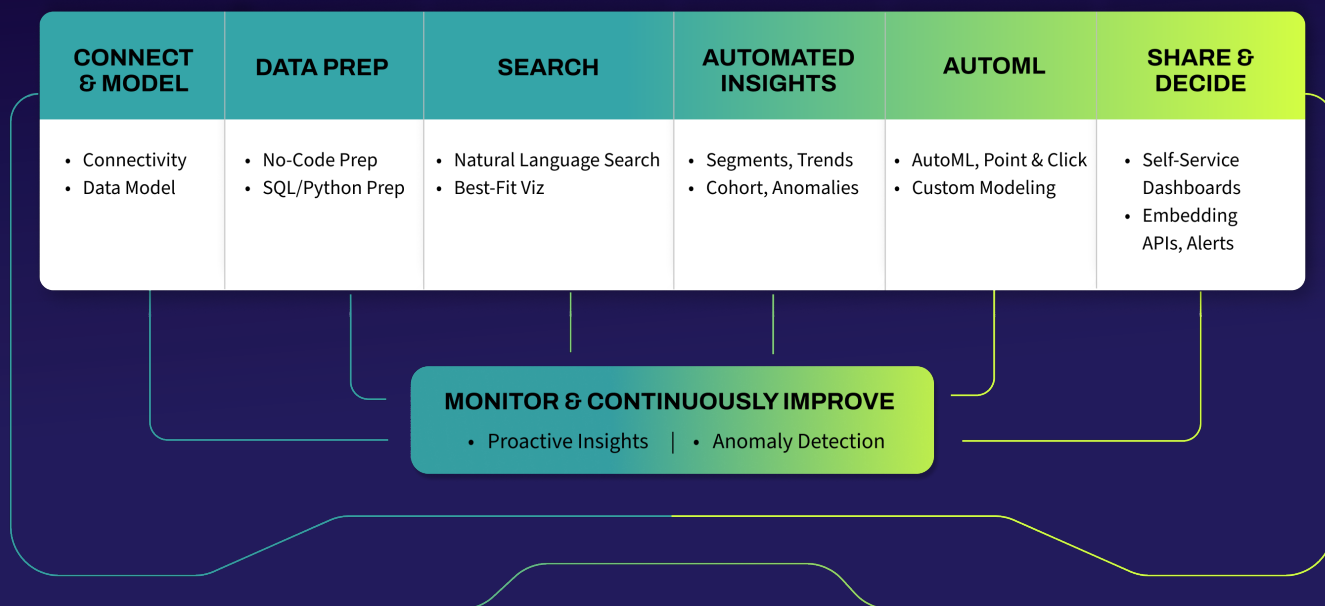
Core capabilities of decision intelligence

In this rapidly evolving technology environment, there are tons of vendors emerging in the decision intelligence space. It can be hard to keep up with and discern what's moving the analytics needle vs. what's hyped.

With your decision intelligence solution, you need to be able to iterate quickly, monitor and continuously improve outcomes, and create tangible wins for your organization, especially during tighter macroeconomic times. Instead of looking for a solution that seemingly does everything under the sun, focus on these key capabilities:

Best-in-class decision intelligence platforms greatly simplify the complexity of decision-making by **translating business questions** (in natural language), **applying the right algorithms** (statistical, classification, and regression) in the most efficient way (in-memory or pushdown queries to where the data resides), and **presenting answers back to users in an understandable and actionable format** (using natural language-generated narratives and embedding).

Here's a closer look at all of the components behind these capabilities:



CONNECT & MODEL

Data is the bedrock underlying analysis and insights for better decisions. You need to be able to connect to all of your data sources and business applications with zero data movement, ensuring one single source of truth.

DATA PREP

Modern, insights-driven decision-making requires blending data, developing metrics and calculations, and flexibly adding new sources as analysis evolves.

SEARCH

Ad hoc data exploration/analysis is critical to decision-making. Natural language query (NLQ) allows any user, regardless of data skills, to flexibly explore and analyze terabytes of unaggregated data in plain English to quickly spot what's happening.

AUTOMATED INSIGHTS

Automated insights accelerate complex data analysis with AI-driven automation to identify the *why* behind the *what* and provide direction as to *how* to improve outcomes. For example, cohort analysis provides reasons for differences among values or cohorts; trend drivers provide reasons for differences in metrics/KPIs over time; segment drivers use machine learning to identify key drivers; and anomaly and outlier detection automatically spots unexpected shifts.

