

Scaling Value from AI: The Strategic Value of an Industrial Data & AI Platform



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About Cognite

Cognite is a globally recognized leader in industrial software with a clear vision: to rapidly empower industrial companies with accessible, trustworthy, and contextualized data and drive the full-scale digital transformation of asset-heavy industries.

Cognite helps industrial companies make sense of their data to enable AI solutions and achieve rapid transformation. Our unique combination of a trustworthy data and AI foundation, low-code AI agents, and industrial expertise enables Energy, Process Manufacturing, and other industrial companies to scale AI initiatives across the enterprise. With Cognite, you can accelerate your digital transformation, improve efficiency, and achieve significant ROI.

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◆ Introduction: Industrial DataOps Is No Longer Optional in Today's Competitive Market

In today's rapidly evolving industrial landscape, leveraging AI and robust digital initiatives is crucial for maintaining a competitive edge. However, companies struggle to ensure adequate return on their large investments in AI.

As companies embark on their digital transformation journeys, they often face challenges that delay the realization of value from their efforts. One of the most common obstacles is managing and extracting insights from vast amounts of siloed operational data. Without a clear understanding of – and strategy for – how to extract maximum value from their complex industrial data, companies miss the significant opportunity to solve their complex operational use cases and deploy AI at scale.

A more recent issue is the advent of generative AI and advanced ML solutions, which has understandably created excitement about the many opportunities they provide. However, companies have valid concerns about data quality, security, and the reliability of AI-generated insights.

Many companies also struggle to quantify and measure the impact of their digital transformation initiatives effectively. The difficulty in quantifying business impact can result in hesitancy to invest time and resources in initiatives that have the potential for substantial benefits.

For C-suite executives, translating digital initiatives into tangible shareholder value is essential. Yet, many digital initiatives have fallen short and failed to live up to the hype due to a lack of scale and speed. A focused approach to quantifying and delivering value can help companies set clear objectives and ensure momentum across the organization throughout their digital transformation journey.

This white paper draws on extensive customer engagements to offer an in-depth exploration of the value of establishing an industrial data and AI platform and its critical role in enabling industrial AI and AI agents to drive operational efficiency, employee productivity, and business value at scale.

Specifically, we'll discuss how our industrial data and AI platform, **Cognite Data Fusion®**, provides access to complex industrial data, simplifies end-to-end data management, enhances the quality of data and insights, eliminates manual data work, and improves the efficiency of working and consuming data. You'll learn how Cognite Data Fusion® enables organizations to rapidly build and deploy industrial applications to solve complex operational use cases and provides a future-proof platform to deploy AI at scale.



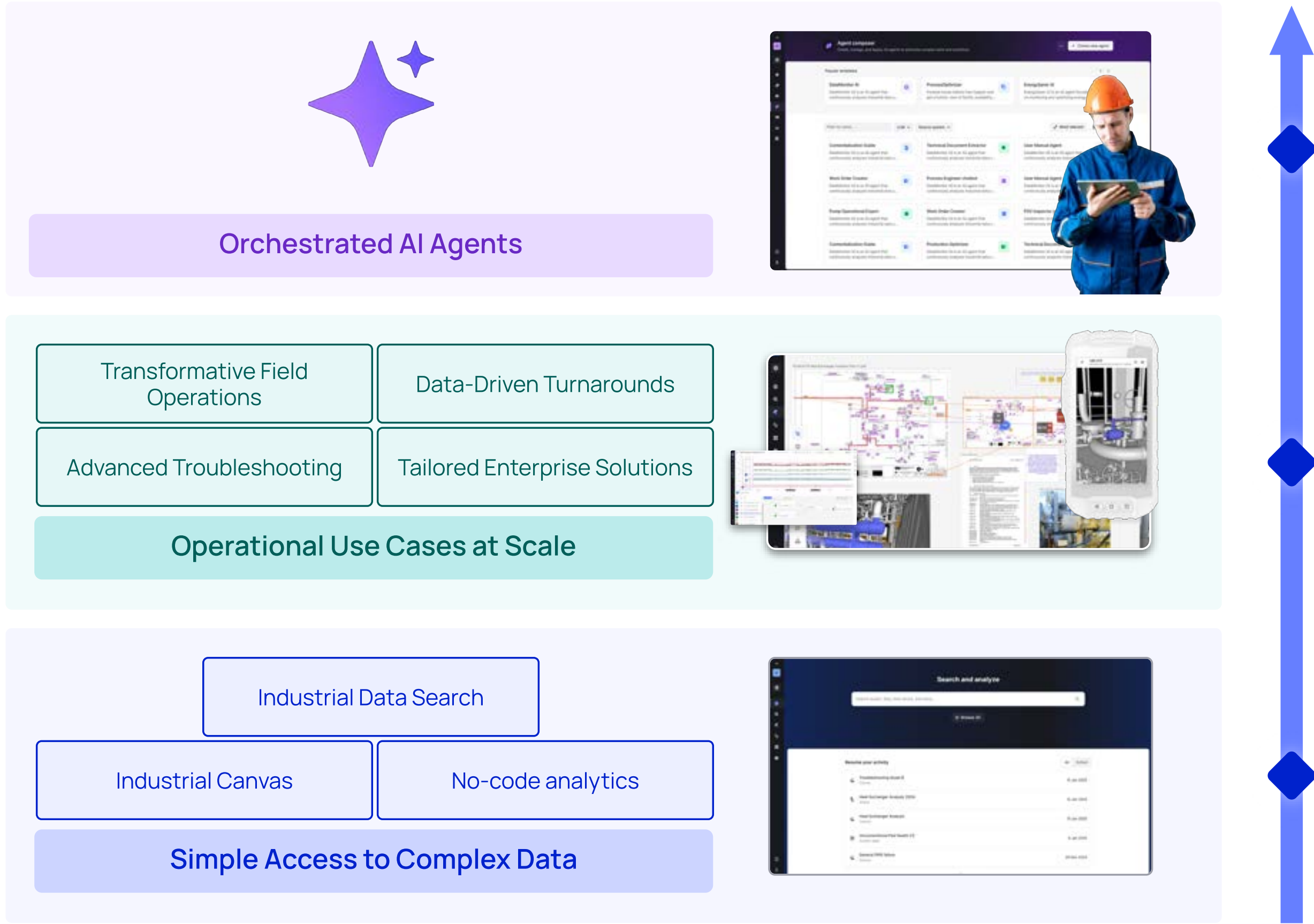
◆ The Strategic Imperative: Being Future-Ready for AI

For organizations looking to stay competitive, the choice is clear: data must be treated as a critical, strategic asset. Despite the massive investments in digital transformation over the last many years, companies are still struggling to implement digital transformation and advanced operational use cases such as field operations, data-driven turnarounds, and advanced troubleshooting at scale. As a result, organizations often do not know where to start when it comes to industrial AI and deploying AI agents safely across their operational workflows.

To solve advanced operational use cases, companies must first prioritize simple access to complex industrial data across their organization. This foundational step is essential to empower their subject matter experts and drive the success of digital applications.

Once a robust industrial data and AI platform is in place, it provides the necessary infrastructure and capabilities to deploy AI and solve industrial use cases at scale. It also helps transform data management from a bottleneck into a business enabler, driving wide-scale implementation and adoption of advanced use cases. Ultimately, the aim is for organizations to be future-ready, with the ability to deploy autonomous AI agents and other advanced AI technologies at scale and as new opportunities emerge (see Figure 1).

The North Star: AI-Powered Autonomous Operations



► Figure 1: Cognite provides a comprehensive data and AI platform built to rapidly scale AI-powered operational use cases and industrial AI agents across the enterprise.

◆ From Data Chaos to Data Clarity: Key Benefits of an Industrial Data and AI Platform

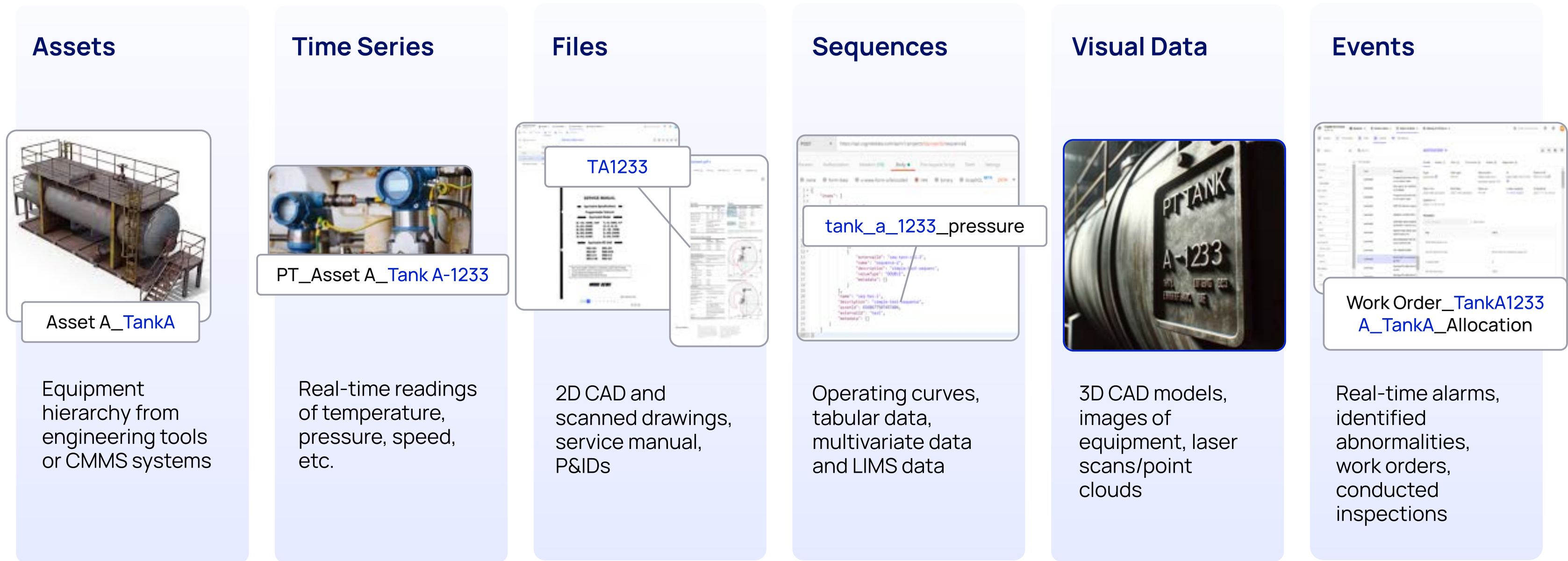
Scaling data-driven solutions across energy and manufacturing companies has historically been difficult due to the complexity and inconsistency of industrial data. Industrial operations are inherently complex, assets have typically been built and changed over literal decades, with some sites being more than 100 years old. This has resulted in multiple legacy source systems, varying data formats, and inconsistent naming conventions (see Figure 2). Combined with a high degree of operational variability, these factors make deploying digital solutions challenging, expensive, and time-consuming.

In fact, according to Verdantix’s Industrial Transformation Global Corporate Survey 2024, only 6% of organizations surveyed have fully integrated their IT, OT, and engineering data, and 25% of industrial organizations are still collecting data manually and performing analytics periodically rather than in real time.

The fragmented and inconsistent nature of industrial data prevents organizations from unlocking its full value. Establishing a future-proof Industrial data and AI platform is a crucial cornerstone for trans-

forming industrial operations delivering multiple benefits, including achieving business KPIs, helping frontline users to solve daily challenges, improving productivity, and streamlining IT processes.

Let’s break down the benefits offered by an industrial and AI platform on the next page.



