

FROST & SULLIVAN

*COGNITE*

**2022**  
**TECHNOLOGY**  
**INNOVATION**  
**LEADER**

*GLOBAL DIGITAL INDUSTRIAL*  
*PLATFORMS INDUSTRY*

## Best Practices Criteria for World-Class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each award category before determining the final award recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated company. Cognite excels in many of the criteria in the digital industrial platforms space.

AWARD CRITERIA	
<i>Technology Leverage</i>	<i>Business Impact</i>
Commitment to Innovation	Financial Performance
Commitment to Creativity	Customer Acquisition
Stage Gate Efficiency	Operational Efficiency
Commercialization Success	Growth Potential
Application Diversity	Human Capital

### *Digital Industrial Platforms: An Introduction*

Since the mid-2010s, digital industrial platforms have had a radical and disruptive impact on the entire industrial space. As one of the major technological breakthroughs derived from the Mega Trends of Industry 4.0 and Digital Transformation, their contribution to creating a new industrial paradigm is truly significant. Moreover, this market is expected to continue growing and transforming industries for decades.

Digital industrial platforms enable the adoption of the latest advancements in device management, telecommunications, industrial protocols, cloud and edge computing, cybersecurity, Big Data management, advanced analytics, digital twins, open architectures, and no-code/low-code (NC/LC) application frameworks development. These platforms facilitate establishing effective, trusted, and secure interactions within the digital ecosystem of people, assets, data, operations, processes, and business, to deliver actionable insights for supporting business decision making and for achieving an entire set of benefits, such as the following:

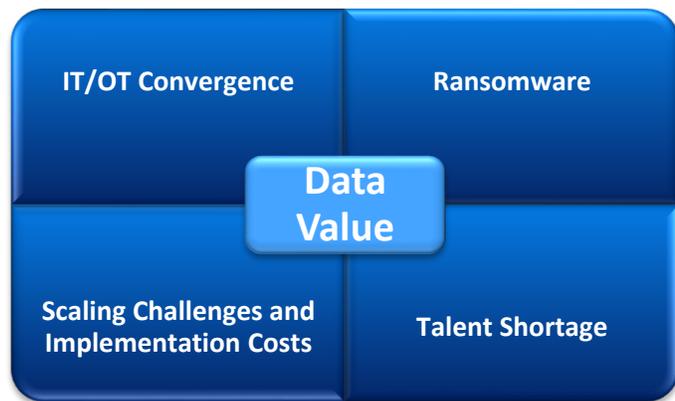
- Automating and streamlining processes
- Predicting and preventing failures to reduce downtime
- Increasing productivity
- Maximizing product quality

- Improving yield, reducing waste, and minimizing costs

The goal of the platforms is to create intelligent, autonomous, agile, efficient, data-driven, and sustainable business operations.

Industries are facing and, in several cases, struggling with diverse, multifaceted, and high-impact challenges, such as information technology/operational technology (IT/OT) convergence, ransomware, implementation costs, difficulty in scaling from proofs of concept (PoC) to production levels, and talent shortage. One challenge, however, that stands out from the rest is the core purpose of this industrial revolution: unlocking real business value from industrial data.

Data is the heart and soul of digital industrial platforms and is their most valuable asset. The optimal use of liberated, integrated, contextualized, trustworthy, scalable, and actionable industrial data maximizes manufacturers’ business potential.



The market is shifting gradually from data availability to autonomous systems, and digital industrial platforms are needed to lead the way, specifically to make the industrial data understandable and relatable

(fully contextualized), trustworthy, and valuable for business, rather than remaining idle in a data lake.

Of all the diverse types of digital industrial platforms, those focused on data management, particularly on industrial data operations (DataOps), are the ones with all the required features and capabilities to address the data challenge. In this context, Frost & Sullivan believes that from a technology innovation leadership standpoint, Cognite Data Fusion® (CDF) stands out as the best platform solution for achieving a data-driven business operation.