AUTOML

Automated machine learning modeling is important for modern business decision-making. Predictive analytics take segments/relationships from automated insights to the next level by spotting future potential opportunities for improving outcomes.

SHARE & DECIDE

Sharing insights is critical to decision buy-in. An intuitive decision intelligence platform providing actionable insights helps an entire organization become more data-driven.

MONITORING & SCALABILITY

Monitoring outcomes, knock-on effects, and key metrics is important for continuous decision improvement. It's also important to note that decisioning that considers billions of data points requires a scalable, robust, high-speed analytics engine, compute framework, and security/access controls to keep everyone safe.

How does decision intelligence fit into the modern decision-making stack?

An organization's decision-making stack is a suite of tools for gathering, storing, transforming, and analyzing data, typically characterized by being built on cloud-first data warehouses, having ease of setup/maintenance, and being flexible (i.e., pay-as-you-go pricing and a modular, mix-and-match of best-of-breed tools).

Each of these stack layers plays a key role in an organization's goals to get better insights from vast amounts of data and to proactively uncover new opportunities for growth. When it comes to the analytics layer, the typical tools people usually think about are dashboards for business users to monitor KPIs, SQL query for analysts to dig deeper, and ML modeling for expert data scientists.

But these techniques have been with us for decades. They reinforce the traditional analytics process, where organizations wait on data teams to work through their backlog in order to answer critical business questions.

If organizations are going to take a fresh, modern approach to their decision-making stack, they should update the analytics experience for their users through decision intelligence, unifying the final layer of the stack with AI and machine learning.

How is generative AI incorporated?

2023 was a landmark year for generative AI, setting the stage for a transformative future, where organizations can integrate these technologies with their data—revolutionizing analytics workflows, creating new user experiences, and boosting employee productivity.

Here's a generative AI refresher: A type of artificial intelligence, generative AI creates text, images, or other media by using a generative model, which refers to a large language model (LLM): e.g., Google's PaLM, Meta's LLaMa, and the most commonly known LLM, OpenAI's GPT. LLMs—which are trained to learn patterns from a massive amount of data—analyze a text prompt to make sense of what you're asking and then put their training to work to generate a contextually relevant response.



The application of LLM technology on a decision intelligence platform built for multi-persona analytics (i.e., a platform for data scientists, analysts, and business users) provides more opportunities for collaboration among groups. An intuitive platform providing automated actionable insights also helps an entire organization become more data-driven.

But naturally, many questions and concerns remain about introducing generative models into analysis workflows. For example, hallucinations are still very prevalent from the largest LLMs today (i.e., the generation of information that's either incorrect or nonsensical).

When you're evaluating decision intelligence solutions, look at GenAI as an enrichment, rather than the basis, for the solution. In other words, a platform shouldn't rely on LLM technology as the backbone of its computational engine—instead, look at GenAI as a means of enriching search with an LLM-based contextual understanding for a given industry or use case. This helps increase the accuracy of search results for a given prompt, which essentially means there's no chance of hallucinations. Explainable AI features can also help organizations understand how an analysis was derived.

Although generative AI tools are becoming increasingly more accessible as part of analytics workflows, it's not a simple plug-and-play solution. An organization's data and domain experts must still exercise caution, collaboration, and patience when adopting the technology, which requires setting up, mapping, and fine-tuning to specific needs (e.g., use cases, data size, individual expertise).

Where should decision intelligence be used?

Organizational decision-making ranges immensely in type (strategic, tactical, operational); degree of machine involvement (decision support, decision augmentation, decision automation); and speed, scale, and complexity (low, medium, high).

- **Analytics/BI** is useful for decision support (i.e., 100% human-made decisions) for strategic and tactical matters of low speed/scale/complexity.
- **Data science** is useful for decision automation (i.e., 100% computer-made decisions) for tactical and operational matters of medium- or high-speed/scale/complexity.
- **Decision intelligence** is useful for decision augmentation for strategic, tactical, and operational matters at both low/high speeds, scale, and complexity. Its particular sweet spot revolves around decision augmentation—i.e., helping humans analyze millions of data points and see hidden connections that they otherwise would not have done, or serving up predictions and clusters that humans wouldn't have otherwise seen.

Decision intelligence in action

CPG

Let's say a marketing team at a global CPG firm is concerned with their product's market share performance. Using a decision intelligence platform, the team can quickly ask and answer market share-related questions in seconds that otherwise might have taken days or weeks using traditional dashboards and BI methods.

