COGNITE

The Future Edition

Data Fusion Magazine

Discover valuable thought leadership and insights for the heavy asset industries. Explore the future of data management, data contextualization, and DataOps.

In this issue

FOREWORD

Data Fusion

Welcome to the Future Edition. This month's theme is looking ahead to the near future of data management, data contextualization, and Data Ops.

We'll explore the exciting changes already sweeping in and the opportunities to be seized by companies who are agile and adaptive.

Learn how data augmentation is set to transform the role of IT professionals. Chart the rise of AI and the smart engineer. Plus, preview the impending collision of data and analytics.

Discover all this and more in your issue of Data Fusion.

All the best,

John Markus Lervik
CEO, Cognite

Data points

Digitization initiatives are expected to reduce the firm's operating expenses by 15–20% per year.

Better access to information on risks via dashboards, monitoring information that reduces downtime, and algorithm-based models to reduce production losses are estimated to deliver savings of $22.5 million.

Source: Aker BP Lowers Operating Costs And Increases Productivity With Its Digital Transformation Initiatives. Verdantix.

20%

VERDANTIX   VERDANTIX.COM

Aker BP Lowers Operating Costs And Increases Productivity With Its Digital Transformation Initiatives

AUGUST 2020

BY SEBASTIAN WINTER
WITH MALAVIKA TOHANI

OPERATIONAL EXCELLENCE

AKER BP LOWERS OPERATING COSTS AND INCREASES PRODUCTIVITY WITH ITS DIGITAL TRANSFORMATION INITIATIVES
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A New Way: why industrial digitalization needs data fusion and contextualization

What's wrong with traditional data management?

Traditional centralized master data management (MDM) is failing to deliver the modern data-driven operations agility that industrial digitalization calls for. It also cannot provide the level of data quality subjectivity to each use case that is required: delivered through versioning of data specific to the needs of each use case, rather than horizontally across the data itself. Another challenge for horizontal data quality tools and techniques is that they are unable to deal with the breadth, variation, and — frankly — noise of operational industry and machine data.

Industrial machine data offers heavy-asset companies a huge and growing opportunity to extract insights and inform performance-improving actions.

To exploit this exponential phenomenon to the full, the industry needs to combine machine learning with scalable, agile SME enablement.

It also needs to address high complexity high value use cases with scarce professional data science resources.

Data fusion and contextualization eases the burden on SMEs and data scientists by making relevant data not only accessible but truly understandable and meaningful.

Source:Gartner
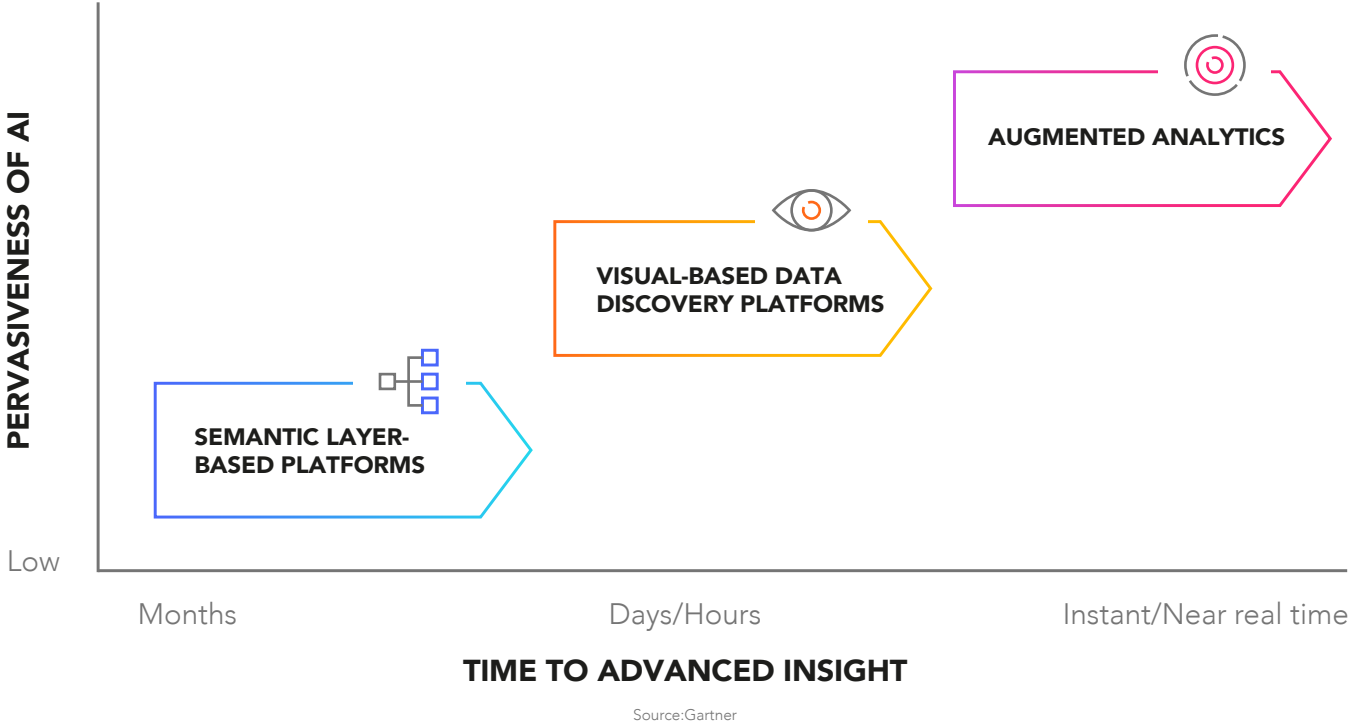
Disruption points in the analytics and business intelligence (BI) market