**Company and Product: At a Glance**

Founded in 2016, Cognite quickly established itself as one of the fastest-growing, market-disrupting, most innovative, and recognized DataOps and artificial intelligence (AI) industrial software companies. Headquartered in Oslo, Norway, Cognite has a global presence, with offices in Tokyo, Japan; Aberdeen, United Kingdom; Austin, Texas, United States; Houston, Texas, United States; Buenos Aires, Argentina; and Sri Lanka (customer support center).

Cognite develops software that converts industrial data into real business value by blending a powerful combination of machine learning (ML), rules engine, visualization capabilities, and subject-matter domain expertise to turn data into actionable knowledge.

Cognite focuses exclusively on asset-intensive industry segments, specifically the three niche verticals of oil and gas (O&G), manufacturing, and power and utilities. The company, however, is experiencing a fast-growing presence in mining and metals, industrial equipment, chemicals, and cleantech.

In terms of geographic penetration, Europe, Middle East, and Africa (EMEA) represents about 75% of the company’s business in revenue, with North America at 15% and Asia-Pacific (APAC) at 10% as its other major business regions.

Cognite’s core technology and flagship CDF solution is a modular, open, digital, and cloud-based industrial DataOps software platform that nurtures data with real-world industrial OT, IT, engineering technology (ET), and visual technology (VT) through a unified industrial knowledge graph and templates that enable powerful data and AI workflows.

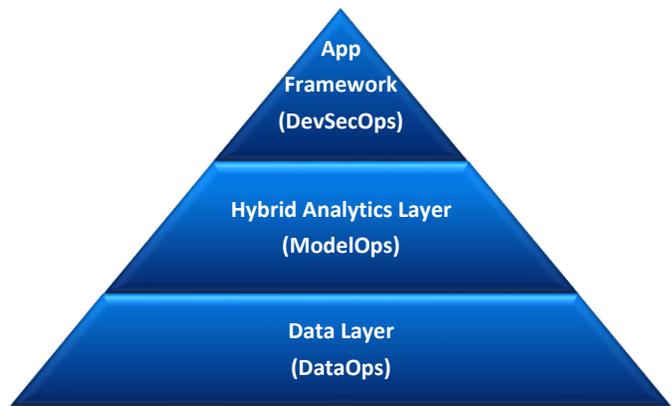
CDF provides DataOps at scale for heavy-asset industries, transforming siloed and underutilized industrial data into accessible, understandable, trusted, and business-ready data products that allow all levels of an organization to make data-driven decisions. These data products, in turn, enable companies to improve productivity, maintenance, safety, and sustainability at scale.

***Commitment to Innovation and Commitment to Creativity***

The following statement summarizes Cognite’s disruptive vision: Cognite believes in the transformative power of open industrial DataOps and what fully contextualized operational data can do for businesses. This leitmotif motivated Cognite to design, develop, and build arguably the most innovative and creative open digital industrial platform in the market, with the ability to integrate diverse technologies, positioning it at the forefront of the competitive landscape. This platform has become a game changer and market disruptor by establishing a solid foundation for the learning manufacturing era.

CDF is an open, modular, API-first, cloud-native, integrated technology, data, advanced analytics, application development, and runtime hosting industrial DataOps platform for industrial application development, operationalization, and scaling from the PoC to the field.

CDF comprises a three-layer tech stack: a data layer (DataOps layer), a hybrid analytics layer (model operations (ModelOps) layer), and an LC application framework (development security operations (DevSecOps) layer), all supporting a wide range of industrial application use cases or digital applications, from simple data dashboarding to 3D rendering and augmented reality/virtual reality (AR/VR) applications, thus providing a comprehensive digital twin solution.



The DataOps layer is where Cognite excels and shows its real power. The OT/IT/ET/VT integration occurs at this level, where the data is contextualized, becomes trustworthy in a real-time environment, and is available to different data consumers.

