White Paper

What Every Executive Needs to Know About AI-Powered Decision Intelligence

Sponsored by: Aera Technology

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INTRODUCTION

In the first five months of 2022, a large consumer packaged goods (CPG) company recorded 220,000 AI-generated recommendations sent to users of its decision intelligence technology. These data-driven recommendations are in addition to thousands of other automated decisions, made automatically by the software based on data analysis and defined business rules. While this number represents only a fraction of all the decisions made across the company throughout that time, those digitized and automated decisions have created a massive impact. They represent the start of a transformation in how companies can analyze data and make decisions.

The CPG company, which has over 400 brands and operations in 180 countries, had been on a multiyear AI adoption journey focused on the goal of creating an end-to-end, "self-driving" automated supply chain. At the CPG company, this means intelligently automating a set of decisions — changing the decision-making process from one that relies only on human intuition, siloed data, and the inertia of past experiences to one that incorporates AI-powered decision-making capabilities that assist or augment the human decision maker, eventually automating all selected decisions. By doing so, companies can also reveal and address decision-making opportunities, which might have gone unnoticed in the past.

While most of today's headlines speculate about the potential benefits of AI in the enterprise, leading organizations are already using AI, analytics, and data to generate value for their customers, employees, partners, investors, and communities. The positive impacts of digitized and automated decisions seen at the CPG company may soon be repeated at other global enterprises as they embrace decision intelligence and AI — a technology with tremendous potential to improve agility, productivity, and financial metrics across entire industries.

What unites these pioneering organizations are clear goals and KPIs by which to measure progress, active investment in technology to accelerate decision velocity, and a pragmatic use of AI, analytics, and data technologies and skills — all of which are included in the set of capabilities that IDC defines as *decision intelligence.*

At IDC, we set out to conduct a study to identify common characteristics of organizations with superior AI-powered decision intelligence — organizations that are achieving greater decision velocity while competing in an environment of heightened volatility, uncertainty, complexity, and ambiguity. Sponsored by Aera Technology, this market research and the resulting white paper shines a light on current opportunities to achieve market-leading outcomes, as well as identifying roadblocks standing in the way of accelerating decision velocity, and best practices for overcoming these roadblocks. A key

goal of the study was to cut through the hype associated with AI to guide organizations toward the intentional use of this technology.

As discussed in Benefits of Decision Intelligence section, decision intelligence leaders show notable improvements in key business metrics – including customer retention, employee retention, and product or service innovation – versus those who have not yet connected the six steps of a decision-making process.

What Are Decision Intelligence and Decision Velocity?

To define these two concepts, consider that decision making is often depicted as a closed-loop process consisting of multiple steps and feedback loops that enable making a data-informed or data-driven choice from among two or more alternatives or scenarios.

Decision intelligence, simply put, is a set of capabilities that fully or partially automate all steps in the decision-making process thus accelerating decision velocity. In our research, we provided study participants (representing business and IT decision makers from 322 large companies across 8 countries and 6 industries) with a further clarification of decision intelligence as a process that includes the six steps shown in Figure 1.

Decision velocity is the speed with which a decision-making process can be executed within the set of enterprise controls and is another source of competitive advantage.

FIGURE 1

Six Steps of Decision Intelligence

1. Accessing and organizing data into a form that makes data available for analysis
2. Analyzing data using descriptive and predictive methods, including AI
3. Recommending a decision: defining and presenting likely alternatives or options
4. Deciding by selecting an option based on constraints and goals
5. Executing a decision by acting based on the decision made
6. Monitoring and evaluating results of the decision and action

Source: IDC, 2023

THE IMPERATIVE FOR AI-POWERED DECISION INTELLIGENCE

Decision making seems like a foundational capability that every organization should surely invest in. Unfortunately, that's not the case. When we asked study participants "Of all the decisions you make in your usual flow of work, what percentage are made in the following ways?" we found that on average:

- One-third of decisions are made based primarily on experience or intuition, with minimal reliance on data analysis.
- One-third of decisions are made based primarily on deliberate data analysis, including evaluation of alternatives and understanding of potential outcomes and their impacts.
- One-third of decisions are made based on a well-balanced combination of experience and data-driven decision making.