Looking at the analytics and BI landscape, we can see three main categories of platforms, with varying levels of pervasiveness of AI as well as time-to-insights for those companies who adopt them.

1. Semantic layer-based platforms

These platforms generally work in an IT-led, descriptive manner, with predefined interactivity and KPIs. They are examples of IT modeled, traditional data integration, relying on summary data and a data warehouse. The data, relationships, and questions involved are defined.

The time to achieve basic insights ranges in months, but the low pervasiveness of AI means these insights are of limited sophistication. According to Gartner, semantic layer-based platforms are today adopted by 15-20% of the market.

2. Visual-based data discovery platforms

These platforms are more business-led, descriptive and diagnostic in their approach, They can accommodate free-form user interactivity, and provide the best visualization.

The data they work with can be structured, personal, and unmodeled. In common with their semantic layer-based counterparts, they require data, relationships, and questions to be defined.

The time to achieve insights is faster, ranging in the hours and days. Visual-based data discovery platforms are today adopted by some 35% of the market.

3. Augmented analytics

Finally, we come to the most advanced set of platforms. These are led by machine learning, and can be described as pervasive, auto-descriptive, diagnostic, predictive, and prescriptive. They offer the most significant levels of insight to inform user actions. Relevant patterns are auto-

visualized, and conversational analytics are used to ask and answer questions, through natural language processing (NLP), natural language query (NLQ), and natural language generation (NLG).

The system offers suggestions in user context or embedded in apps. Crucially, these platforms can also auto-discover new relevant data sources, and handle open data, relationships, and questions.

The time to achieve insights is almost instantaneous and in real time. Augmented analytics platforms are, unsurprisingly, popular in the market. Gartner predicts the adoption rate to exceed 50% within 2-5 years time. At this level, industrial SMEs, and other 'citizen' data consumers, are truly empowered.

ADOPTION OF AUGMENTED ANALYTICS WILL REACH

50%+

within 2-5 years time.

Collective experiences and democratization of AI are set to change data management

Data management is moving swiftly from a niche pursuit and the preserve of specialists, to a more widely accessible and actionable set of tools, capabilities, and approaches. This democratization of AI and data management is already changing the game.

AI enables connections to be made and mapped out across a broad, complex, and disparate data landscape, fusing together different data points and bringing forth data contextualization.

The collaboration between artificial and human intelligence, with each contributing according to its strengths, has the potential to rebalance and improve the work done by humans and machines

There is a mass migration towards both crowd-sourced and cloud-sourced tooling, reusable models and techniques, which can offer greater efficiency, flexibility and agility, freeing up time and resources.

The overall trend is towards democratization of data management, enabling wider teams to perform more data management tasks, and operationalizing data to satisfy the needs of diverse data consumers.

IT CRAFTSMANSHIP

Tactical, silo
governance

IT INDUSTRIALZATION

Center-out governance
control-orientated

The foundations
we need for this

DIGITALIZATION

Adaptive, contextual
platform-oriented,
trust-based

Data and analytics governance needs new foundations

IT has evolved through three major stages, from IT craftsmanship, to IT industrialization, and now digitalization. But many organizations are trying to build digitalization on governance foundations more suited to the previous phase of IT industrialization.