► **Figure 2:** Industrial data is diverse, complex, and inconsistent. All of the name tags above refer to the same asset.

1. Enhanced data management

- **Automatic connection and contextualization of data:** Seamlessly connect and make industrial data from multiple source systems and data types accessible and usable across the organization. Automated, scalable integration and contextualization ensures that data is not only centralized but also context-rich, actionable, and optimized for analytics and AI.
- **Integrated data governance:** An industrial data and AI platform enforces data quality standards, applying governance protocols throughout the data lifecycle. This ensures consistency and accuracy, providing stakeholders with reliable data they can trust for critical decision-making.
- **Version control and data lineage tracking:** Comprehensive data lineage tracking provides transparency and auditability. Teams can trace data back to its origin and understand changes over time, enhancing confidence in data integrity.

2. Solving operational use cases at scale

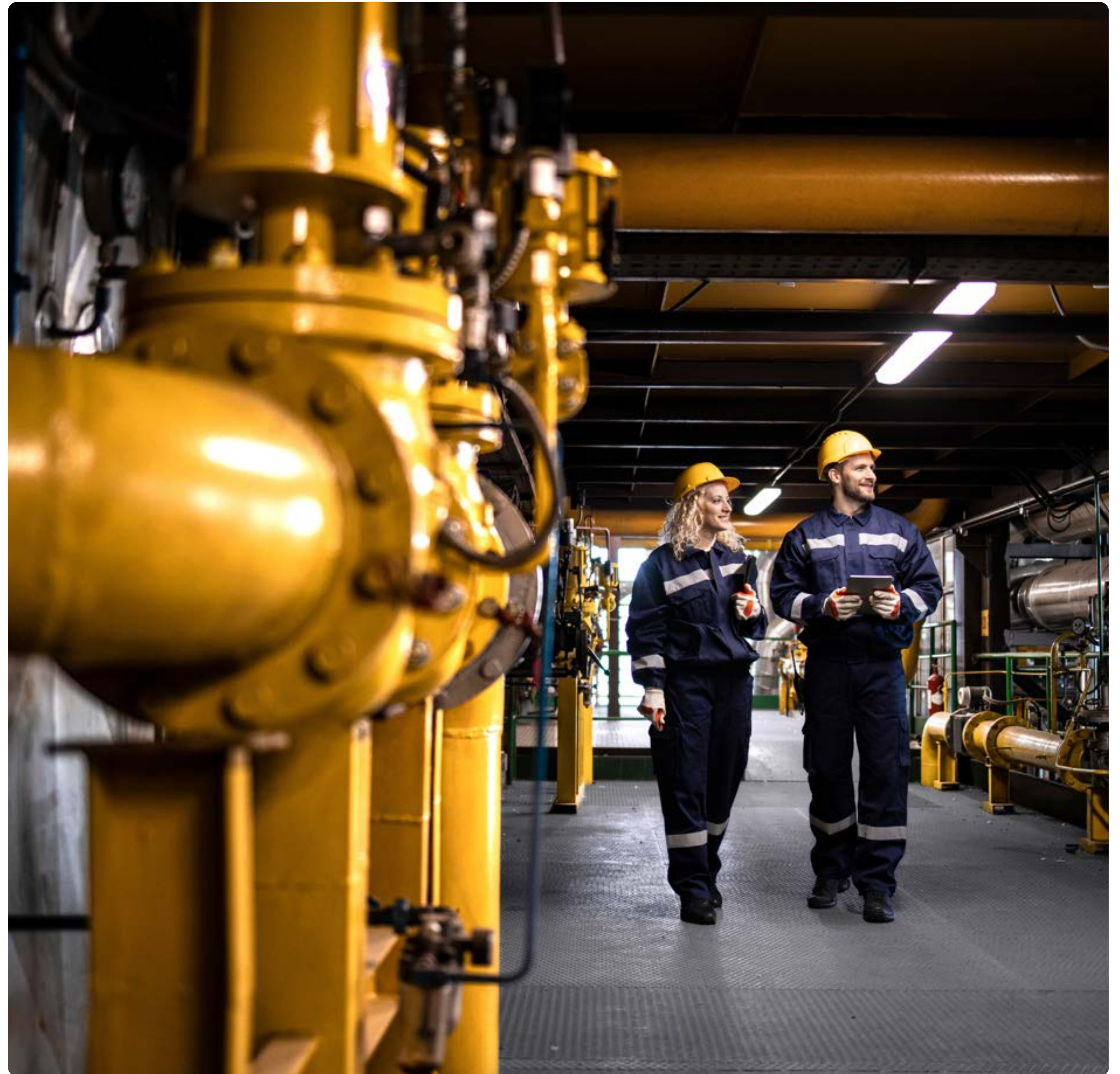
- **Solves real-time operational use cases:** Focuses on real-time and near real-time data to solve the next generation of operational use cases, such as predictive maintenance with real-time anomaly detection. This helps prevent costly equipment failures and unexpected shutdowns.
- **Ability to scale seamlessly across the enterprise:** Facilitates seamless scaling of applications and use cases across multiple units and sites. By utilizing a cloud-based SaaS deployment model, industrial companies can ensure their industrial data and AI platform remains efficient and adaptable. It can automatically adjust to changes in demand or performance needs, maintaining high, reliable performance without the need for manual intervention.
- **Seamless deployment and enablement of AI agents:** Provides the infrastructure and capabilities required to deploy AI agents, including advanced data management and AI capabilities tailored to industrial use cases.

3. Improved collaboration and productivity

- **Unified platform for cross-functional teams:** Bridges the gap between data scientists, engineers, IT, and business users, providing unified access to the same data and insights. This creates a shared space for collaboration, reduces silos, speeds up decision-making, and ensures consistency across data-driven projects.
- **Self-service data access for SMEs:** Non-technical users can access and utilize data without extensive training, democratizing data usage and allowing IT resources to focus on more complex tasks.
- **Centralized knowledge repository:** Besides connecting disparate industrial data, an industrial data and AI platform also consolidates documentation, best practices, core workflow records, and more into a centralized repository, streamlining team onboarding and fostering more effective collaboration.

4. Robust safety, security, and compliance

- **Interpretability and trust:** An industrial data and AI platform enables the creation of an industrial knowledge graph so industrial companies can trust the data and insights to have confidence in their decision-making and deployment of their data and AI solutions.
- **Advanced security features:** Encryption, multi-factor authentication, role-based access controls, and data governance protect sensitive information by ensuring that only authorized users can access, modify, and share data, all while aligning with corporate and industry standards.
- **High compliance standards:** Industrial data and AI platforms undergo security testing and third-party audits to ensure compliance with industry standards and regulations.



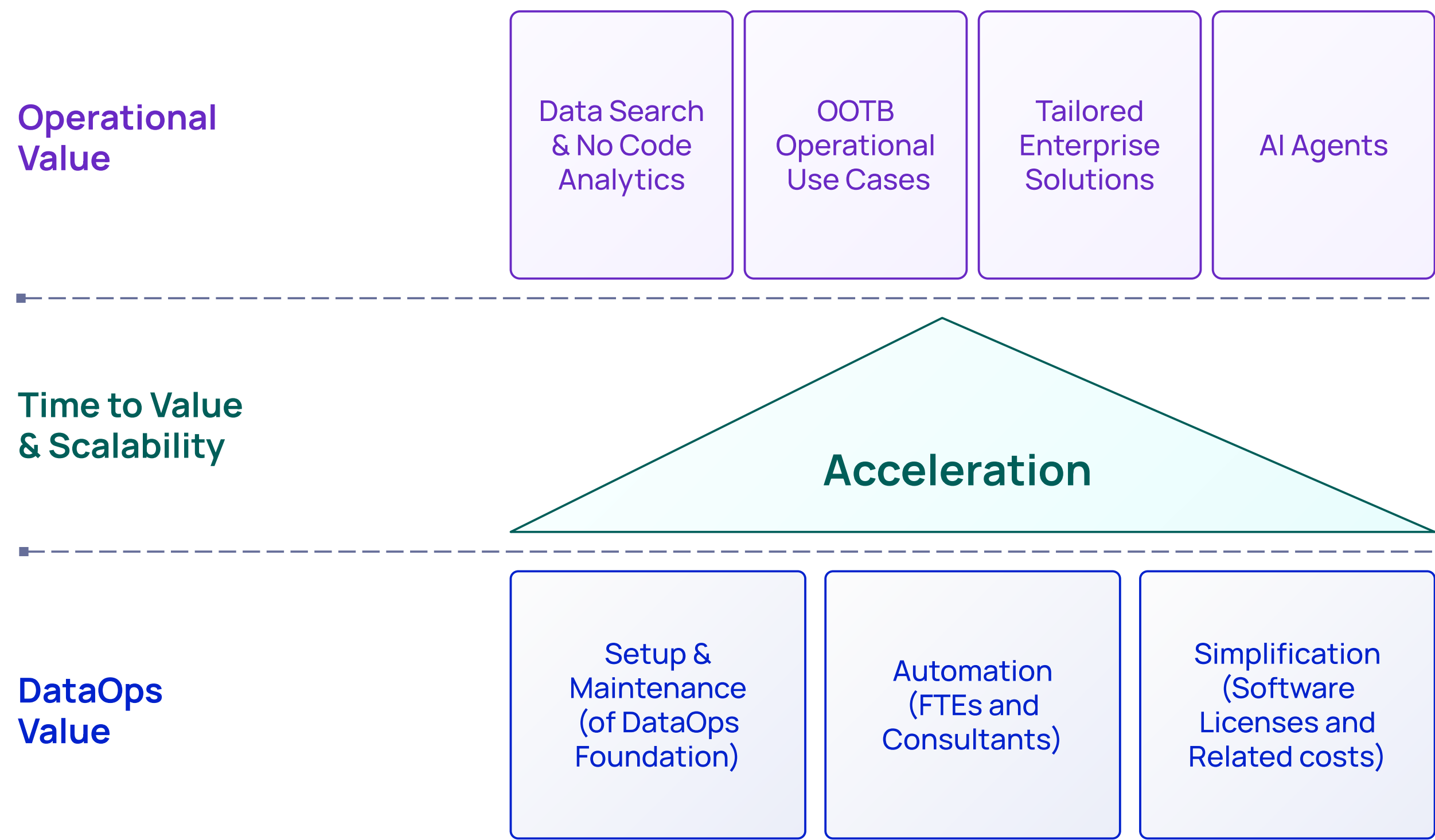
◆ Business Impact of an Industrial Data and AI Platform: Digital Transformation at Scale

An industrial data and AI platform can deliver significant value through both direct and indirect cost savings. Direct savings come from reduced software licensing and consulting expenses, while indirect savings typically come from avoiding the costs and risks of in-house or “Do-It-Yourself” (DIY) development.

When the platform is established, it enables companies to solve advanced operational use cases. These use cases have eluded the industry for decades as the necessary technology has not been available to help bridge the gap between the office and the field. The use cases include everything from field operations to advanced troubleshooting, and data-driven turnarounds.

Lastly, by enabling faster time to value and scalability of the operational use cases, an industrial data and AI platform can significantly increase shareholder value by deploying operational value faster for multiple sites and users across the enterprise. Let’s take a closer look (see Figure 3).

The guide to creating value for industrial organizations



► **Figure 3:** Overview of the many ways that deploying an advanced industrial data and AI platform creates business value across the enterprise.