The brain of the platform’s operation is the ModelOps layer, which is a combination of data science (DS), ML, neural networks (NN), and deep learning (DL), together with physics simulation integration called hybrid AI solutions, physics-guided ML, or physics-informed AI. In other words, CDF combines the use of

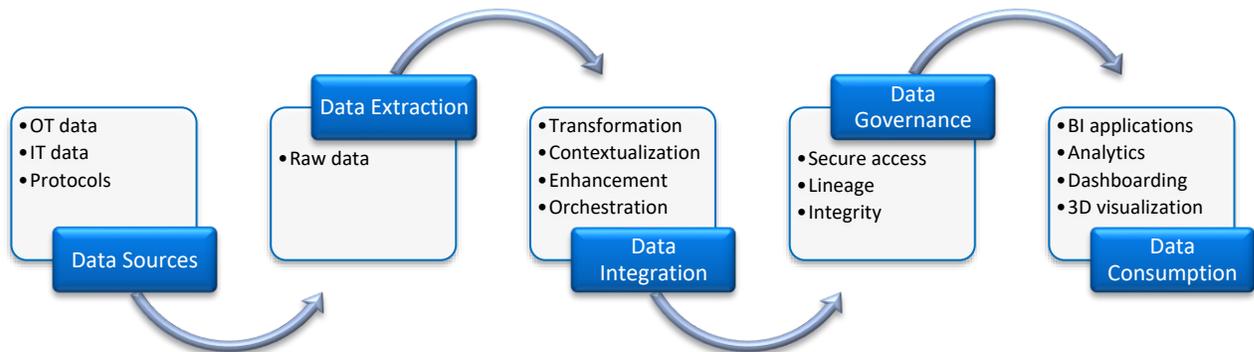
conventional physics’ first-principle software simulation with ML models and live and historical OT data to create hybrid AI models that can address use cases in production optimization or quality.

The following describes CDF’s functionality:

- CDF liberates, contextualizes, and manages industrial data (structured, semi-structured, and unstructured), codifies industrial domain knowledge into software, and enables scale, from PoCs to truly data-driven operations, thus delivering profitability and sustainability.



- CDF can break IT/OT data siloes from source systems, such as time series, enterprise resource planning (ERP), work orders, tabular data, IoT logs, events, piping and instrumentation diagrams (P&IDs), 3D visual data (including rendering), and photogrammetry, and can centralize and contextualize OT asset data with IT and ET data. Breaking IT/OT data siloes enhances the ease and thoroughness of data analysis, along with visualization enablement and asset and equipment simulation.
- CDF streams integrated data (extracted from data sources and transformed into the data model, where it is governed, normalized, contextualized, and enhanced by adding connections between different types of data resources and stored in a graph index in the cloud, where CDF services and tools can be used to build applications to meet business needs.



Some of CDF’s innovative and creative features include the following:

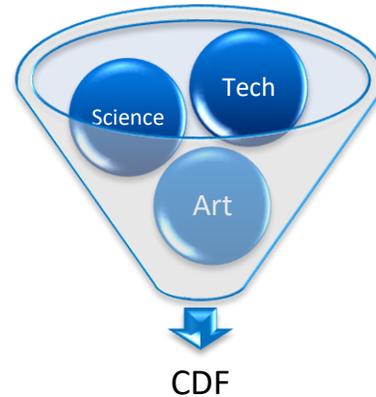
- Entity matching or linking time series to asset nodes to create the industrial knowledge graph backbone
- Enrichment of the industrial knowledge graph with engineering documents integration, giving a process perspective
- Addition of any type of real-world data, such as imagery, audio, video, and point cloud scans
- Addition of 3D data, such as rendering and using geometry streaming for democratizing 3D data access on any device
- Immersive 3D digital twins powered by AI and seamless collaboration in remote operations

Cognite continually makes long-term investments in fundamental technologies that enable the capabilities and features that customers need. The balanced combination of a powerful data model technology engine, along with scientific first-principle process and operations physics simulation integration features, and impressive artistic-type, 3D-rendered, and real-world visualization capabilities makes CDF the most versatile digital industrial platform in the market, which is where technology and science meet art. This is Cognite's greatest achievement.