IT craftsmanship was marked by sporadic automation and innovation, with frequent issues affecting the outputs and outcomes. Engagement with the wider business was low, with isolation and disengagement both internally and externally. Governance was tactical, siloed, and technology-centric.

IT industrialization moved beyond this, to emphasize services and solutions, efficiency and effectiveness. Business engagement improved and became less isolated, but was directive, compliance-driven, and risk-averse. Governance was less tactical, more center-out, control-oriented, and process-centric. These foundations are typically still seen in most heavy-asset companies, despite ever-increasing efforts to implement proper digitalization.

This third evolutionary phase calls for another step change in approach. Outcomes and outputs need to focus on business and operating model transformation. Engagement with the wider business must be dynamic and collaborative; risk-aware but not risk-averse.

Governance for digitalization has to be adaptive, contextual, platform-oriented, and trust-based. Instead of focusing on technology or processes per se, we need to put the product, people, and outcomes at the very center.

A new way: data fusion and contextualization

To achieve the full rewards of true digitalization, heavy-asset companies must not only embrace new technologies, but also new approaches, leaving behind the traditional assumptions of data and analytics management and governance.

Cognite combines a powerful blend of machine learning, rules engine, and subject matter expertise to convert data into actionable knowledge.

To learn more about how to harness data fusion and contextualization to achieve true digitalization, download the eGuide Improving operational performance through digital excellence.

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OIL & GAS

Improving operational performance through digital excellence

As digital twin technology comes to the fore, even greater efficiencies and innovation potential will be realized.

COGNITE | 13

C D F

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Data stories

How Cognite helps grid operators prevent transformer failures

Cognite worked with a major grid operator to improve monitoring and maintenance of electrical transformers.

By using liberated, contextualized data in Cognite Data Fusion, they achieved:

$2 million in estimated annual savings

Data-driven maintenance planning

Reduced risk of transformer failure

FIND OUT HOW IT HAPPENED

Use DataOps to deliver to both SMEs and professional data scientists

If there is one technology trend besides AI that is set to define the 2020s, it is "Ops".

From DevOps to DataOps to MLOps, focus is rightfully put on end-to-end operationalization rather than initial code, data, or algorithm development alone. In the tailwinds of DevOps' transformative impact on both SaaS companies as well as more recently enterprise specific custom software development, DataOps is adopted to deliver similar transformative impact on the speed of delivering converged data management and advanced analytics solutions to businesses. With DataOps, organizations are making their data useful at scale across their rapidly growing data consumer landscape, with SMEs — not IT professionals — accounting for fastest growth.

What is DataOps?

A collaborative data management practice focused on improving the **communication, integration** and **automation** of data flows between data managers and consumers across an organization.

The goal of DataOps is to create **predictable delivery** and **change management** of data, data models and related artifacts.

DataOps uses technology to **automate** data delivery with the appropriate levels of **security, quality** and **matadata** to improve the use and value data in a dynamic environment.

DataOps for heavy-asset and manufacturing industries

With growing hype around DataOps, we want to offer you a convenient guide to understanding the key characteristics of horizontal DataOps, as well as which features to look out for that will significantly catalyze success with DataOps adoption for heavy-asset and manufacturing organizations confronted with a somewhat different data source, type, or quality, as well as data consumer landscape.

GENERIC DATAOPS FEATURES

DATAOPS INDUSTRY SPECIALIZATION FEATURES

Development environments support
PowerBI, Data, ODBC, SDKs, Spark,
Jupyter plug-ins, Low-code frameworks

Versioning
Code, models, data and pipelines need to be version controlled

---

Data lineage
The ability to track dependency of data

Access control and sharing
The possibility to restrict and provide access to data sets and data kits

---

Pipeline orchestration
The ability to build pipelines where one can reuse components

---

Observability
The ability to inspect, monitor and debug solutions in production

---

Data type support
Native handling of time-series data unstructured
and semi-structured data (e.g P&IDs)

Live data access
The ability to work with live operational (OT) data

Data discovery
The ability for SMEs to self-service explore data in full
operational systems context

Industrial equipment and process data models
Talking domain language. Scalling models from one to many

Model governance and time series data quality monitoring
Ensuring data completeness and use case specific quality requirements

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Incorporating physics
The possibilty to use physical simulations as part of model pipelines

Use DataOps to deliver contextualized data to both SMEs and professional data scientists

To operationalize data at scale, you need to contextualize your data first.