1. Simplifying tech stack complexity: Industrial data and AI platform value:

- **1.1 Setup & Maintenance:** Companies that have made the strategic decision to implement an industrial data and AI platform should **choose a proven, out-of-the-box solution** that has been battle-tested. This approach minimizes risk and reduces costs compared to the significant investment and uncertainty of building a DIY solution from scratch.
- **1.2 Data automation:** An industrial data and AI platform enables industrial companies to **automate data workflows** and streamline tedious data management tasks.
- **1.3 Tech infrastructure simplification:** Companies can achieve additional hard cost savings by **consolidating and streamlining their data infrastructure**. This reduces expenses on depreciated software licenses, consulting fees, and other related costs.

2. Transforming operations: Operational Use Case Value:

- **2.1 Seamless data search & no code analytics:** **Providing simple access to all IT, OT, and engineering industrial data in a single platform** – along with no-code analysis tools – enables teams to easily access information and extract actionable insights quickly. This fosters more informed, data-driven, and proactive decision-making and drives proactive operational improvements.
- **2.2 Solving out-of-box operational use cases:** Using the out-of-the-box capabilities of industrial software providers allows rapid deployment of **advanced operational use cases** such as data-driven turnarounds, advanced troubleshooting, and transformative field operations.
- **2.3 Tailored enterprise solutions:** With easy access to the right data in one centralized location through an open ecosystem (available through APIs and SDKs), companies can **deploy large-scale custom enterprise use cases** developed by internal teams or partner ecosystems.
- **2.4 Integrating AI agents:** Companies can develop and implement orchestrated AI agents to automate and streamline operational workflows across the enterprise. These agents offer significant value by offering tailored solutions that address the unique challenges and needs of the heavy-asset industry while also enhancing SMEs productivity and asset safety.

3. Enhancing scalability and accelerating value:

- **3.1 Scalability:** An advanced industrial data and AI platform can seamlessly handle a growing volume of data and users and scale an unlimited number of use cases. This is similar to how cloud hyper-scalers eliminate the need to invest in physical data center infrastructure.
- **3.2 Faster time to value:** Quickly deploying AI-driven solutions and use cases at scale accelerates EBIT growth, leading to a significant increase in Net Present Value (NPV). While the absolute value of the use case may remain the same, the faster increase in EBIT boosts the NPV of the digital transformation **several times over**.

1. Simplifying tech stack complexity: industrial data and AI platform value

Implementing an out-of-the-box industrial data and AI platform provides energy and industrial companies with essential and new capabilities, bringing clarity around the cost incurred and the implementation timeline. Together with the expected automation savings and the simplification of legacy software licenses, the decision to implement an industrial data and AI platform is often proves to be a self-sustaining investment—paying for itself even before operational use cases are deployed.

1.1 Setup and maintenance (of data and AI foundation)

This value pool is simply calculated as the avoided costs of developing a platform in-house when a company has made the strategic decision to deploy an industrial data and AI platform to solve the next generation of operational use cases. Large enterprises might consider building use cases themselves together with a hyperscaler, but they typically underestimate the complexity of doing so.

There is a long list of required capabilities to ensure scalability, including data ingestion, data quality, knowledge graphs, analytics, API/SDKs, access management, and more. Although smaller, isolated use cases can be addressed with simpler solutions,

enterprise-wide capabilities demand significantly higher performance. With an industrial data and AI platform, companies can bypass the investment needed to build and maintain these capabilities internally.

Estimated savings: \$10-30m in avoided costs over 5 years for a typical deployment of a data and AI platform vs building DIY capabilities, which typically involves 5-10 medium-sized sites. (see Figure 4 for a detailed breakdown of the FTEs needed and associated costs to do this DIY).

1.2 Data automation (FTEs and consultants)

Using an industrial data and AI platform, companies can **automate data workflows and tedious data management tasks** that were previously handled manually by internal FTEs and external consultants or partners. This automation often leads to significant hard-dollar cost savings for external IT consultants who would otherwise handle these processes manually. Industrial companies can **leverage key DataOps capabilities**, such as data pipelines, document parsing, contextualization and more, out of the box to automate data tasks programmatically and at scale.

Estimate savings: +100 FTEs for a typical mid-sized enterprise. Depending on the industry and organizational setup, this could be equivalent to 3-10% of the total number of employees.

1.3 Tech infrastructure simplification (software licenses and related costs)

Companies typically **consolidate and streamline their data infrastructure** when embarking on a digital transformation journey. Over time, many smaller problems are solved with discrete solutions. However, by deploying an industrial data and AI platform, companies can take a step back and gain critical capabilities at an enterprise level. One key benefit is the ability to **depreciate existing software** by utilizing the inherent capabilities in Cognite Data Fusion® as a replacement, resulting in hard cost savings. Sometimes, the existing software or licenses are underutilized or redundant, and the process of evaluating the current architecture itself often reveals additional opportunities for savings.

In addition to software licenses, companies often incur **ongoing costs related to solution maintenance**, as well as implementation and migration costs (e.g., when a new version is released). These costs are typically not closely monitored, as companies may hesitate to replace outdated software for fear of causing disruptions, even when that software no longer serves its purpose.

Estimated savings: \$10-20m a year in hard cost savings for a typical mid-sized company. This is equivalent to an EBIT uplift of just 1-3%, but due to the hard cost savings nature, are often seen as highly attractive.

Companies spend more than 6x as much on Setup and Maintenance costs if they choose DIY versus Cognite Data Fusion®

Data Foundation

Cost per FTE

Yearly cost per FTE (USDk) 125.0

Assumes 10 use cases deployed Cognite DIY

Setup

0. Project management	2	5
1. Data Ingestion	7	15
2. Data Quality Monitoring	1	5
3. Knowledge Graph	3	15
4. Data Analytics	5	25
5. Data Consumption via API/SDK	1	10
6. Data and Access Management	1	5
Setup FTEs	20	80

On-Going Maintenance

0. Project management	1	3
1. Data Ingestion	2	7
2. Data Quality Monitoring	-	5
3. Knowledge Graph	-	5
4. Data Analytics	1	7
5. Data Consumption via API/SDK	-	5
6. Security	1	5
7. Data and Access Management	-	3
Maintenance FTEs	5	40

Comparison Overview (USD millions)

	CDF	DIY	Diff
Total Setup Cost	2.5	10.0	4.0x
Total Maintenance Cost (over 5 years)	3.1	25.0	8.0x
Total Cost	5.6	35.0	6.2x

► Figure 4: Illustrative example of the value of the capabilities of an out-of-the-box industrial data and AI platform. Based on the cost to set up and maintain the platform based on the number of FTEs and 10 applications. Based on Cognite reference customers and is an aggregation of those.



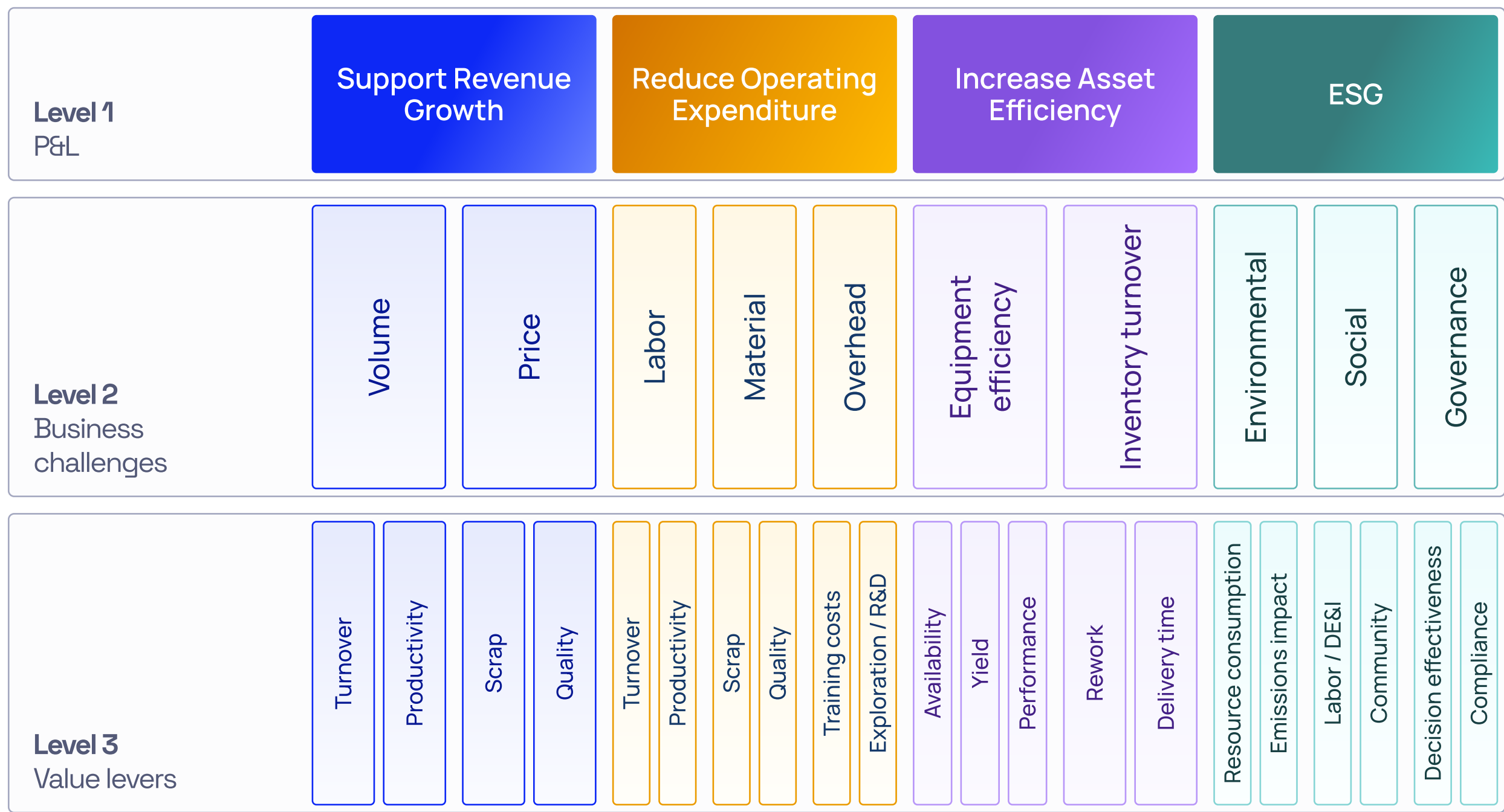
2. Transforming operations: operational use case value

Energy and industrial companies continuously evaluate how they can improve performance and operational efficiency. New technology offers the opportunity to deploy advanced use cases that, due to their mission-critical nature, can hold great promise and deliver significant value to the business.

Most companies already have a list of potential use cases they could deploy but sometimes find it challenging to prioritize them based on feasibility and business impact. Companies need to combine the strategic ambitions at the executive level with the day-to-day needs and operational realities in the field and office. This approach aligns the company’s overall strategic ambitions with improving the execution ability of frontline personnel to ensure actual value realization from improvements in operations.

Cognite utilizes a Value Map (see Figure 5) to help articulate the underlying value drivers for our customers, tying operational improvements to shareholder value creation. At Cognite, we often see that allowing operators to tell stories about their day-to-day challenges helps them start crafting solutions to larger company-wide problems, which can generate significant business impact.

We use the Value Map to talk with a cross-functional group that spans operations, finance, and strategy to help these key stakeholders articulate and align on the key metrics. These often include targets like “an X% increase in production, hours saved in a turnaround, or productivity gains for subject matter experts, measured by the number of hours saved.” Using industry benchmarks, companies can then estimate potential improvements for each initiative and more accurately project an EBIT improvement number. Let’s review the typical operational use cases that industrial companies use Cognite Data Fusion to help solve.