CDF's uniqueness lies in its powerful and state-of-the-art data contextualization and data templatization services.

**Data contextualization:** CDF has automated, ML-based data contextualization services to populate and maintain the industrial knowledge graph, which forms the core of the unified industrial data model.

**Data templatization:** Templates spin out smaller subsets of the unified industrial knowledge graph into use case-specific data models and govern their data and data processing individually, leading to a non-centralized master data management. Templates are a powerful way of programmatically scaling successful PoCs across an entire class of equipment or assets with data confidence.



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Sr. Industry Analyst, Industrial Technologies**

Cognite's leaders guide the company based on their strengths, inspire, give meaning to ambiguity, share their best experiences and knowledge, balance speed and involvement, and secure relevant collaboration for their teams and the entire organization. Cognite's Leadership Learning Lab offers an arena to support and train these leaders, focusing on a set of expectations to develop a creative workspace for all Cognite employees.

Cognite is committed to cross-collaboration through an agile product management methodology and shared goals. The company invests in leadership

geared toward product managers and designers, training them to understand the value of design and to evaluate the ideas efficiently as they come down the creativity pipeline.

### **Application Diversity**

Cognite has developed a set of composable reference industrial applications, built with the same LC application development libraries and tooling and the same publicly documented API for CDF that run on top of the platform, serving the O&G, industrial manufacturing (e.g., chemicals; food and beverage (F&B); mining, metals, and minerals (MMM); pulp and paper (P&P); and automotive), power utilities, and

shipping verticals for use cases such as smart maintenance, workforce digitalization, production optimization, and sustainability.

The company's portfolio consists of the following five agile, versatile, and state-of-the-art solutions:

- **Cognite Charts** provides an NC experience for subject matter experts (SMEs) to perform real-time data analytics, troubleshooting, and root cause analysis (RCA).
- **Cognite Infield** provides ground and remote workforce access to real-time and contextualized asset-level data, 2D/3D model visualization, equipment location, and easy maintenance tasks through a mobile or tablet-based application. In short, Cognite Infield digitalizes routine rounds and integrates work management.
- **Cognite Maintain** helps asset operators optimize efficiency and reduce waste by enabling the efficient scoping, planning, and execution of maintenance work. The solution maps a list of work orders to a 3D asset model. In short, Cognite Maintain reduces unplanned downtime and saves working hours.
- **Cognite BestDay** provides real-time operational awareness and monitoring capabilities of every critical production variable. In short, this application helps optimize production.
- **Cognite InRobot** allows vendor-agnostic robotics control applications to operate robots by providing contextual awareness of their surroundings, automating repetitive tasks, carrying out remote inspections, tracking assets, offering autonomous visual inspections, and keeping workers safe by eliminating the need to travel to hazardous locations.

Beyond this comprehensive offering and the spectrum of industry verticals that Cognite serves, CDF enhances the diversity proposition by equally supporting the integration of open third-party applications. At the same time, Cognite remains agnostic, fully supportive, and open to connecting to any third-party LC framework.

### ***Financial Performance, Growth Potential, and Commercialization Success***

Since its inception in 2016, Cognite has experienced a stellar growth journey and shown great momentum, materialized in part by a consistently increased revenue performance (in terms of both volume and rates), thus becoming one of the disruptive start-ups in the digital industrial platforms market, emerging as a leader among its competitors in the industrial DataOps segment, and serving some of the leading industrial organizations worldwide. A major contributor to Cognite's revenues is its licensing and subscription-based business.

Currently, the company's O&G business represents about 75% of its revenue (\$76 million in 2021, which is 50% higher than in 2020).