Contextualization — finding relationships in data and across data types, dimensions, things and objects — forms the foundation of modern data and analytics. This applies to knowledge graphs, to data fabrics, explainable AI, analytics on all types of content, and to providing richer context for ML and AI. True augmented data management delivered using DataOps will reduce the reliance on IT specialists for repetitive and low impact data management tasks, whilst in parallel, making your data consumers more independent and successful.

At Cognite, we're often asked which users we target. In other words, are we serving old or new data consumers? Do we focus on rich intuitive data exploration and intuitive pipeline and model management for 'citizen' data integrators, product managers, business analysis and engineers — or providing a 'data as code' experience to professional data scientists with preference for SDK experiences?

We choose both. For us, DataOps represents a new way of servicing data consumers, both old and new — data and analytics professionals as well as business and engineering professionals — with the same **'real-time contextualised data at your fingertips' experience.**

To give a little context to this hybrid path we have chosen, we see that the data management and governance requirements are in fact largely the same for both end user groups, as are DataOps industry specialization features alike.

The differences are on the **user interaction experiences** with the data analytics workflows. This is however a UX preference issue, not a core augmented data management and DataOps issue. To illustrate this with a simple example, below are two common

live data exploration and access scenarios present in almost all industrial use case solving. One experience is targeting SMEs, the other data scientist and application developers. Both UX are provided with the exact same core live data interface: the CDF API.
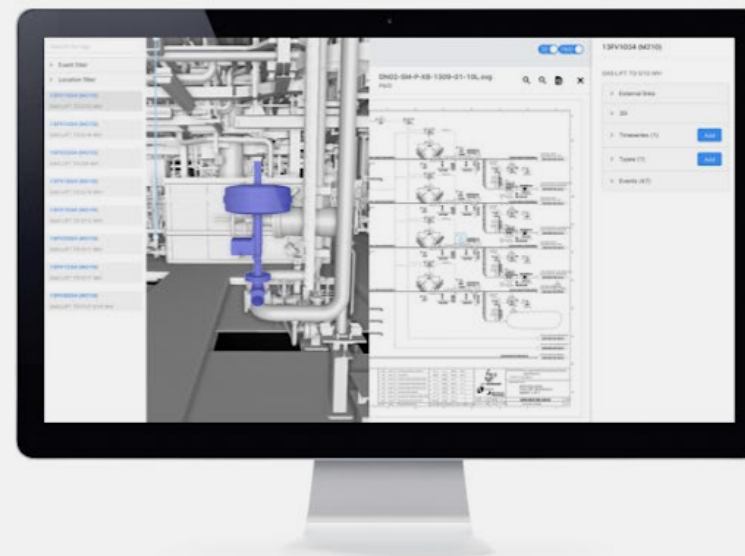
RICH GRAPHICAL DISCOVERY
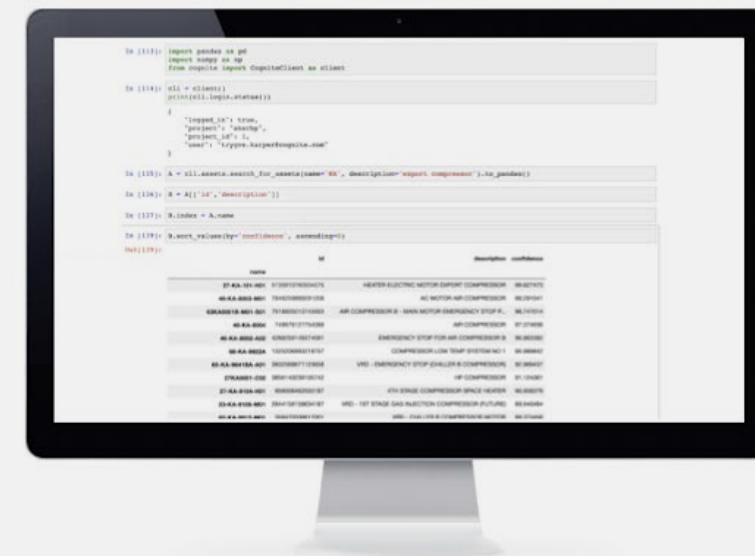
DEVELOPER FRIENDLY SKDs AND API

Convergence of data and analytics makes DataOps a necessity

The writing have been on the wall for some time with multiple historically discrete but related areas now colliding. According to Gartner (2020):

- Analytics and BI platforms are colliding with data science and machine learning.