► **Figure 5:** Example value framework specific to manufacturing. Cognite has developed domain-specific ones across upstream, downstream, chemicals, grid, power generation, pharma, manufacturing, etc.

2.1 Simplified data search, no-code analytics

- **Search for and find industrial data in seconds:** Enabling subject matter experts to perform more focused data exploration across different industrial sources and systems (IT, OT, engineering, etc.). Instead of spending their time on manual look-ups in source systems and piecing data

together manually, they can find and view all their contextualized data in one unified environment.

- **Users can easily utilize various industrial applications**, such as Cognite's Industrial Tools (Industrial Canvas and Charts), to easily consume, analyze, and collaborate on data using no-code visualization and analytics tools. These tools also enable seamless collaboration between different teams and users by providing a unified, interactive workspace to create a better understanding between operators in the office and the realities in the field.

Both of these use cases help increase SMEs' productivity so they can do more with their time and focus on valuable tasks.

\$0.1-5m a year in estimated cost savings per application per unit within a site.

2.2 Out-of-the-box advanced operational use cases

Deploying Industrial Tools and specialized capabilities within Cognite Data Fusion® helps **solve advanced use cases** across field operations, troubleshooting, and turnarounds. Companies typically see significant increases in product uptime and yield in their operations. This can be done via **advanced applications such as Industrial Canvas, Charts and AI capabilities**, and often use them together to accelerate time to resolution. Industrial users can

also use these and other out-of-the-box solutions that are designed to address common operational problems. These templated solutions provide fast value realization after data contextualization, and their effectiveness grows with user adoption.

\$2-5m a year from increased production uptime and cost savings per application per site. \$30-45m in business impact for a turnaround use case for a typical site.

2.3 Tailored enterprise solutions

Companies that are digitally mature typically have the capabilities and expertise to develop custom applications and digital twins for larger workflows. These can either be built in-house or in partnership with a delivery partner, like Cognite.

- **Low-code custom app building:** Users can also build simple applications within Cognite Data Fusion® (e.g., Streamlit, Jupyter Notebook) with the support of GenAI code generation capabilities. For example, a user can build a simple Streamlit app to analyze and monitor a pump's performance. Subject matter experts do not need to know how to code but can automatically generate Python packages based on their data model when performing analysis in Cognite Data Fusion®.
- **Custom Enterprise Solutions:** With Cognite Data Fusion®, companies can build and implement large-scale, tailored solutions to address their

specific operational challenges. By leveraging an open ecosystem with APIs and SDKs, companies can integrate and customize applications efficiently. For example, companies can connect visualizations and analytics tools such as Power BI and Grafana to monitor equipment performance, energy consumption, and more.

The business value for these custom enterprise use cases is typically tied to specific KPIs that the company is trying to improve, such as product yield or energy consumption. Solving these enterprise use cases typically results in **significant value realization due to the mission-critical nature** of the problems solved. However, as they are custom in nature, they also take longer to develop and deploy.

\$5-15m a year per use case from increased production uptime and cost savings.

2.4 Enabling industrial AI agents

Industrial AI agents are **specialized versions of general AI assistants** and are designed for the unique needs of energy and industrial companies. Typically customized for specific sub-industries, they focus on solving domain-specific problems by leveraging a deep understanding of the industry's context, terminology, and workflows. Industrial AI agents can **accelerate routine tasks and optimize workflows** by continuously monitoring processes and analyzing data in real-time to identify inefficiencies and suggest improvements. For instance,

predictive maintenance capabilities allow organizations to anticipate equipment failures before they occur, significantly reducing downtime and maintenance costs.

AI agents empower users with actionable insights derived from vast datasets. They can **process complex information quickly**, enabling faster and more informed decision-making. Introducing AI agents into the core operations of an organization can foster a **culture of innovation** by automating mundane tasks, allowing employees to focus on more strategic initiatives that drive business growth (see Figure 6).

Last but not least, industrial AI agents **optimize processes for better utilization of energy, materials, and resources**. For example, in manufacturing, these agents can analyze production parameters to reduce energy consumption and material waste, aligning operational practices with environmental goals.

Delivering up to 25% increase to EBIT via operational cost reductions. Higher levels of innovation should lead to increased revenue growth over time.

Examples of industrial AI agents for productivity gains that Cognite has built and deployed with customers



Agents for accelerating root cause analysis (RCA): Agents extract information from trend data, alerts, work orders, and summarize it automatically in an easy-to-understand way. The agent answers queries such as, “Show me the time series for boiler feed pump A for the last 30 days and highlight what’s out of normal operating parameters.” For one of Cognite’s customers, this streamlined efficiency in root-cause analysis by 97%.



Maintenance agents for work orders: Agents accelerate work order search and interrogation on SAP documents and enable queries such as “Show me all the work orders at facility B that need to be completed over the next 2 weeks.” One of Cognite’s customers deploys its maintenance agent on more than 250,000 maintenance work orders a year for better maintenance performance.



Agents for integrating simulation workflows: These allow users to run simulations using natural language, e.g., by asking, “What happens with the production if three pumps fail?” and presenting results from the simulator runs in an interpretable manner for business users between simulation runs.



Agents for parsing documents and populating a data model: Agents extract information from unstructured diagrams and documents and automatically insert it into the right data model with minimal human intervention. AkerBP used a document parser agent like this to save more than 10,000 engineering hours in a year.

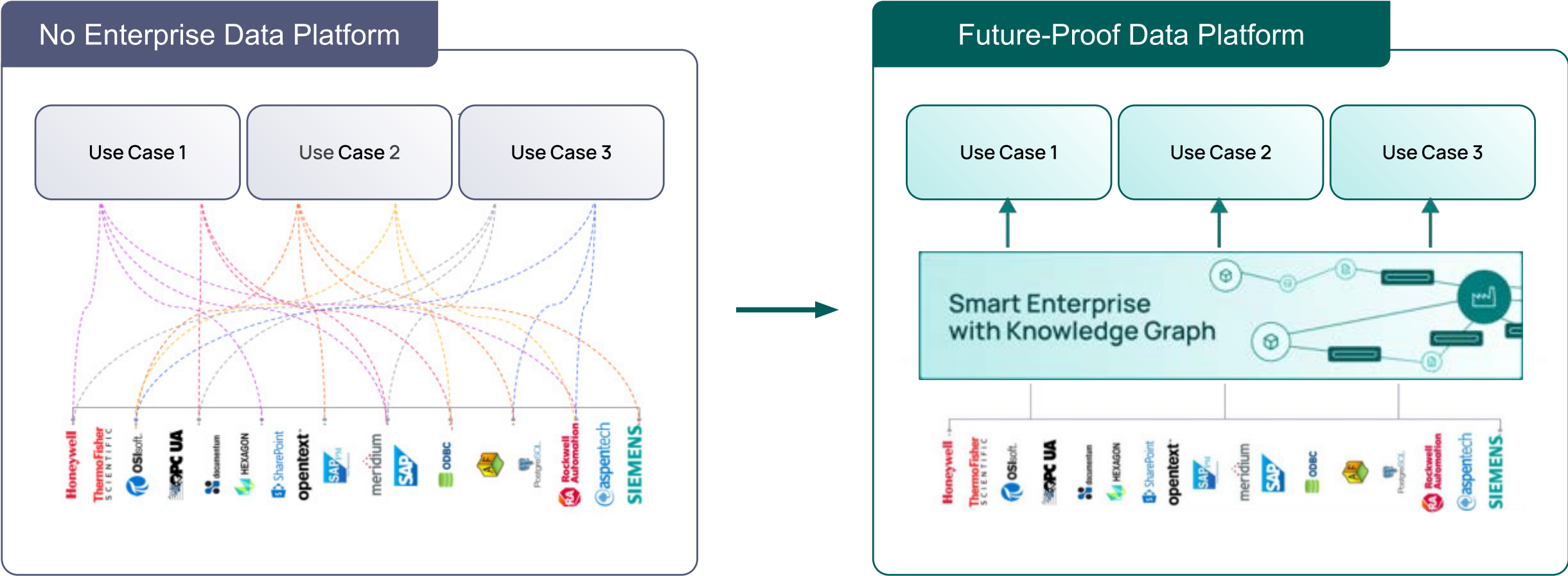
► Figure 6: A few examples of Cognite’s industrial AI agents.

3. Enhancing scalability and accelerating value

Implementing an industrial data and AI platform is key to accelerating solution delivery, achieving enterprise-wide scale, and realizing maximum value.

Digital operation initiatives still get trapped in “POC purgatory,” where scaling pilot applications and solutions takes too long or is too expensive. What holds them back is the inability of applications to access contextualized, high-quality data at scale – typically due to data being trapped in siloed legacy systems. Without the right data and AI infrastructure, each site instead connects to only a subset of the data for each unique use case, leading over time to a spaghetti of connections.

A future-proof industrial data and AI platform, on the other hand, enables the automatic contextualization of all data across sites creating a unified data foundation that can be accessed via the same single API to make it possible to fast and easily scale use cases across sites (see Figure 7).



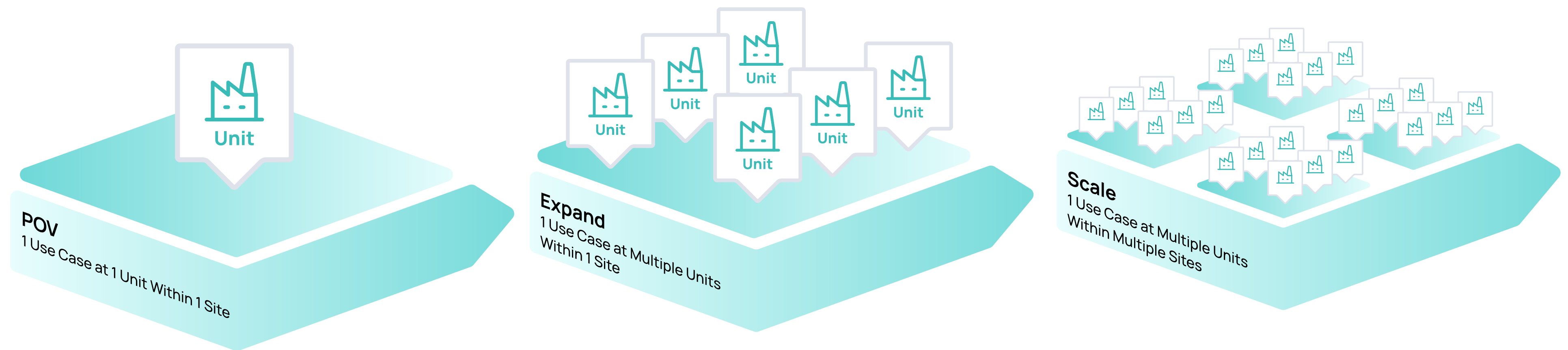
► Figure 7: A future-proof data platform makes it easy to scale use cases across the enterprise.

3.1 Scalability

An enterprise-wide industrial data and AI platform enables seamless scaling of use cases **from one to multiple sites**. Once a use case is successfully developed and delivers satisfactory outcomes at one site, it can be easily replicated at other sites. Instead of manually integrating and managing various systems for every new deployment, an industrial data and AI platform provides a unified, extensible data model that automatically updates when changes are made at the source system, “hiding” the complexities of those source systems. This allows a company to deploy identified use cases faster across its entire enterprise and scale them seamlessly (see Figure 8). Depending on complexity, **each site can be onboarded in 1-2 weeks instead of 3+ months**,

as the same use case can be deployed using the same data foundation—eliminating the need for reconfiguration and adjustments that can take time.