1

WHAT Using natural language search, the team inputs “tell me what’s happening with our product’s market share week over week,” revealing a downward weekly trend in the Northeast U.S. in Q4 2023.

2

WHY The team dives into key drivers impacting market share via automated insights, which analyzes millions of data points to reveal hidden relationships and surface the most likely drivers of the market share drop. Analysis further reveals that a specific customer subset is having an outsized impact.

3

HOW They isolate this customer subset and initiate a targeted marketing campaign. They use AutoML to build/train/deploy a predictive model to classify “high propensity to buy” segments for another targeted marketing campaign.

PHARMA

Now, let's take a look at how a pharmaceutical/biotech company would unleash decision intelligence from all of their prescriber, market, and patient data.

1

WHAT Using natural language, teams ask, “How are prescriptions trending by state for new patients for [a certain drug]?” This reveals an insight that prescriptions have been trending downward in the Tri-State Region of the U.S. in the past few weeks.

2

WHY Using AI-powered decision intelligence, the firm identifies the systemic drivers of underperformance and growth opportunities, informing pull-through strategy.

3

HOW The resulting course correction drives an increase in the brand's market share, contributing to sales revenue; reaches underserved HCPs using new channels to increase demand; and improves response time to market changes to identify drivers behind trend breaks.

Other decision intelligence use cases

INDUSTRY-AGNOSTIC

SALES AND MARKETING

Brand performance, promotion/incentive optimization, customer segmentation, market share insights, ecommerce and multichannel analysis

SUPPLY CHAIN ANALYTICS

Automated root cause analysis (e.g., defects or delays), inventory management/optimization, demand forecasting, supplier performance monitoring, quality analytics

HR ANALYTICS

Ad hoc analysis of HR metrics (e.g., headcount, attrition, salary, or rewards)

GAMING ANALYTICS

Monetization, game experience/design, fraud detection

PRICING ANALYTICS

Elasticities, seasonality pricing optimization

INDUSTRY-SPECIFIC

COMMUNICATIONS

Network management and optimization, capacity planning and forecasting, preventive maintenance

CPG

Shopper insights, capacity planning, promotion optimization

ECOMMERCE AND RETAIL

Customer, multi-channel, marketing, operational, and supply chain analysis

MEDIA

Ad pricing optimization

FINANCIAL SERVICES

Credit risk, fraud prediction, rebate/cash flow forecasting, loan analysis

INSURANCE

Policy underwriting, risk modeling, fraud detection

PHARMA

Optimizing brand strategies, gaining new commercial insights, navigating complex market access scenarios, delving into payer analytics, ensuring manufacturing quality

A closer look: Decision intelligence is changing the game for pharma and life sciences firms. Learn more across these specific use cases.

Field sales analytics: Track sales metrics changes at the sub-national and territory level, and dramatically improve healthcare professional (HCP) targeting.

Brand insights: Uncover actionable brand insights to improve marketing strategy and drive sales.

Self-service life science analytics: Eliminate organizational bottlenecks and increase analytics agility.

Market access: Inform strategic decision-making and optimize market access.

Payer analytics: Track rebate usage, perform formulary/plan-level performance management, and forecast rebate/cashflow, driving revenue.

Supply chain quality analytics: Enhance pharma manufacturing quality management and efficiency while mitigating risks.

Getting started with decision intelligence

For organizations looking to implement decision intelligence at their organization, look at your existing decision-making approaches, explore use cases, and then, pinpoint the types of decisions that would lend best to decision intelligence.

Second, evaluate vendors in the space. Some platforms, although claiming to be true decision intelligence, are simply a rebranding of core BI or data science offerings. Evaluate vendors against the best-in-class core capabilities, and make a shortlist.

Finally, start small if you're not ready to roll out decision intelligence at scale. Look at just one or two use cases, or just roll it out to a small team. If you find value, then you can expand.

It's also important to choose a decision intelligence platform that has the potential to adapt to—and seamlessly incorporate—other future advancements that could emerge with as big of a boom as generative AI has.

Although the journey to investing in the right decision intelligence solutions might seem daunting, it's a critical step in unlocking the full potential of your data. After all, it isn't just an investment in technology—it's an investment in the future success of your business.

Learn more about decision intelligence

Tellius' decision intelligence platform augments users' experience with AI-powered tools, enabling data analysts, data engineers, and business users to do more with their data. As one of the industry leaders in natural language analytics, Tellius' AI-native solution has been focused on innovating natural language processing and automated insight generation technology since 2017.

Learn more at tellius.com or request a customized demo for your organization [here](#).