- Data integration, data quality, data profiling, data cataloging, and database are colliding.

- Elements from data management, and some from analytics, are colliding around the data and analytics governance domain, too.

- Analytics is colliding with business process management, process automation, and applications.

- Citizen roles (including citizen data integrator, citizen data scientist and citizen developer) are colliding with the traditional roles of data architect, data scientist and application developer.

- Data governance is colliding with data management (which includes data preparation, data catalogs, data quality and master data management).

The future belongs to converged analytics that scale with DataOps.

Being at the forefront with industrial DataOps will guarantee improved outcomes from your converged analytics delivery, making you a business and operations hero.

Heavy-asset companies race towards a future-ready data and digital platform

Heavy-asset companies that hope to compete effectively can no longer remain on older platforms, as the industrial software marketplace undergoes swift transformation.

Recent events have accelerated the trend

Modern cloud-based application development was already growing in importance, but the disruptive events of 2020 have only sped up this process. Modern digital platforms are more crucial than ever in a post-Covid-19 world, where a number of pressures are acting to widen the gap between digital innovators and laggards. There is a growing need for remotely monitoring and controlling equipment and processes, as well as for digital twins, data visualization, and physics-AI hybrid analytics. Key personnel are likely to be working remotely more often, and the dynamic of the more dispersed workforce demands innovative and effective digital solutions.
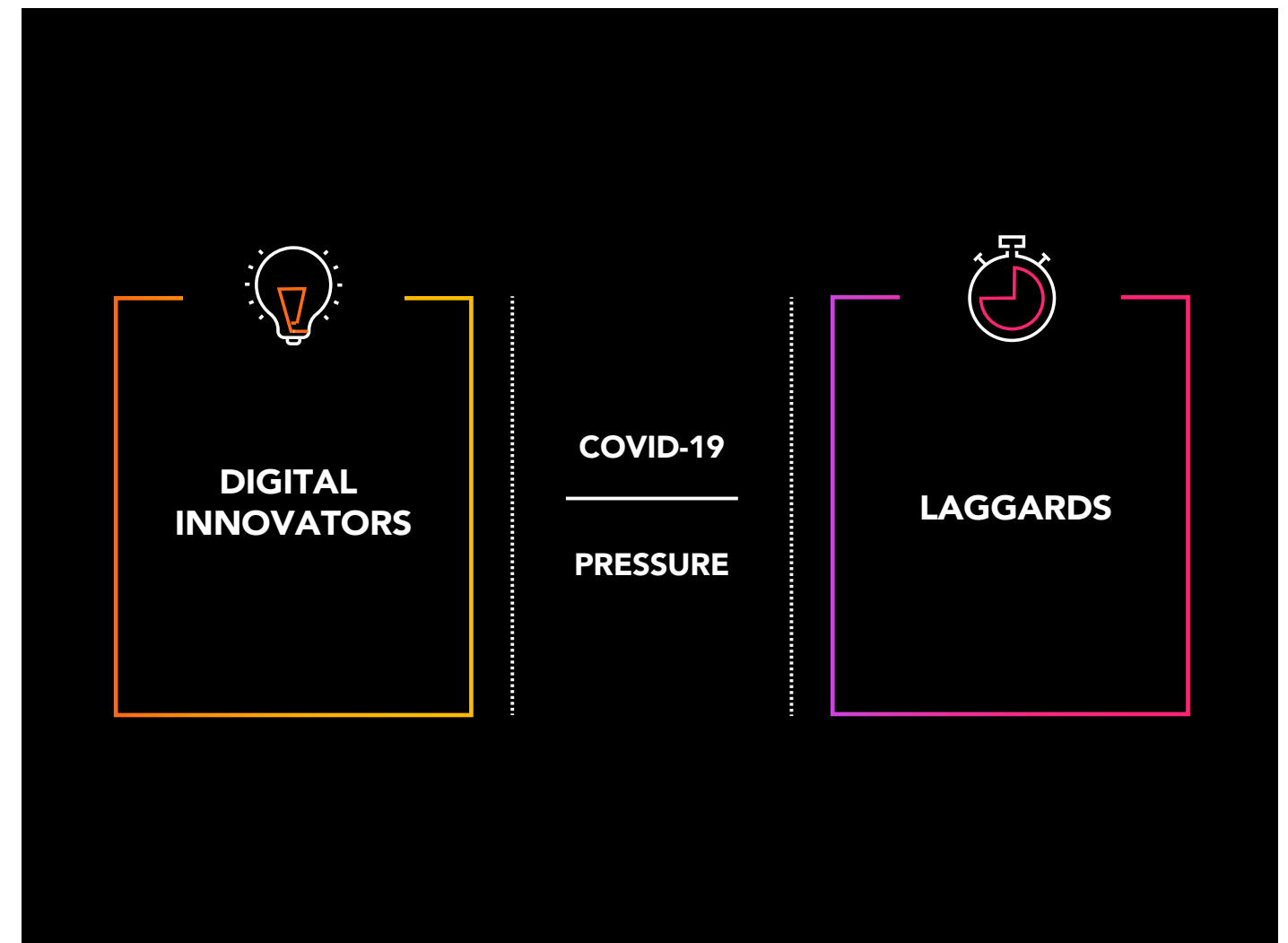
Applications lead, platforms then follow