AKER ASA, a Norway-based industrial investment company, is Cognite's major shareholder, with a 50.5% share. In February 2022, Saudi Aramco acquired a 7.4% stake in Cognite, which means a remarkable milestone because it has drawn the attention and interest of the world's largest O&G and energy company.

In terms of funding, during its short tenure, Cognite has raised a total of \$338.2 million over four rounds, with its major investors being Accel (\$75 million in a Series A round in October 2020), TCV (\$150 million

in a Series B round in May 2021), and Saudi Aramco (\$113 million in a Secondary Market round in February 2022). TCV’s funding constituted one of the largest private investment rounds for an industrial digital software company in Europe.

Accel’s Series A funding round raised Cognite’s market value to \$500 million, allowing the company to accelerate its leadership in the DataOps market. TCV’s Series B funding round helped Cognite go one step further by redefining its modern industrial DataOps management. Saudi Aramco’s Secondary Market funding round is expected to boost Cognite’s growth, in terms of financial performance and commercialization success, to new heights, allowing Cognite to aspire to becoming a Tier I company (from

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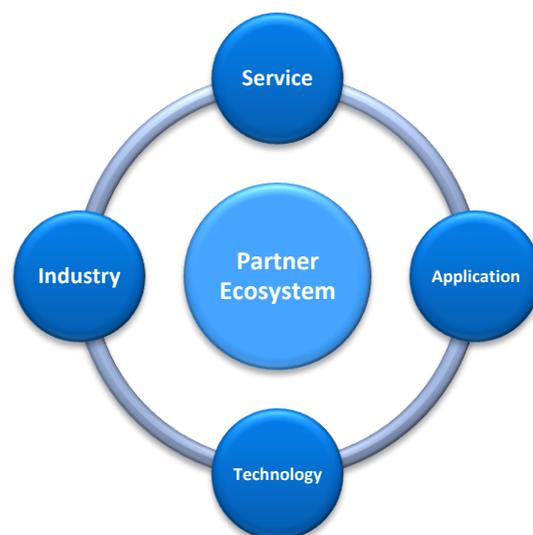
both market share and business volume perspectives) in the digital industrial platforms market in the short term.

The increasing demand for manufacturing and industrial digitalization creates an ideal scenario for Cognite to boost its already rapid expansion. The company’s accelerated growth pace, along with the global collaboration with Microsoft and Google (Microsoft included Cognite as one of the Top 200 Global Independent Software Vendors (ISVs), and Google awarded Cognite with the 2019 Technology Partner of the Year Award) and its venture capital

partnerships with Accel and TCV, has enabled the company to triple its market value in only seven months between October 2020 and May 2021.

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One of the key factors for Cognite’s commercialization success, which has a direct impact on financial performance and growth rates/potential, is its strategic partnership philosophy, both geographically and in industry verticals, which continues to grow into a large network and ecosystem of business and technology partners. As this global industrial growth continues across verticals, a significant number of companies are interested in partnering with Cognite. Partnerships and collaborations are essential for building strong end-to-end platforms, where each component requires



the focus of SMEs. Cognite provides its partners with authorized access to trustworthy and contextualized data, allowing them to develop or connect off-the-shelf applications, thus demonstrating real business value to their shared customers.

Cognite's partner ecosystem comprises the following four groups: service partners that integrate systems and ingest data into the CDF platform, application partners that build apps on top of the CDF platform, technology partners that develop the underlying infrastructure to access and use the CDF platform, and industry partners that provide domain knowledge and expertise.

Cognite is working on reselling and distributing its platform to accelerate its direct sales efforts into channel partnership models.

### ***Customer Acquisition***

Cognite believes in closely collaborating with its flagship customers to address the most challenging problems that organizations face and to ensure that the solutions are relevant and scalable.

In 2021, the company almost doubled its customer base from 50 to 95, increasing its reach in North America and Asia while strengthening its position in EMEA and showing 93% in gross retention and 121% in net retention.