By rapidly rolling out these use cases across the enterprise, a full-scale digital transformation program can make significant progress and, in some cases, be completed in just 2-3 years, rather than being a decade-long journey. This **acceleration of value realization significantly increases the NPV benefit** of the program, directly contributing to higher shareholder value. (The increase in NPV is directly correlated with the number of sites and the scale of deployed use cases. As more sites adopt the platform and additional use cases are rolled out, both the financial impact and value realization accelerate, further enhancing shareholder value).



► **Figure 8:** An industrial and AI platform enables the rapid scaling of use cases from a single unit to multiple sites across the enterprise.

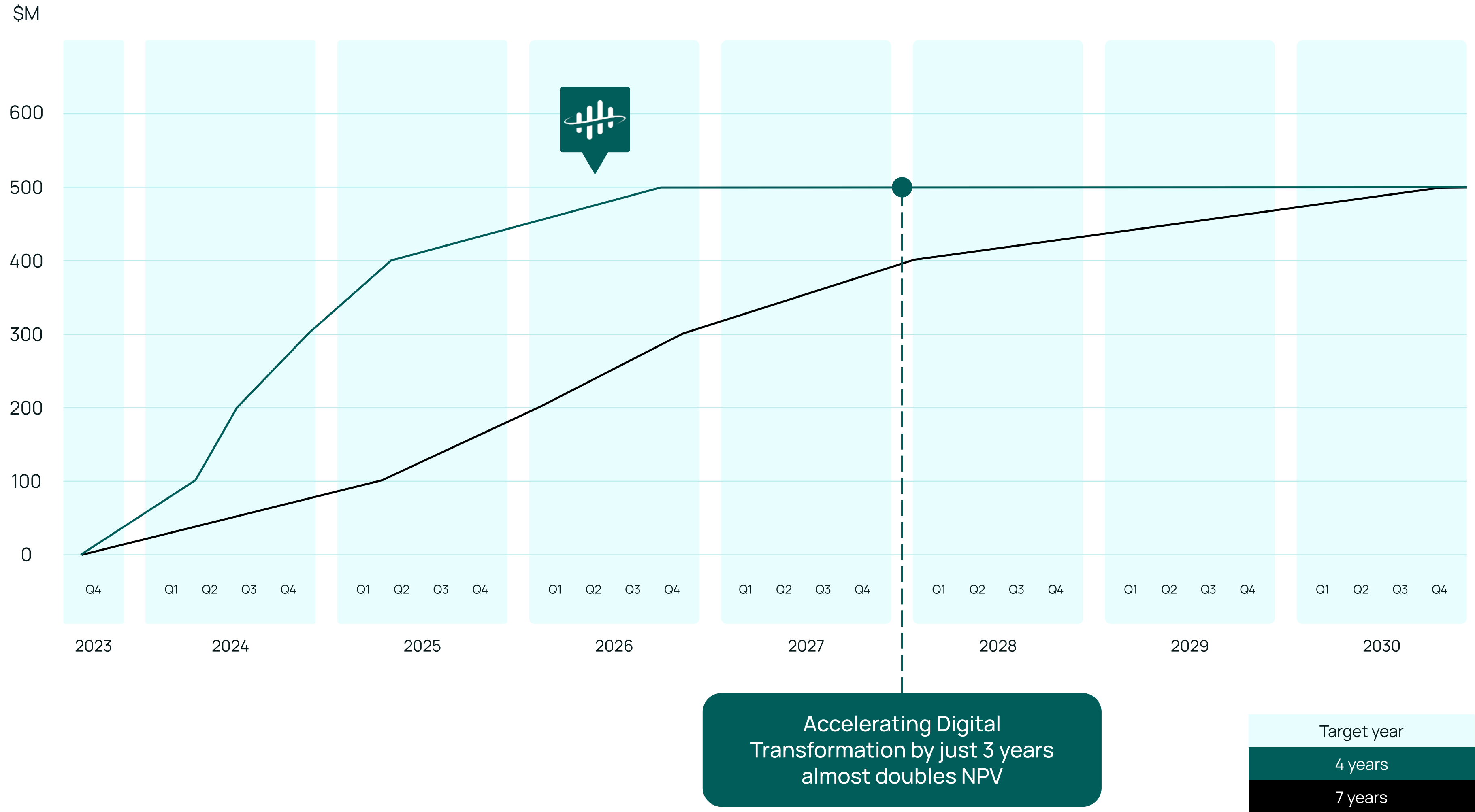
3.2 Faster time to value

An industrial data and AI platform provides the key capabilities needed to **deploy industrial use cases at speed and scale**. Companies can avoid the lengthy process of designing and building the necessary infrastructure and capabilities of a data and AI platform, as well as challenges such as ingesting billions of data points, integrating OT, IT, and engineering data, manually contextualizing information, and managing user access at an enterprise scale. Instead of waiting for IT to build something from scratch, a company can accelerate the **deployment of operational use cases and applications** by leveraging out-of-the-box DataOps capabilities.

This eliminates at least 12-18 months of development time, allowing organizations to meet digital roadmap milestones sooner.

One of the significant yet often overlooked benefits of deploying an out-of-the-box industrial data and AI platform is the accelerated time to value of digital transformation. This faster time to value leads to a material increase in NPV by **shifting the cash flow forward in time**. This alone holds a tremendous NPV impact, leading to a massive **2x gain in shareholder value from deploying the same use case value but at a higher speed and at scale**. For a typical Cognite customer, this acceleration – compared to the

traditional, more linear approach – has resulted in a doubling of the NPV by accelerating the digital transformation program by just three years (see Figure 9).



► **Figure 9:** Two illustrative scenarios of NPV growth: Linear approach in use cases versus accelerated digital transformation with a data and AI platform.

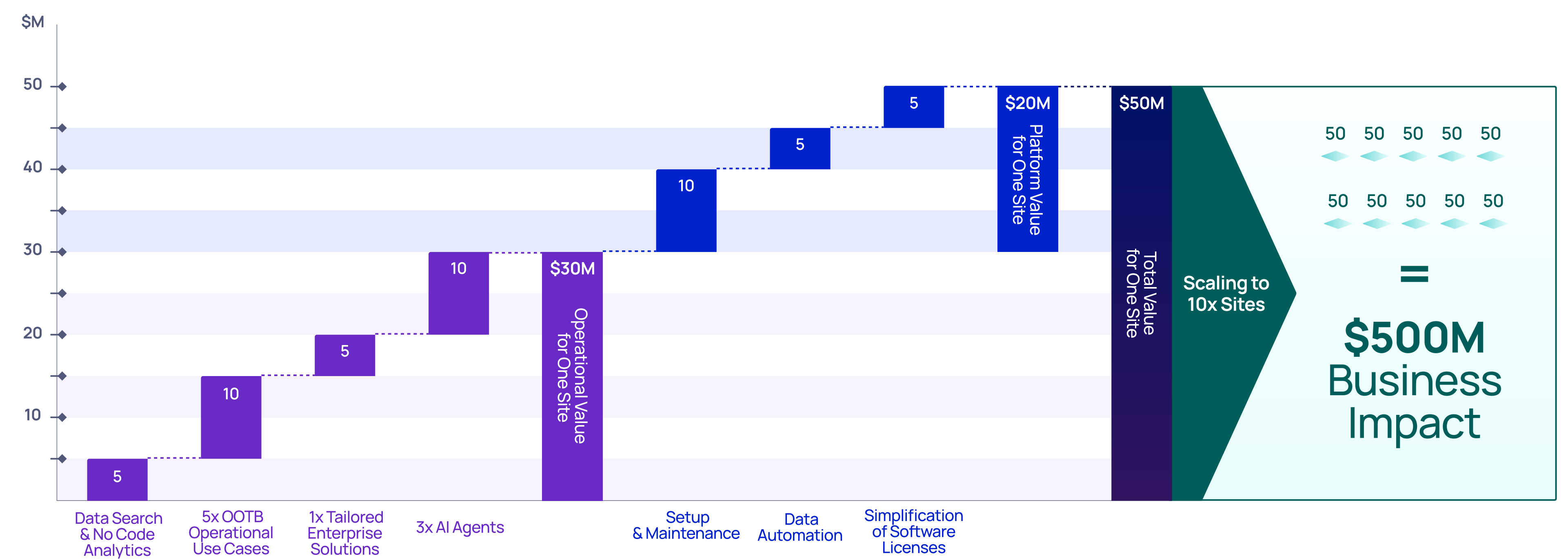
Illustrative example:
bringing it all together

An industrial data and AI platform provides the key capabilities needed to deploy industrial use cases at speed and scale and at a reasonable cost. Companies get significant value by combining operational with platform value and accelerating it across the

enterprise often achieving 100s of millions in value (see Figure 10). While achieving value for one site can be significant, the ability to scale that value from one to multiple sites is what leads to outsized gains and creates significant shareholder value at the enterprise level.

A full-fledged analysis will also include calculating the ROI, which factors in the cost of implement-

ing the program. Combining the EBIT improvement of the Industrial data and AI platform and holding it against the cost of investment allows companies to evaluate the ROI of their digital transformation program and benchmark it against other strategic initiatives (see chapter Return on Investment: Ensuring Investment Adds to Shareholder Value).



► Figure 10: Companies get significant value by combining operational with platform value and accelerating it across the enterprise.

◆ DIY vs. Out-of-the-Box Solutions: A Matter of Value

A key consideration for organizations embarking on an AI transformation journey is whether to build a solution in-house (or, do-it-yourself, often known as DIY) or leverage a commercial data and AI platform like Cognite Data Fusion®. Each option has its merits, but the choice hinges on time-to-value, scalability, and maintainability.

The hidden costs of DIY

Building a comprehensive industrial data and AI platform requires substantial investment in time, skilled resources, and ongoing maintenance. Initial costs may appear lower, but unanticipated delays, execution risks, and long-term resource demands often outweigh these perceived savings.

To deliver AI transformation, choosing between DIY or buying out-of-the-box might be one of the most critical and strategic decisions an organization will have to make. A full-scale enterprise-wide **industrial data and AI foundation has the potential to generate hundreds of millions of dollars in NPV**, with some of Cognite's customers achieving up to \$300-500m in value.

Across Cognite's customers, we have seen that the NPV over a five-year period for implementing Cognite's industrial data and AI platform, Cognite

Data Fusion®, is significantly higher compared to DIY, underscoring the financial benefits of adopting an out-of-the-box solution. Deploying just three years faster typically leads to a doubling in NPV.

Three key factors for DIY vs. Cognite Data Fusion® decision-making:

- **Time to Value:** In today's rapidly changing market, time is of the essence. By deploying an out-of-the-box solution, companies can gain a significant advantage over their competitors, achieving value in a shorter time frame. In fact, companies that have attempted a DIY approach have found that the time for any significant progress can be up to 18 to 24 months.
- **Scalability:** To generate meaningful value, scaling up AI solutions across the entire enterprise is crucial. While early wins from DIY innovations are important, true business value is only realized when use cases are successfully scaled across multiple sites and business units.
- **Maintainability:** The initial investment in building an industrial data and AI platform is just the beginning. Ongoing support and maintenance of such platform can become a significant burden.

Modern Industrial DataOps requires a wide range of ever-evolving capabilities, which can be challenging to maintain as a single enterprise.

When DIY is the right choice

In certain scenarios, choosing a DIY approach can be justified, especially in the early phases of emerging technology markets where certain SaaS vendors may be too small and lack maturity. However, **embarking on a DIY journey is suitable only for organizations with well-resourced IT teams and a high tolerance for risk**. Scaling an IT organization up and down, including hiring and firing talented individuals, can be challenging, especially in a tight labor market. Building a high-performing team takes time and effort without guaranteeing success within the imagined timeline.