According to leading industry research and advisory firm **ARC Advisory Group,** the outcome-based application — or production-grade use case implementation — appears to be the most captivating starting point for what is a very ROI-focused market.

It should therefore come as no surprise that most solution providers are leading with a portfolio of configurable reference applications as a way to help their customers achieve fast return on investment in a predictable, rapid, and safe way.

If the application — or focused set of use cases — is the understandable starting point, platforms are the next logical step. As customers experience clear measurable ROI from initial use cases, progressive users show a strong preference for extending application value and building their own as they become more digitally comfortable.

To the 'lighthouses'

McKinsey & Co identified 16 manufacturing companies as 'advanced manufacturing lighthouses' — shining beacons of innovation that are leading the way when it comes to delivering high operational excellence. What do these companies have in common?

They have all managed to scale digital use cases beyond the pilot stage, building platforms using modern technology concepts, data-centricity, and internal APIs. Most importantly, they are successfully extracting their data, contextualizing it, and aligning it with business capabilities.

The preferred platform is a hybrid platform

According to **Gartner,** an off-the-shelf data and digital platform is a pipe dream for enterprise level oil & gas and other heavy-asset companies. There simply is no shortcut to building the data and digital platform that truly meets the needs and situation of a large complex heavy-asset industry organization.

> **Digital platforms cannot be purchased. Rather, each company must invest in designing and building an appropriate platform that aligns with their business situation."**
>
> Gartner

For CIOs, that means the challenge is in bringing together and maintaining all the necessary components and capabilities to deliver the company's digital business vision. This will be a continuous and dynamic task, as needs evolve, commercially available vendor solutions start offering proven off-the-shelf interoperable components, and generic cloud technology alike improves. **Commitment to openness is the most important core principle that should guide platform design and architecture every step of the way.**

Transition to a true data and digital platform is about executive strategy

Senior management plays a crucial role in enabling and empowering a successful transition to a future-proof new data and digital platform. They must be engaged and involved in the process throughout. Leaders with strong change leadership capabilities are essential, and these skills must be invested in.

Existing IT infrastructure must also be considered, but not allowed to deter from architecting for the omni-connected digital era, not for the past. Build a clear roadmap detailing how you will ensure direct access to low-level functionality in key vendor systems, as a way to get your legacy IT environment ready for a transition to future-proof data and digital platform.

By the end of 2024, 75% of enterprises will shift from piloting to operationalizing AI, driving a 5x increase in streaming data and analytics infrastructures.