Cognite constantly measures customer satisfaction by surveying customers after completing project delivery, after closing a support case, and by surveying customers every 6 months, achieving a relational Net Promoter Score (NPS) above 30 and a transactional customer satisfaction (CSAT) average score of 97%.

### ***Human Capital***

Among all the virtues and qualities that make Cognite a successful company, human capital excels over the rest. Cognite employs over 500 professionals called Cogniters who come from over 60 countries, thus creating a truly diverse and multicultural team.

Cognite's staff has over 10 Olympiad medalists in International Informatics, and about 15% of its workforce has earned a Ph.D., exemplifying the team's domain knowledge, talent, skills, and capabilities. Few companies in the industrial space can claim such a scientific level of expertise.

Cognite's global workforce is 28% female, and the company has specific, transparent targets to increase gender diversity. The company is strongly committed to achieving equality and well-being; creating a diversity and inclusion policy; and developing a diversity, inclusion, and belonging strategy, thus emphasizing its grassroots engagement, education, and cultural awareness.

Cognite is proud of its people because of their diverse perspectives, their passion for radically impacting the future of the industry, and their two-way employer-employee commitment. The company, therefore, has been honored with the Best Place to Work, Best Benefits, and Best Large Companies to Work For awards in Austin, Texas, for two consecutive years (2021 and 2022).

Cognite's human capital allows it to continue changing and revolutionizing the industrial platform market.

## Conclusion

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Cognite is the AI industrial software company that masters the fusion of technology, science, and art. The company's open industrial DataOps platform, CDF, is radically changing the resources, process, and manufacturing industries. The company has experienced booming growth in the past two years, has earned the well-deserved status of industrial unicorn, and is creating a new industry paradigm called learning manufacturing.

Cognite is pursuing the energy transition toward sustainability by making industrial data more accessible, trustworthy, and meaningful, thus optimizing customers' production, asset utilization, and workforce performance through a continuous, algorithm-powered improvement process and bringing real business value to customers.

Cognite's data contextualization and data templating services are the finest in the industry among the universe of industrial DataOps platforms and are the ultimate expression of the latest applied science and technology trends in the entire industry ecosystem. Cognite plays a transcendent role in making customers' operations safer, more reliable, more efficient, and ultimately more sustainable while simultaneously improving their profitability.

With its strong overall performance, Cognite earns Frost & Sullivan's 2022 Global Technology Innovation Leadership Award in the digital industrial platforms Industry.

## What You Need to Know about the Technology Innovation Leadership Recognition

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Frost & Sullivan's Technology Innovation Leadership Award recognizes the company that has introduced the best underlying technology for achieving remarkable product and customer success while driving future business value.

### Best Practices Award Analysis

For the Technology Innovation Leadership Award, Frost & Sullivan analysts independently evaluated the criteria listed below.

#### *Technology Leverage*

**Commitment to Innovation:** Continuous emerging technology adoption and creation enables new product development and enhances product performance

**Commitment to Creativity:** Company leverages technology advancements to push the limits of form and function in the pursuit of white space innovation

**Stage Gate Efficiency:** Technology adoption enhances the stage gate process for launching new products and solutions

**Commercialization Success:** Company displays a proven track record of taking new technologies to market with a high success rate

**Application Diversity:** Company develops and/or integrates technology that serves multiple applications and multiple environments

#### *Business Impact*

**Financial Performance:** Strong overall financial performance is achieved in terms of revenues, revenue growth, operating margin, and other key financial metrics

**Customer Acquisition:** Customer-facing processes support efficient and consistent new customer acquisition while enhancing customer retention

**Operational Efficiency:** Company staff performs assigned tasks productively, quickly, and to a high-quality standard

**Growth Potential:** Growth is fostered by a strong customer focus that strengthens the brand and reinforces customer loyalty

**Human Capital:** Commitment to quality and to customers characterize the company culture, which in turn enhances employee morale and retention