Think about the number of decisions made daily in your organization. At the CPG company, the above-mentioned hundreds of thousands of recommendations and automated decisions were made over just four months, in a narrowly defined set of business processes and in just one geographic region. In fact, the CPG company's leadership has articulated that one of their main goals for decision intelligence goes beyond merely automating tasks to focus on progressively improving the quality of decisions made. They plan to accomplish this by leveraging deeper data analysis to find the optimal decision — especially for those decisions that previously were made by people relying on emotion, intuition, or experience.

IDC estimates that in 2023, organizations worldwide will spend about $290 billion on a broad range of data management, analytics, and AI technology and services (excluding internal labor costs). While this seems like a large number, spending on all types of "big data," analytics, and AI solutions has been increasing for decades. IDC research indicates that over the past 30 years, this spending has been growing at a compound annual growth rate of 15.5% in the United States. That equates to about $2 trillion in spending in the United States alone over the three decades. However, the question remains, have companies seen the returns they expected on those investments?

Our contention is that, collectively, we have not seen sufficient return on investment (ROI) on past investments in data processing and analysis because these have largely been focused on either data accumulation, data visualization, or linear data pipeline development. Not enough emphasis has been placed on understanding how employees and teams make decisions and providing them with the technical, analytical, and business process capabilities to improve those decisions.

As a result, our study found that 30% of decisions made in an organization remain undocumented, only 20% of decision makers feel completely comfortable with the number of decisions they need to make daily, and 25% of decisions that should be made are not made. Another indicator of insufficient focus on decision making is the disconnect between executives' understanding of lower-level, in-the-field decision-making practices of employees. Our study participants said that only 55% of executives mostly or fully know how lower-level decisions are made — suggesting a lack of visibility into decision-making processes, which, in turn, hinders the ability to improve them through intelligent automation.

These are worrying findings that are supported by other IDC market research in studies such as IDC's 2023 *Future of Enterprise Intelligence Survey* and IDC's *Data Valuation Survey*, where we found the following four phenomena:

- **Data decay:** 75% of decision makers say that data loses its value within days.

- **Data waste:** 33% say they often don't get around to using data they receive.
- **Data disconnect:** 61% say data complexity has increased compared with last year.
- **Data neglect:** 70% say that data is being underutilized.

Despite progress in data management, analytics, and AI technology, the challenges of turning all this technological prowess into better decision making and business outcomes remain both a significant challenge and a massive opportunity for most organizations.

The AI-Powered Decision Intelligence Opportunity

There is great promise in value generation from AI-powered decision intelligence. In our study, 75% of executive, VP, and director-level respondents expect to reap significant or very significant improvements from better decision making if they invest in a decision intelligence initiative. (We defined better decision making as aggregated improvements in decision speed, quality, consistency, agility, and governance.)

56% of decision makers stated that a unified decision intelligence technology platform would be *extremely or very* beneficial to their organization; another 41% stated it would be *somewhat* beneficial. In other words, almost everyone (97% of respondents) expects to benefit from decision intelligence. These organizations' top priorities at this time of economic, geopolitical, and regulatory uncertainty are:

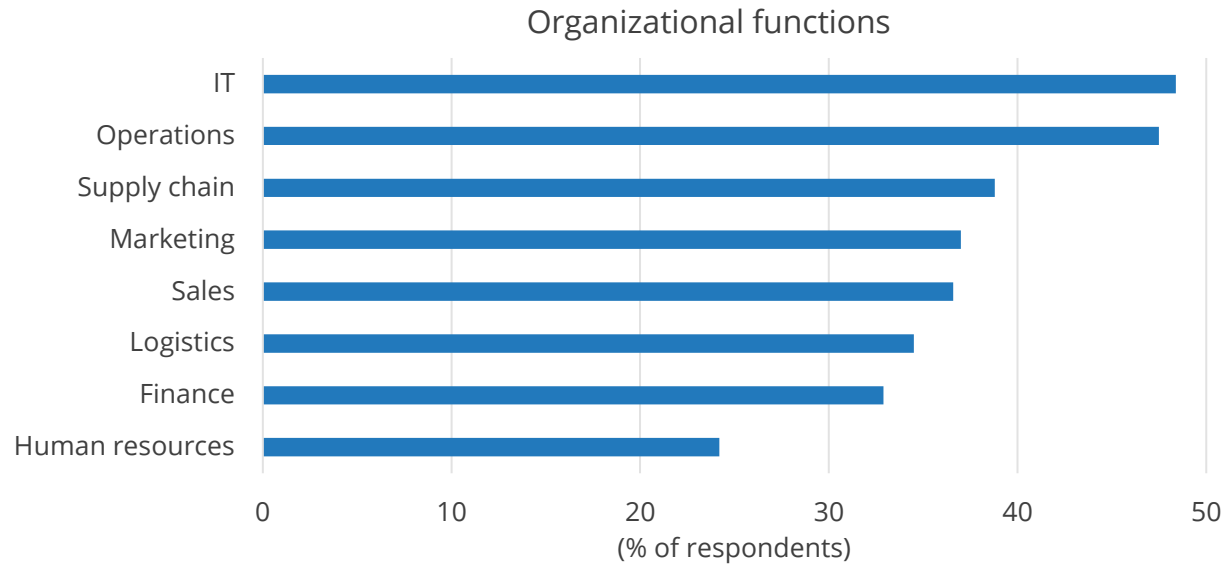
1. Standardize decision-making procedures and policies.
2. Improve collaboration between data scientists, data analysts, and business decision makers.
3. Ensure availability of decision intelligence technology.
4. Empower employees to make decisions within a set of policies and procedures.

A decision could be, for example, an adjustment to a purchase order in response to changes in demand, manufacturing capacity, or inventory levels — or all these factors. A decision could be about launching an additional production run, or it could be about a price or promotion change. The use cases for decision intelligence are applicable across business functions, as shown in Figure 2.

FIGURE 2

Business Functions with Greatest Potential Benefits from Decision Intelligence

Q. *Select the top 3 business functions where decision intelligence technology would have the greatest positive impact in your organization.*



Source: IDC's *Decision Intelligence Survey* (commissioned by Aera Technology), June 2023

Who Are Decision Intelligence Leaders?

Given the opportunity to accelerate decision velocity through AI-powered decision intelligence while facing technical, operational, and organizational roadblocks, leading organizations are making a clear choice in how they allocate their investments. As part of our analysis, we segmented participating companies into two groups:

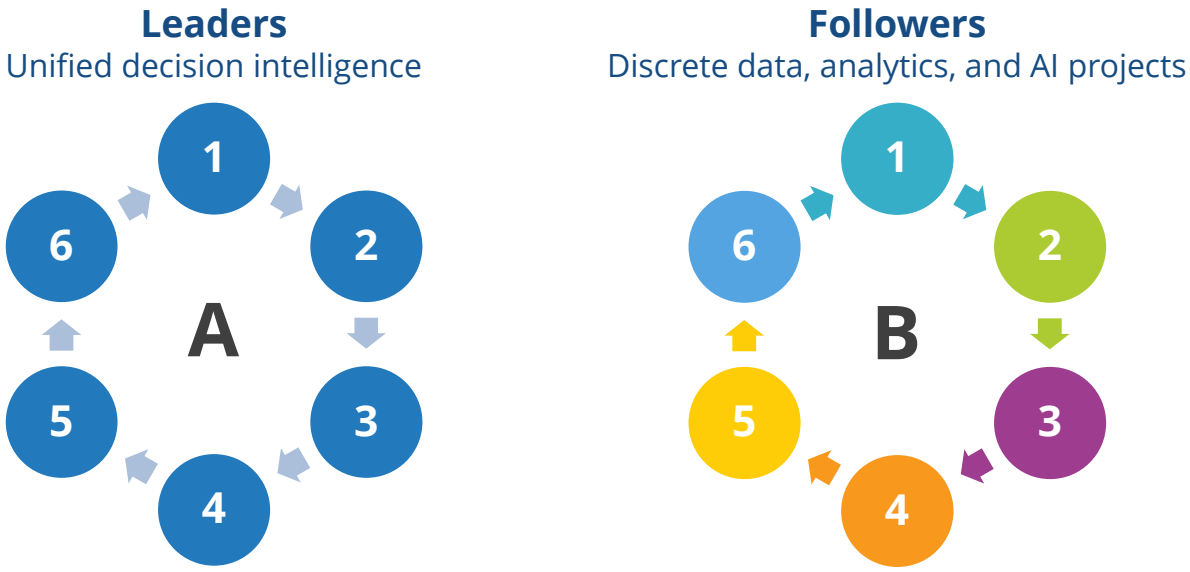
- **Group A:** Companies that have connected the six steps of a decision-making process
- **Group B:** Companies that have not connected the six steps of a decision-making process

As shown in Figure 3, we labeled Group A as decision intelligence leaders and Group B as decision intelligence followers.

We found that 70% of leaders, but only 35% of followers, have current initiatives to transform operational or tactical decision-making processes. Among these organizations with a decision intelligence initiative, there is also a difference among leaders and followers in the stage at which they find themselves in transforming the ways operational or tactical decisions are made.

FIGURE 3

Decision Intelligence Leaders and Followers



Source: IDC, 2023

Our research data shows that followers (organizations without connected, AI-powered decision intelligence) encounter roadblocks at two key points:

- **The point right after initial consideration of decision transformation.** Here, the percentage of followers who go on to develop a decision transformation road map drops. It is at this point that organizations assess the commitment to organizational and technological change needed to succeed with decision intelligence. Leaders commit, invest, and proceed to further stages of decision intelligence maturity, while many more followers abandon their decision transformation initiatives because of a lack of leadership or funding.
- **At the stage when one or more decision transformation projects need to be scaled enterprisewide.** About twice as many (33% versus 17%) leaders indicate that they have a program for ongoing monitoring, review, and transformation of decision-making processes, while followers have not implemented a formal process.

These differences matter as they turn into competitive differentiators that enable greater decision velocity and, ultimately, better quantitative business outcomes.