Gartner

THROUGH 2022, MANUAL DATA MANAGEMENT TASKS WILL BE REDUCED BY

45%

through the addition of machine learning and automated service-level management

Gartner

Build your future-ready data and digital platform with Cognite Data Fusion
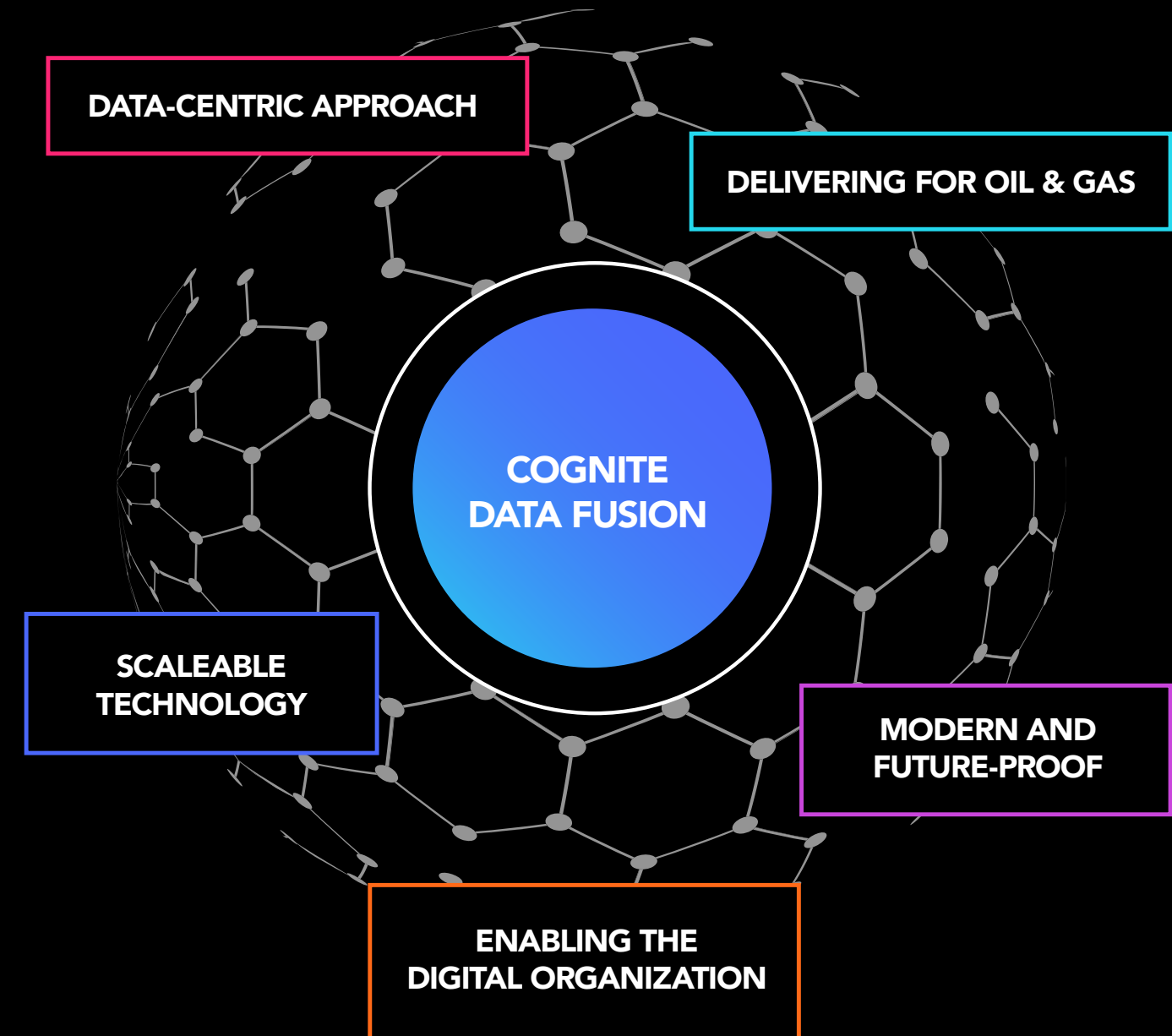
Cognite Data Fusion 'enables heavy asset customers to operationalize and scale their digital programs to unlock ROI at scale' (**Gartner Cool Vendors in Manufacturing 2020** report available complimentary here)

Digital transformation leaders across industries are choosing Cognite Data Fusion for its open architecture, specialization in OT/IT data contextualization, unstructured data handling, and industrial equipment and process data templatization capabilities, to provide data fabric services across their master data stores.

Cognite Data Fusion offers a modular services portfolio and pricing model,allowing clients to enhance functionality and scale the solution step by step, addressing each client's specific needs and digital maturity level.