Vendor lock-in is another common concern among organizations considering out-of-the-box solutions. DIY offers the opportunity to create a fully customized, enterprise-grade solution that aligns precisely with an organization's requirements. Although there is no guarantee that a DIY approach won't also be impacted if a hyperscaler (Azure, AWS, or Google Cloud) decides to sunset certain capabilities or services.

Why DIY

Large enterprises can choose DIY if there is a strategic need for a customized solution.

Customization:

- Need for a fully **customized, enterprise-grade solution** that aligns precisely with an organization's requirements.
- Typical for very **niche industries**.

Necessity:

- At early phases of new technology markets with **lack of mature out-of-the-box solutions**.
- When small size and lack of stability **SaaS vendors** poses risk.

Strategic reasons:

- Strategic **investment to differentiate** oneself from the competition.
- Suitable for organizations with **very well resourced IT teams** and a tolerance for execution risk.



A hybrid DIY+SaaS approach is the best of both worlds

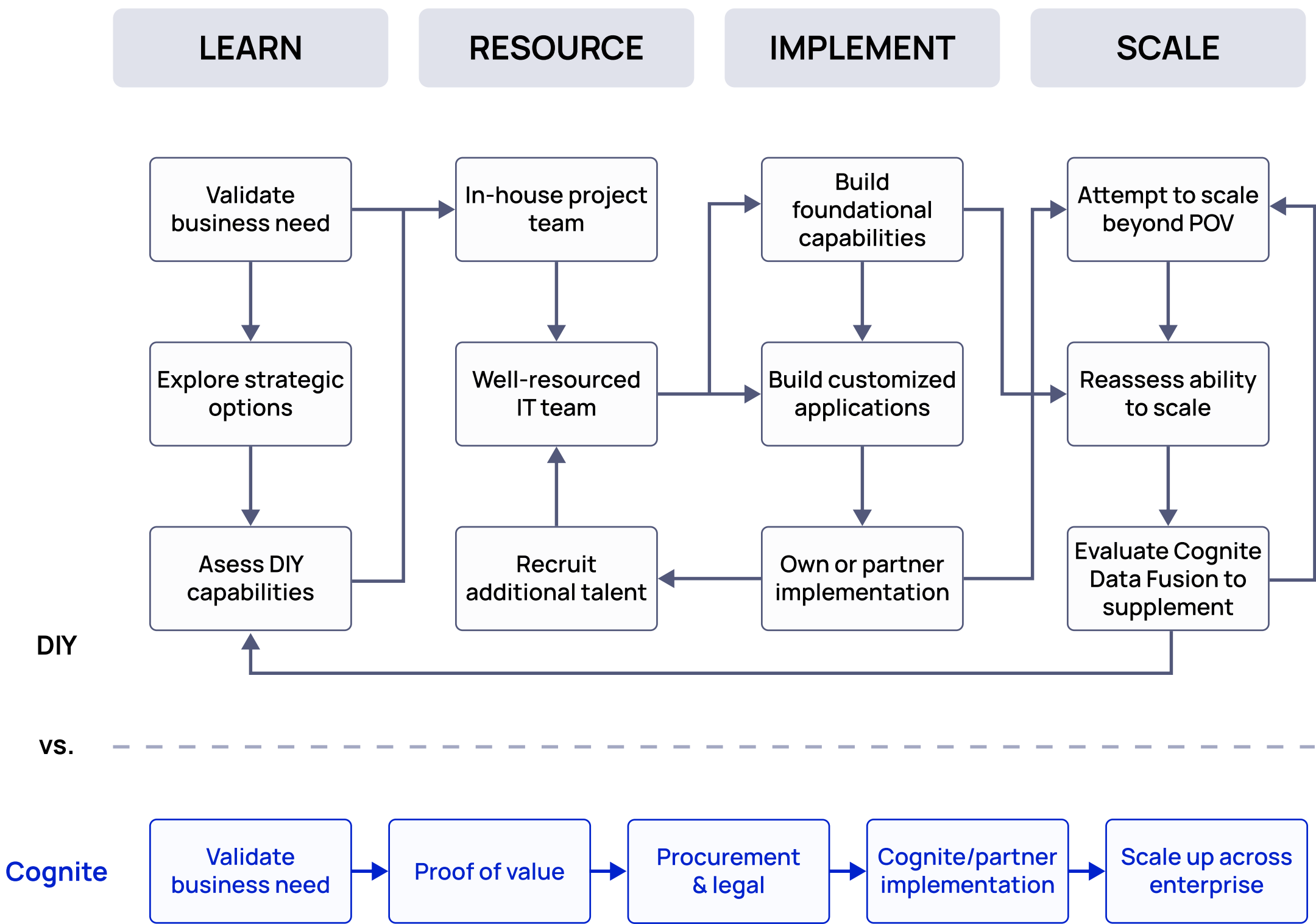
While **Cognite Data Fusion®** offers numerous advantages in itself, a hybrid DIY + Cognite Data Fusion® approach may be an attractive strategic option for organizations seeking the best of both worlds. This approach allows organizations to leverage the customization and control of DIY where necessary while still benefiting from the efficiency, scalability, and expertise of an out-of-the-box solution.

Total cost of ownership and execution risk

While DIY may seem cost-effective initially, long-term financial implications must be considered. Cognite Data Fusion® offers a flexible pricing model, eliminating the need for large upfront investments and aligning costs with actual usage. Additionally, partnering with Cognite mitigates execution risks by providing a reliable industrial data and AI platform that is proven across industries and use cases.

Moreover, a pure cost comparison analysis fails to account for the execution risk involved in DIY projects. The inherent complexities and uncertainties can lead to delays in deploying valuable use cases and significant cost overruns. Partnering with Cognite provides a predictable and structured approach, minimizing the risks associated with execution (see Figure 11).

Execution considerations
The long and complex journey of DIY is underestimated and carries considerable risk



► **Figure 11:** The long and complex journey of DIY is underestimated and carries considerable risk.

Choosing between a DIY approach and a proven out-of-the-box solution is a pivotal decision. While DIY solutions offer customization, they often come with significant execution risks, longer timelines, and hidden costs. Cognite Data Fusion®, with its scalability, seamless integration, and expert support, empowers organizations to overcome these hurdles, achieve faster time-to-value, and drive measurable business outcomes.

Why Cognite is the preferred enterprise partner

A trusted AI partner with deep expertise

Building and maintaining a high-performing IT team can be a challenge. By relying on Cognite's deep technical and domain knowledge, organizations can tap into the latest best practices, benefit from ongoing support and updates, and ensure their industrial data and AI foundation remains at the forefront of industry standards.

With AI, the technology landscape is moving even faster. Cognite launched **Cognite Atlas AI™** to put the power of generative AI into the hands of all industrial companies. Atlas AI is an agent workbench that extends Cognite Data Fusion® and delivers everything organizations need to carry out complex operations more accurately and help use accurate and powerful industrial agents. Atlas AI provides safe and efficient deployment of AI with autoLLM,

foundational models, and comprehensive AI infrastructure, including Context Augmented Generation (CAG) and more. CAG enhances the output of industrial AI by providing relevant operational context, asset-specific information, user data, and past interactions with the data, leading to more relevant and accurate insights and responses.

Cognite Atlas AI™ brings Context Augmented Generation to Microsoft Azure OpenAI Service and, together, we are pushing the boundaries of what language models can do for industrial organizations.

Darryl Willis, Corporate Vice President Energy and Resources Industry, Microsoft

Efficiency and time-to-value

Cognite Data Fusion® revolutionizes industrial data management by offering a comprehensive, ready-to-deploy solution for modern Industrial DataOps. These key components include Cognite's ability to provide a complete solution with interactive-level user experience along with an open, stable API for the Industrial Knowledge Graph – seamlessly integrating semantic context and industrial data. These are examples of capabilities which are difficult to achieve with a DIY approach. Leveraging the technical and domain expertise of Cognite, organizations can gain a competitive advantage, accelerate time-to-value, and stay ahead in the market.

Scaling and adaptability

Scaling industrial data and AI solution efforts across the enterprise is crucial for generating meaningful value. Cognite Data Fusion® is designed with scalability in mind, seamlessly accommodating increased data volumes, supporting new sites or business units, and adapting to changing market dynamics. By choosing Cognite Data Fusion®, organizations can scale their digital initiatives efficiently and meet growing data needs from the business side of the organization. Also, it provides advanced onboarding services, including +90 prebuilt data extractors for common industrial sources and AI and ML capabilities to accelerate the process of building the data foundation. In addition, it automates previously manual workflows, such as data contextualization and data modeling.

Interoperability and complementarity

Cognite Data Fusion® promotes interoperability and complementarity, enabling seamless integration with existing systems, tools, and technologies. This holistic approach to data management enhances collaboration and allows organizations to leverage their current technology stack while maximizing the potential of their data assets. Cognite is committed to openness with fully open, well-documented APIs and SDK so all users and partners have simple access to complex industrial data on their terms.

Why Cognite

Cognite offers certainty of fast and efficient deployment of new capabilities that scale.

Time to value:

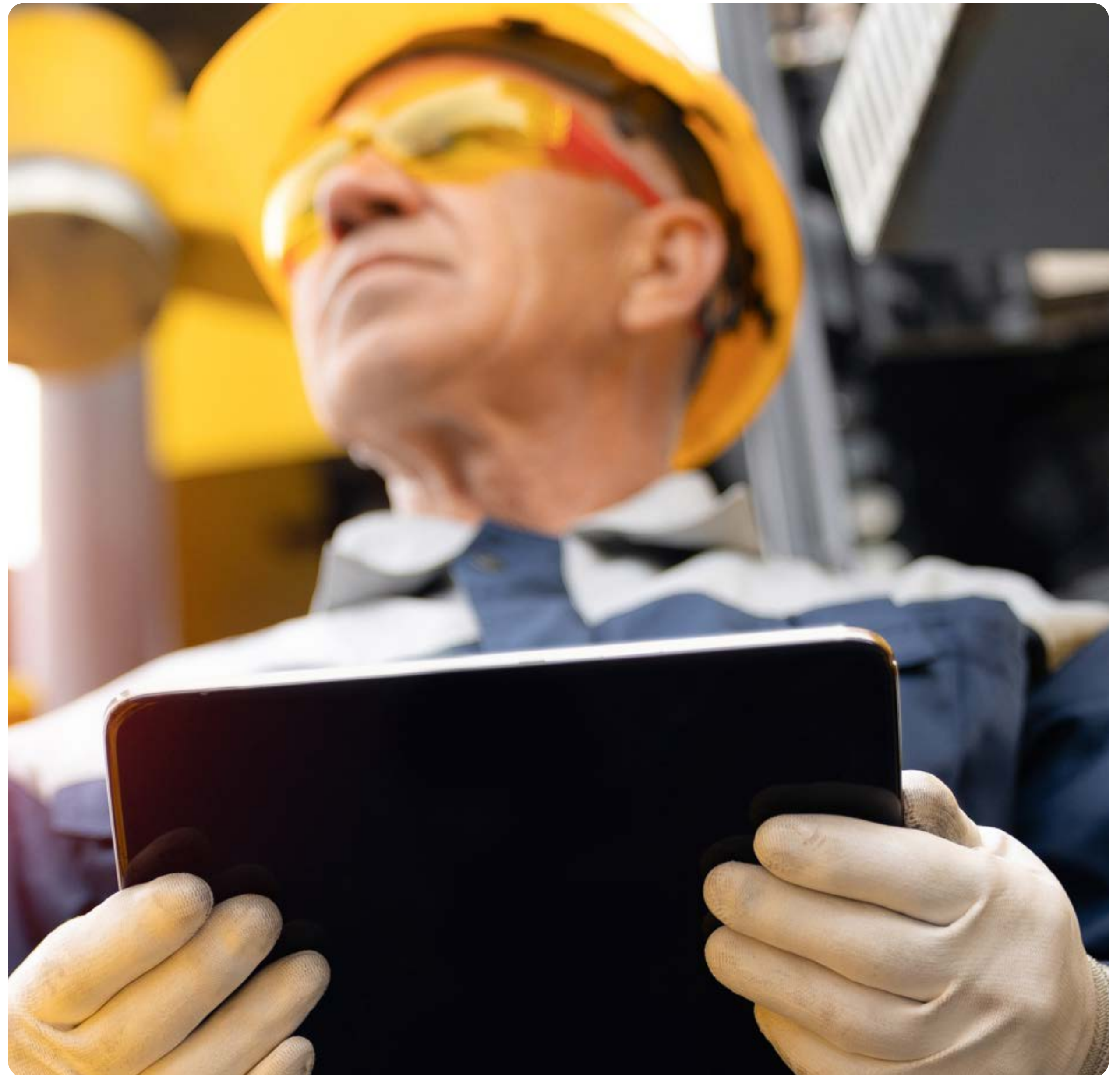
- Organizations can deploy DataOps **in 2-3 months instead of years** of custom DIY development.
- **Ready-to-use functionality** and a "what you see is what you get" approach.