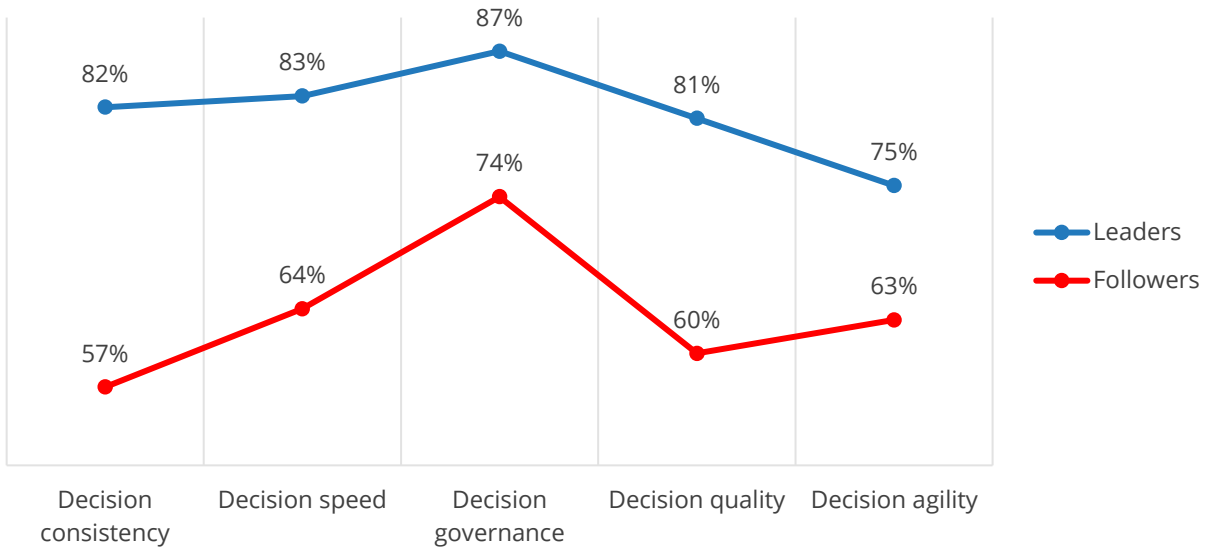
BENEFITS OF DECISION INTELLIGENCE

When we asked study participants about the performance of five indicators of decision velocity, we found that leaders experienced 12-25% better outcomes, as shown in Figure 4.

FIGURE 4

Companies with Strong Improvement in Decision Intelligence Properties

Q. How did the following decision intelligence properties change during your organization's last fiscal year?



Note: Data represents percentage of decision makers who responded 4 or 5 on a scale of 1-5, where 1 = no improvement and 5 = significant improvement.

Source: IDC's *Decision Intelligence Survey* (commissioned by Aera Technology), June 2023

We have found that organizations that have higher AI-powered decision intelligence tend to have more standardized decision-making procedures and policies; strong collaboration among data scientists, data analysts, planners, and business decision makers; employees who are more empowered to make decisions within a set policies and procedures; and decision-making knowledge that is captured in software systems and shared throughout the organization. Thus the benefits come not only from productivity but also from greater knowledge retention, transparency, collaboration, and continuous improvement.

Another significant difference between leaders and followers is evident in the previously mentioned issue of executives' knowledge about lower-level decision-making processes. As already mentioned, overall, only 55% of executives know mostly or fully how lower-level decisions are made. That percentage increases to 64% of executives among leaders and drops to only 50% of executives among followers.

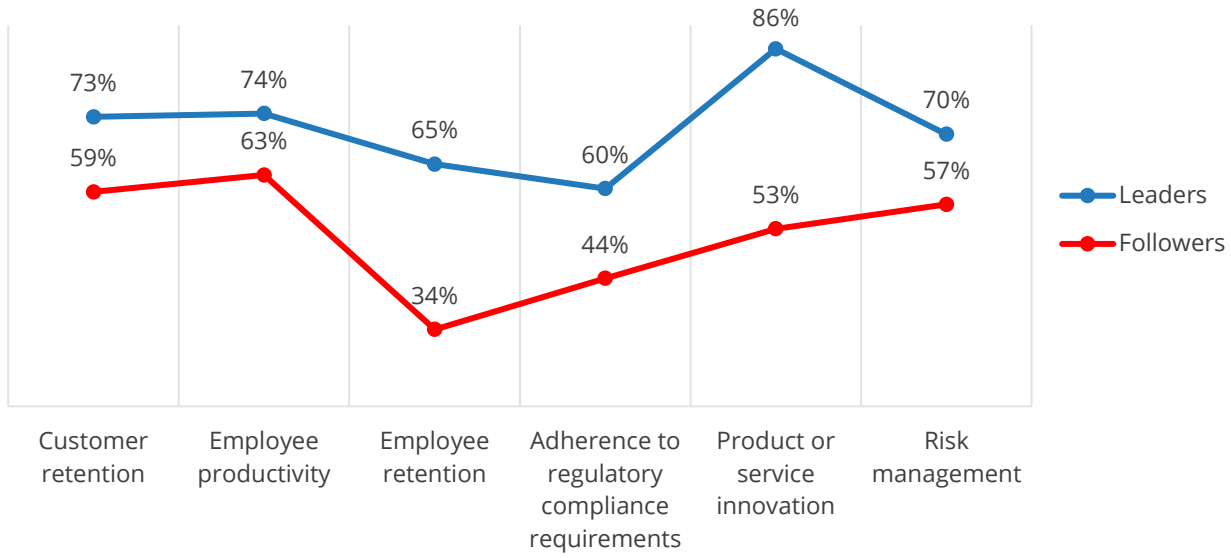
Finally, when asked about changes to operational metrics in the last fiscal year, the two groups also exhibited noteworthy differences. For example, 73% of leaders compared with 59% of followers experienced an increase in customer retention. 31% more leaders compared with followers (65% versus 34% in Figure 5) experienced an improvement in employee retention.

Differences in the level of improvement among leaders and followers in the various operational metrics are shown in Figure 5. (Note that this research question was asked on a scale ranging from decreased 20%+, decreased 10% to 19%, decreased 1% to 9%, no change (0%), increased 1% to 9%, increased 10% to 19%, and increased 20%+.)

FIGURE 5

Companies with Improvements in Listed Business Metrics During the Last Fiscal Year

Q. How did the following business metrics change in the last fiscal year?



Note: Data indicates percentage of companies that experienced an improvement in each of the listed operational business metrics.

Source: IDC's *Decision Intelligence Survey* (commissioned by Aera Technology), June 2023

RECOMMENDATIONS: WHEN TO ASSIST, WHEN TO AUGMENT, WHEN TO AUTOMATE?

Our contention is that one of the biggest shortcomings plaguing most organizations is the use of the question, "what data do you need?" We propose that the solution to overcoming past substandard returns on investment in data, analytics, and AI starts with changing the question to, "what decisions do you need to make?"

While representing a seemingly subtle change, this redirection of investment focus to decisions rather than their underlying enablers has shown to be a powerful, value-generating strategy for a growing number of organizations. It represents a massive opportunity that will require a change in investment priorities, along with changes in how information is synthesized, how insights are developed, how decisions are made at scale, how organizational knowledge is captured and shared, and how data culture and data literacy are promoted.

It may seem like a daunting task, but it shouldn't be viewed as such based on best practices we have observed in the market. Depending on how we define the scope of a decision, there could be hundreds of thousands or millions of decisions made in an organization in a year. Every time there is a choice to be made between two or more options — whether by a person or a machine — a decision needs to be made. Some of these decisions are strategic, some tactical, some operational. At IDC, we label them as portfolio, scenario, and situational decisions. Not all decisions are created equal; different decisions require different technology and process support, as well as different involvement by people.

We recommend the following steps to follow as a start to a decision intelligence journey:

- **Start your decision intelligence initiatives by identifying the decisions that are good candidates for some level of automation.** We recommend starting with regularly occurring, frequent decisions that have low levels of ambiguity and variability, which need to be made within short time windows. If you identify decisions in your organization with these properties, and if these decisions are made mostly by people based on experience or intuition, then you have uncovered the initial opportunity for the application of AI-powered decision intelligence.
- **Consider the approach of infusing decision intelligence into the selected decision-making process.** There are three primary options available:
  - **Assist.** In this human-in-the-loop approach, people make decisions based on results of data analysis presented to them in a report or dashboard.
  - **Augment.** In this human-on-the-loop approach, people make decisions after being presented with two or more system-generated options.
  - **Automate.** In this human-out-of-the-loop approach, decision making has been automated within a governance and controls framework whereby ongoing intervention from people has been eliminated or significantly reduced to addressing a small set of exceptions.

  The human-in-the-loop approach has been practiced for decades. To be clear, people are getting more assistance from ever more powerful technology to process and analyze data. However, this approach of relying fully on people to perform ad hoc data analysis with business intelligence or advanced analytics tools without decision intelligence technology to engineer decision-making workflows or automate identification of trends, anomalies, impacts of potential scenarios, or alternative options is not scalable. Decision augmentation represents today's sweet spot for AI-powered decision intelligence technology.