Scalability:

- Cognite Data Fusion® is inherently **designed with scalability in mind**.
- Seamlessly accommodating **increased data volumes**, new sites and business units.

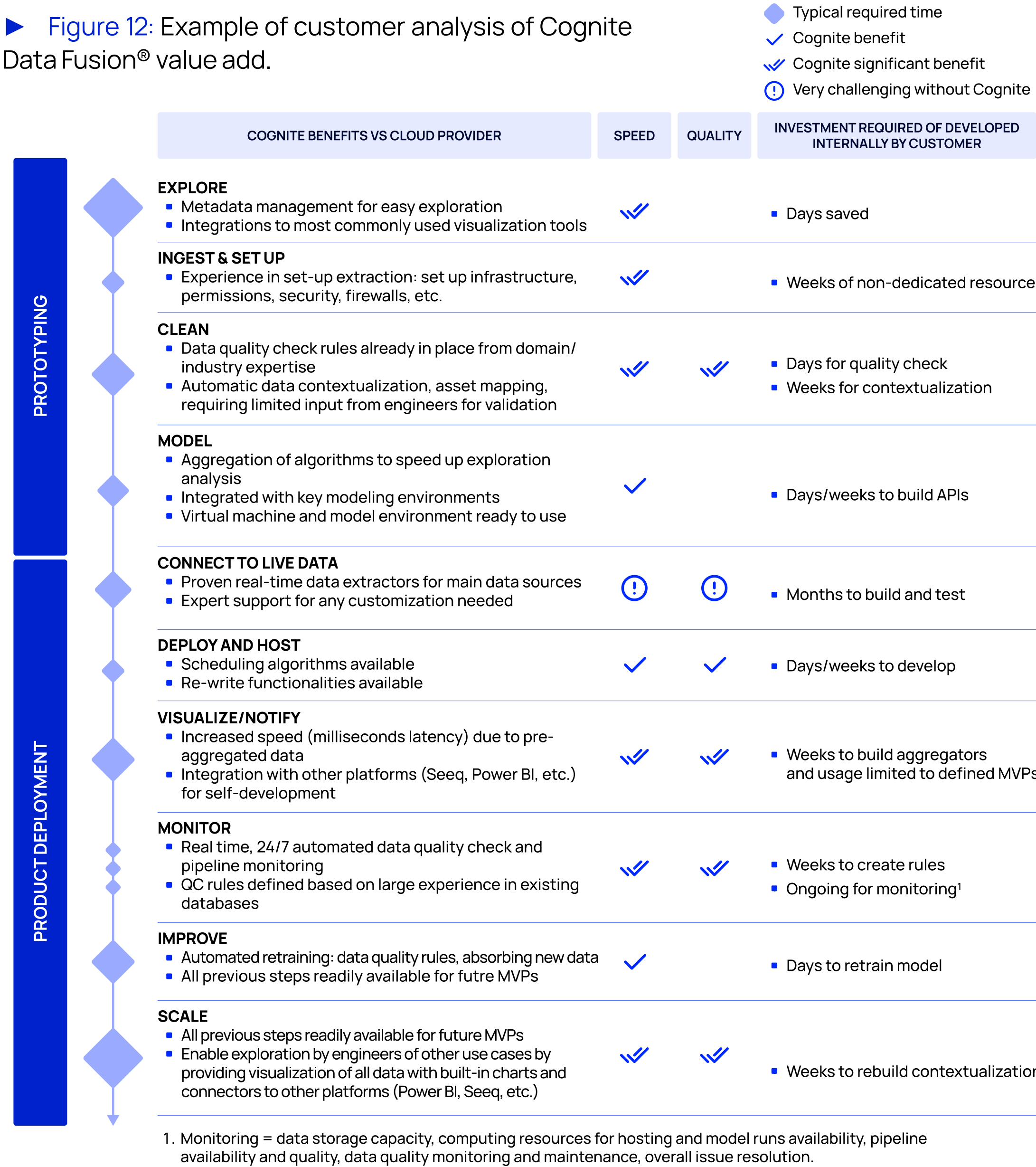
Maintenance:

- Cognite Data Fusion® **continuously adapts** to changing market dynamics and technology developments.
- **Fraction of the cost** of maintenance of in-house solutions.



Customer example:
Cognite ensures speed
and quality when deploying
a data and AI platform

► Figure 12: Example of customer analysis of Cognite Data Fusion® value add.



◆ Return on Investment: Ensuring the Investments Add to Shareholder Value

When a company has decided to embark on a digital transformation journey, it can more easily navigate the implementation of its digital programs by adopting value as the North Star to drive meaningful business impact.

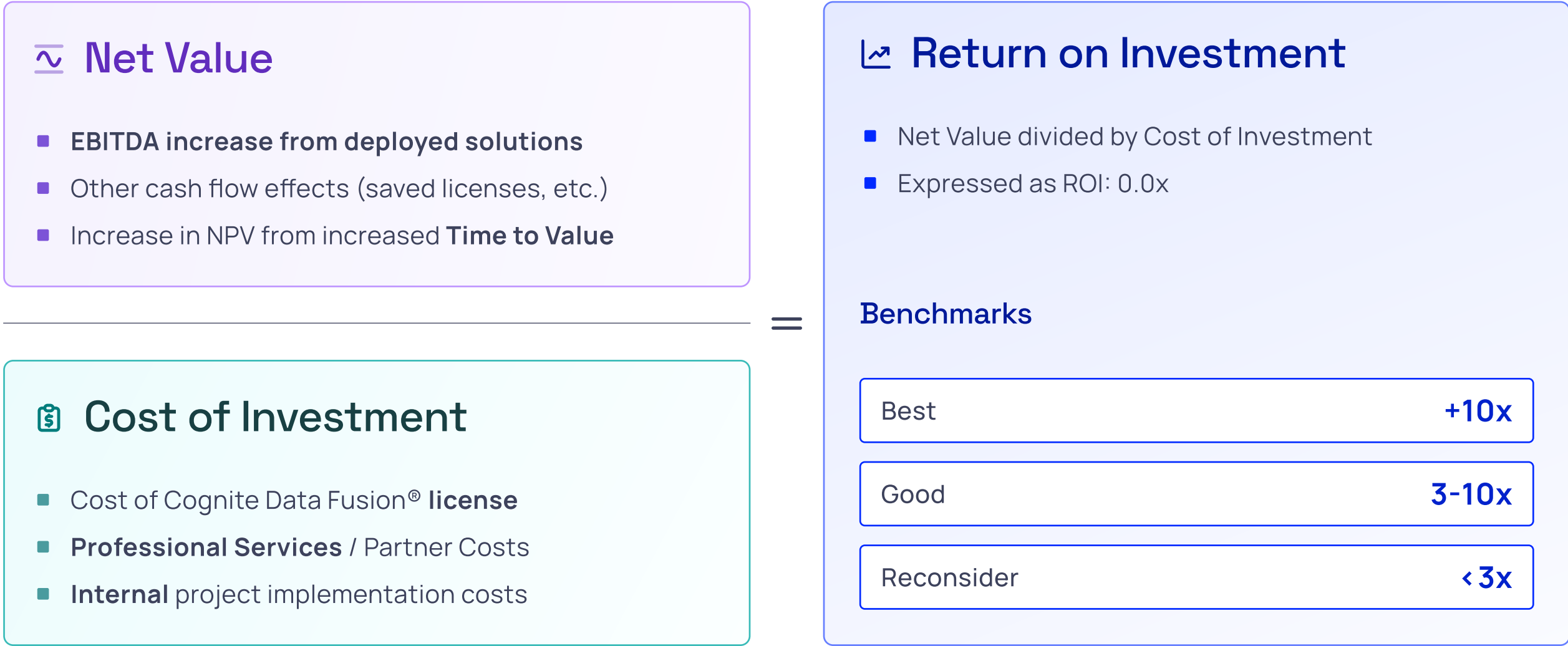
Comparing the Net Value of an industrial data and AI platform against the Cost of Investment (whether out-of-the-box or a hybrid DIY approach) allows a company to evaluate the Return on Investment (ROI) of their digital transformation program and benchmark it against other strategic initiatives at the Board level.

Providing a clear and well-articulated ROI estimate helps the executive management team prioritize strategic initiatives across their business, whether that is investing in new machinery, hiring for a new function, or deploying digital solutions (see Figure 13).

By speaking the Board’s language and emphasizing not only the transformative impact on operations, but also the attractive returns on investment to shareholders, the executive management team has a better chance of getting approval for their proposed investment.

Continuous monitoring and evaluation are crucial for ensuring that digital initiatives are delivered with the intended results when the digital

transformation is under way. By tracking key performance indicators and real-time data analytics, companies can course correct as needed and maximize value realization.



► **Figure 13:** Formula for calculating the ROI from digital investments.

Customer example

Cognite worked with a large Canadian chemicals company to build a bottoms-up business plan by estimating the total EBITDA impact based on estimates for each digital solution they wanted to deploy. Taken against the total cost of investment (Cognite Data Fusion® license, implementation costs, and internal time and resources), they were able to arrive at an estimated ROI for the digital initiative, which they could compare against the other investment programs at their company.

◆ Conclusion: Thriving in the AI Revolution

In an era where data and AI are the foundation of sustained competitive advantage, adopting a robust industrial-specific platform is not just beneficial—it is essential. Companies that successfully harness the power of an industrial data and AI platform like **Cognite Data Fusion®** gain unparalleled operational efficiencies, enhance data quality, and accelerate their time-to-insight, positioning themselves ahead of their competitors.

It is evident that AI, supported by a robust data foundation, is the driving force behind industry transformation. Integrating AI into data management processes not only enhances operational efficiency, but also empowers industries to navigate the complexities of modern industrial operations with greater agility and insight.

Industrial AI agents provide an incredible business opportunity, but also potentially pose an existential threat to companies that do not deploy the technology in time and, therefore, face being outcompeted. Deploying a future-proof AI and data platform ensures that companies can take advantage of what will probably be one of the largest shifts in the 21st-century economy.