  With sufficient continuous monitoring and learning, decision augmentation can lead to decision automation. For example, at the CPG company, in one set of decisions, whenever the company reached a point where 80% of the system's recommended top-choice decisions were accepted by people, the company began to automate those decisions.
- **Consider an AI-powered decision intelligence technology platform.** Decision intelligence software includes capabilities for decision design, engineering, and orchestration:
  - **Decision design.** It provides functionality for users to define business goals or desired outcomes; map decision-making workflows, including feedback loops and approval points; and identify choices and constraints that limit the options available to decision makers.
  - **Decision engineering.** It provides functionality to organize the available data using semantic and/or ontological frameworks, then analyze the data using a range of use case-specific methods that may include simulation, optimization, descriptive, and predictive analysis.
  - **Decision orchestration.** It provides functionality to monitor all elements of the decision-making workflow (e.g., rules, algorithms, data sets, approval hierarchies, goals,

constraints, decisions, and so forth) and enables their ongoing or periodic adjustment based on automated and human-generated feedback loops.

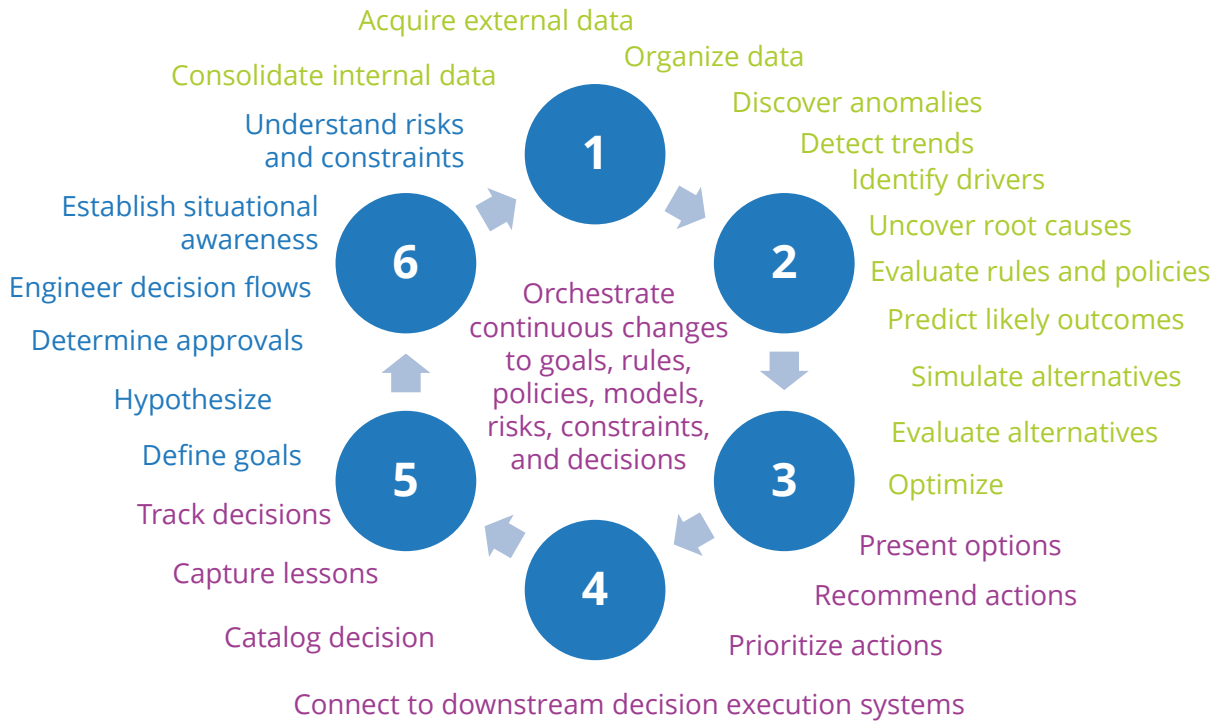
Together, these capabilities enable not only the collection and analysis of data but also all the capabilities shown in Figure 6. Some decision makers have referred to their decision intelligence solutions as the organizational brain that, among other capabilities, is generating a memory that allows the organization to learn about how to optimize decision making – and, at the same time, a means of retaining knowledge and expertise even when experienced decision makers leave the company. Others have referred to it as their organizational GPS or navigation system.

By contrast, attempts to achieve the benefits of a unified decision intelligence platform by leveraging a combination of tools and point solutions have been delivering limited benefits. It is time to consider another approach to achieve the results discussed previously – deployment of a single, unified platform.

- **Focus on use cases that deliver both rapid time to value and increasing value over time.** Well-planned decision intelligence initiatives can begin to deliver positive impacts within a short time frame, while the enterprise as a whole can adopt change management strategies to scale adoption of digitized and automated decision making. This allows the enterprise to adapt and improve over time as the business and technology environment changes, thereby creating sustained value over time (see Figure 6).

FIGURE 6

AI-Powered Decision Intelligence Platform Functionality



Source: IDC, June 2023

Focus on Change Management

An AI-powered decision intelligence initiative requires investments not only in technology but also in people and processes. As with any change, there will be a need to address skepticism and concern. Any technology initiatives that include automation can be perceived by some employees as threatening.

How to Drive Acceptance Among Employees?

One of the KPIs at the CPG company is the level of user acceptance of the AI-powered decision intelligence solution. It's imperative to address employee concerns about displacement with AI by emphasizing current and near-term emerging capabilities and limitations of AI. Recruit internal subject matter experts in decision processes to help deconstruct these into tasks. Within any given process, some tasks will require the user/decision maker to be assisted by technology, while for other tasks, the user will be augmented by technology. In rarer cases (for now), every task in the process will be automated.

Decision intelligence initiatives will require people to adapt — to unlearn past ways of making decisions and completing tasks and to learn new ways of interacting with AI. Look for and acknowledge internal champions who embrace the organizational evolution and adapt the most quickly to new conditions — then publicly recognize their success to showcase how their quality of work improves, leading to a greater ability to focus on creative exception handling, process, and product innovation and improved interpersonal relationships with customers and colleagues.

How to Leverage Existing Data, Analytics, and AI Technology Investments?

AI-powered decision intelligence can benefit from access to data in existing data warehouses and data lakes and from the logic in existing data pipelines and business intelligence dashboards. These are sources for rich enterprise "know-how" that can be incorporated into defining and engineering decision flows. Many of the foundational technologies that organize, clean, map, move, and secure data will continue to form a foundation for decision intelligence solutions, which rely on data and AI.

Deployments of some of these business intelligence, analytics, and data science technologies will likely be curtailed as a result of dedicated decision intelligence technology, but the latter will continue to need administrative support from IT to scale decision intelligence across the organization. Most importantly, IT groups involved in data, analytics, and AI projects should be made aware about the requirements of decision making versus information delivery. After all, it's not about what data their users need but about what decisions they need to make.

CONCLUSION

Leading organizations in consumer packaged goods, logistics, financial services, government, and other sectors of the economy have embraced the complexity in decision making by deploying AI-powered decision intelligence solutions. In parallel, they have embarked on change management initiatives to ensure broad acceptance of new processes and technologies and highest levels of data literacy among employees.

These organizations have taken an intentional approach to identifying decisions most amenable to automation with today's AI-powered technology. In the coming years, as AI capabilities evolve to encompass all unstructured and structured data, pattern recognition and causal relationships, and

emerging GenAI methods, these leading organizations will be well positioned on their path toward further decision automation. As IDC's research has shown, these AI-powered decision intelligence leaders will more likely be at the forefront of achieving greater decision velocity – speed and control in decision making – that ultimately leads to competitive differentiation and achievement of business goals.

About IDC

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