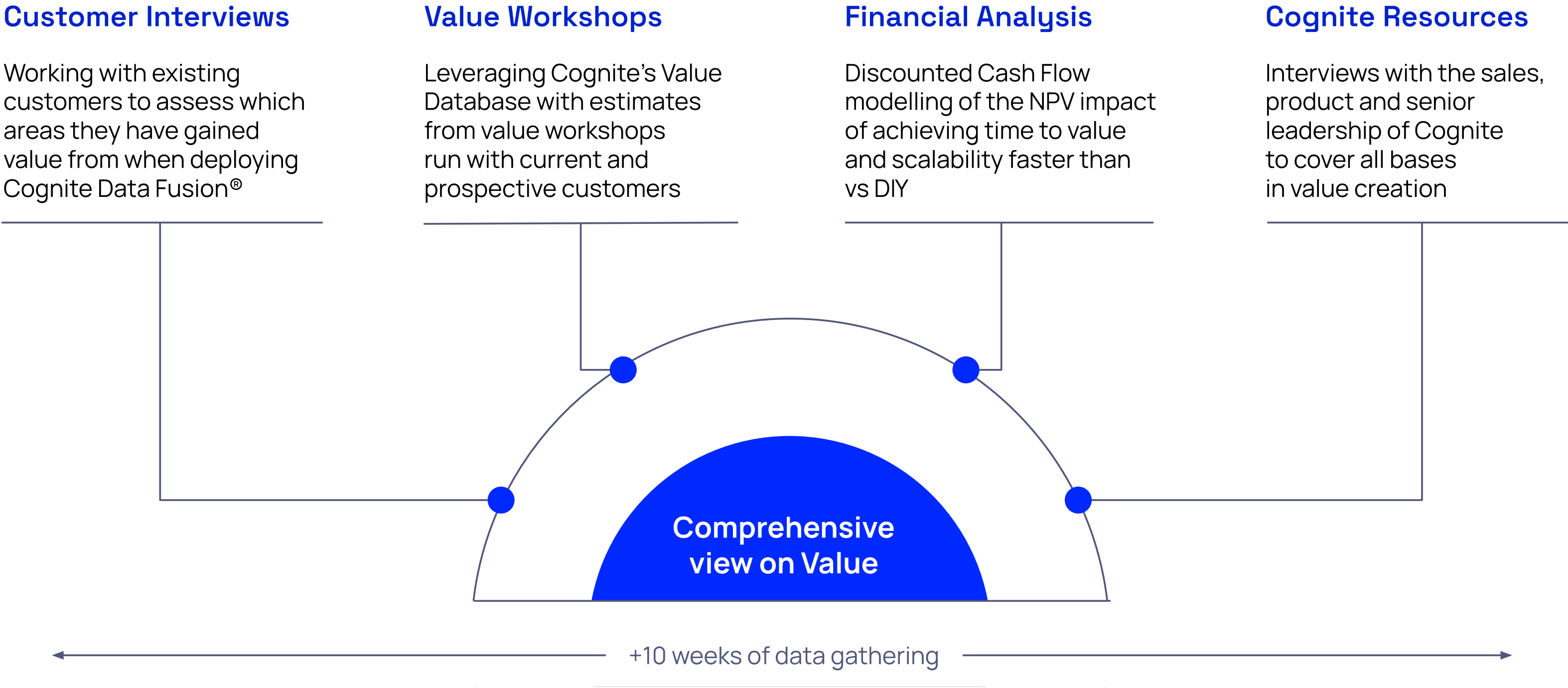
The time to act is now. By leveraging an industrial data and AI platform as a strategic enabler for advanced operational use cases and AI agents, companies can unlock the full potential of their data, drive

innovation at scale, and position themselves as leaders in their industries. We invite you to [contact Cognite](#) to discover how we can help accelerate your journey into the future of AI-driven decision-making.



◆ Methodology

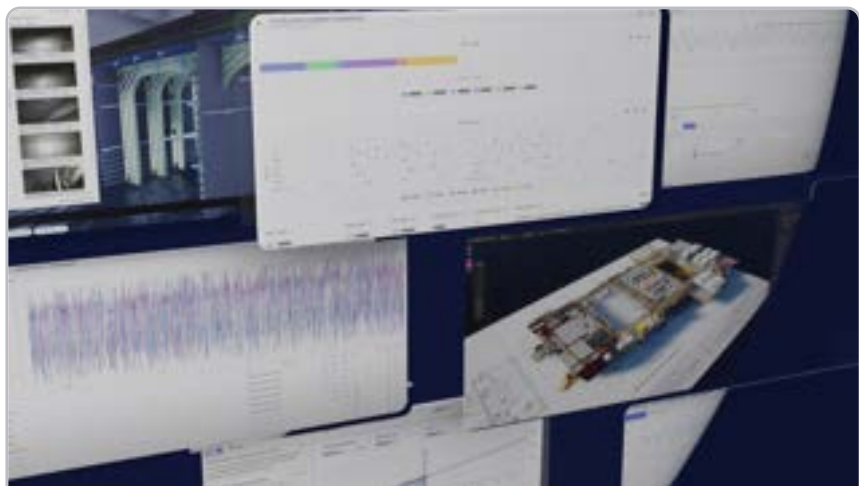
This white paper has been written by and draws upon the knowledge of several of Cognite’s domain experts and in-house consultants. This white paper draws on a wealth of public and private sources and utilizes customer interviews, Cognite’s value database, detailed financial analysis, and internal resources and case studies (see Figure 14).



► Figure 14: Cognite’s methodology for the value framework.

Want to know more about our product?

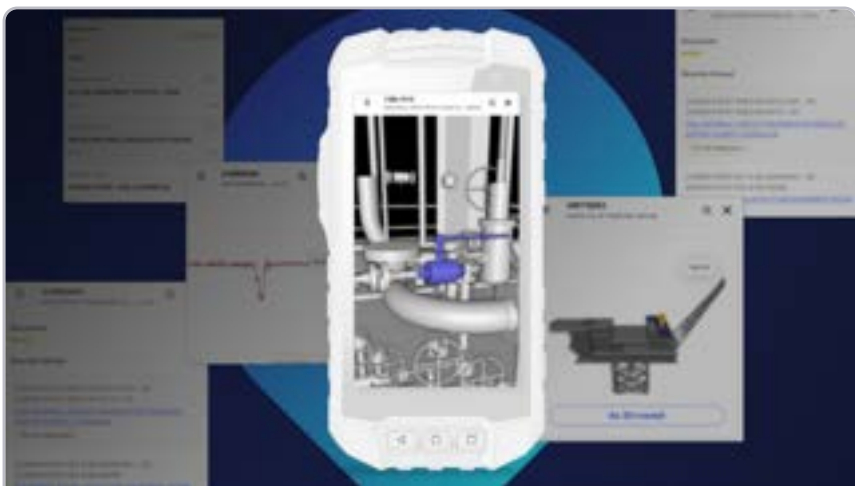
Explore more insights from Cognite



PRODUCT TOUR

Learn from Cognite customers and product managers how Cognite Data Fusion® simplifies and streamlines the data experience of a subject matter expert.

[Watch Now →](#)



CUSTOMER STORIES

Discover how Cognite Data Fusion® makes data more accessible and meaningful, driving insights that unlock opportunities in real-time, reduce costs, and improve the integrity and sustainability of your operations.

[Go to Stories →](#)



ANALYST REPORT

Cognite is honored to be selected as a leader in the **Verdantix Green Quadrant: Industrial Data Management Solutions 2025** for providing a market-leading DataOps and AI platform.

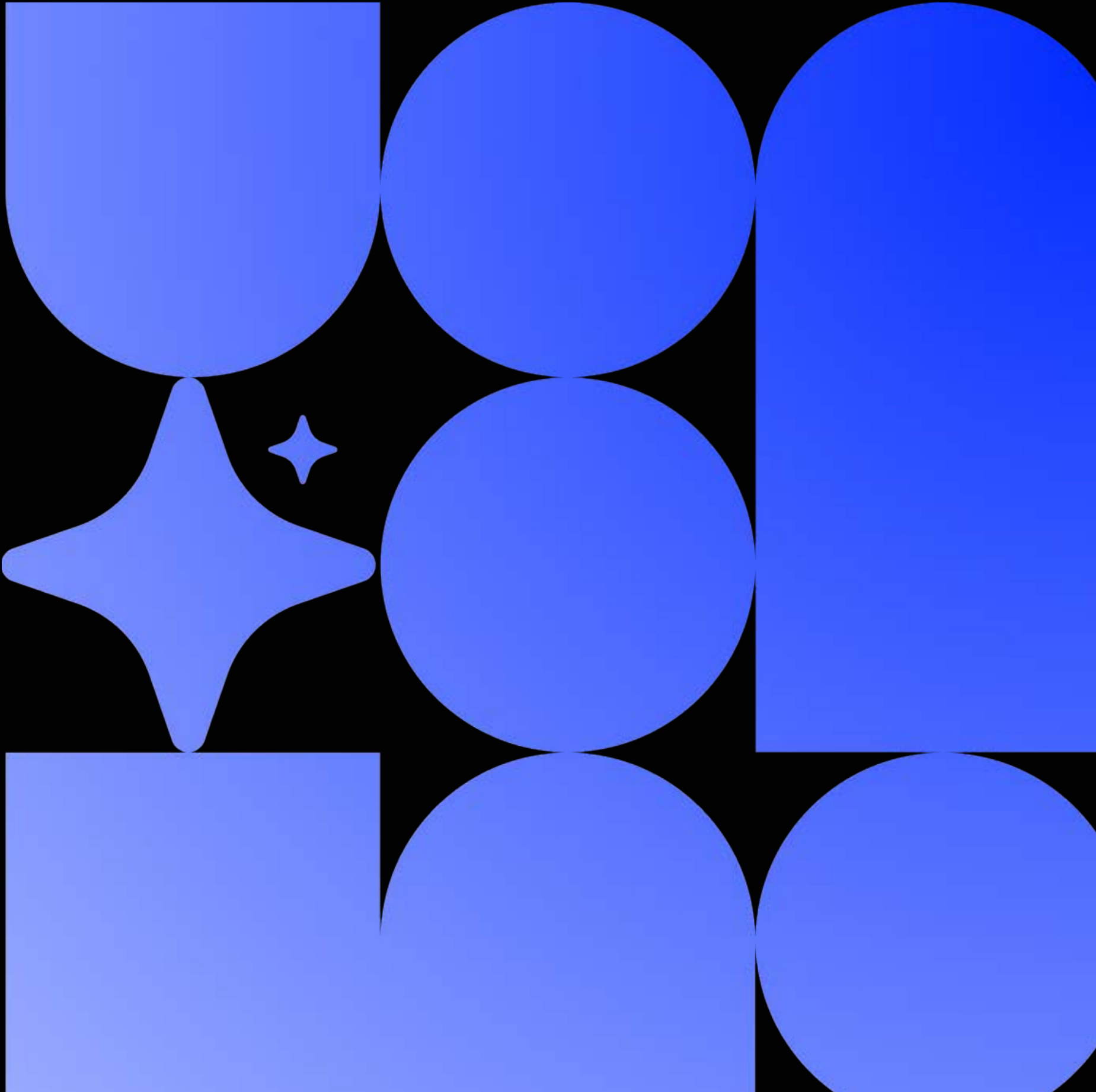
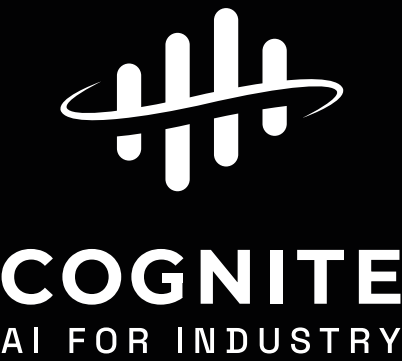
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