A data-centric approach

Contextualization of a variety of industrial OT & IT data sources is important, but it is not enough to achieve a data-driven company. Automating contextualization, data discovery, and management, model deployment, and quality assurance are key. Cognite Data Fusion is built to fulfill the requirements of critical industrial operations, providing transparency and governance across data lineage, data quality monitoring, alerting, data management and access.

DATA-CENTRIC APPROACH

DELIVERING FOR OIL & GAS

COGNITE DATA FUSION

SCALEABLE TECHNOLOGY

MODERN AND FUTURE-PROOF

ENABLING THE DIGITAL ORGANIZATION

Enabling the digital organization

Data-driven organizations are not achieved by few niche ML/AI applications. Efforts need to be enabled at scale — across expertise, across assets, and across domains.

Cognite Data Fusion enables operationalization of data-driven solutions by analysts, engineers, and professional data scientists with open SDKs, APIs, and connectors for standard tools and frameworks such as Python, Power BI, and OutSystems. It also gives full transparency and management for both the data and contextualization pipelines for true enterprise-grade data governance.

Scalable technology

Cognite's technology is built to robustly and securely provide production-ready contextualized data at scale for the world's biggest companies.

Modern and future-proof

Cognite is new and built on modern, future-proof principles. The lack of legacy software and solutions enables us to innovate rapidly, unhindered by existing business models or codebases. This forward-thinking outlook has attracted some of the biggest names in the industry, as well as recognition from leading analysts such as **Gartner.**

Delivering for Oil & Gas

From subsurface drilling to wells and production, Cognite Data Fusion provides data contextualization across the O&G value chain. In 2020, we are continuing to expand our core technology into downstream and projects.

Our cross-domain data contextualization enables new optimizations, workflows, and significant waste reduction, both from a process and a resource perspective.

Data stories

How Aarbakke and Cognite are extending the lifetime of CNC machines

Bringing data about their machines together in one place makes it possible to predict potential failures before they happen. Aarbakke and Cognite's developers used data from Cognite Data Fusion (CDF) to achieve:

20-30% reduced service costs

Reduced downtime and unplanned stops

Timely alerts ordered by priority

AARBAKKE

READ THEIR SUCCESS STORY

Watch out for consolidation trumping co-operation: OT/IT convergence giving way to OT/IT handshake at best?

Back in January 2017, Gartner predicted that "by 2020, 50 percent of OT service providers will create key partnerships with IT-centric providers for IoT offerings". Today, this remains a stretch goal at best.

Whilst the business case for the convergence of OT (operational technology) with IT (information technology) remains as strong as ever — and limited OT/IT partnerships have indeed been announced — the OT market's focus seems to lie in strengthening its hold on OT through supplier consolidation rather than building bridges that extend to encompass and engage IT communities, roles, and value

Recent headlines such as "Aveva Is in Exclusive Talks to Buy SoftBank-Backed OSIsoft" and "Honeywell and Halliburton Team Up" offer characteristic guidance.

Meanwhile in July 2020, leading strategy advisory firm BCG argued that "Digital Acceleration Is Just a Dream Without a New Approach to Tech". Making a strong case for data liberation, rapid time to value, and digital transformation at scale through direct business user empowerment, their guidance can be summarised into "liberating data from the IT core and giving the business side unparalleled access and tools to combine data in new and differentiating ways — companies can create flywheels of innovation." This BCG calls a data and digital platform (DDP).

Unfortunately, BCG's definition of "tech" remains restricted to "IT tech" in scope — despite the majority of digital transformation of industries being reliant on OT tech at both the source (pending data liberation) and the destination (pending data activation). So a new approach to tech is very much needed.

Moreover, this new approach needs to focus on contextual awareness of the data, not merely its liberation "from the IT core".

Context — the direct and indirect relationships and metadata that turn "dumb data" into meaningful information — can only be unlocked by connecting OT with IT.

Liberated data without full OT/IT context remains largely worthless, resulting in organizations drowning in data, but starving for insights — no matter where the raw data resides or who has access to it.

As for liberating data, as a first step before contextualization, focus needs to be on data liberation from the OT core as opposed to "from the IT core".

Advances across technologies make OT/IT convergence more possible than ever

OT/IT convergence is not about turning IT pros into plant engineers or machine operators into data scientists — although the latter is

indeed happening regardless of OT/IT convergence — but about executing on a strategy to align and bring together formerly isolated SMEs, cultures, data and platforms deployed by OT and IT teams to improve operational performance through unified goals and KPIs.

This can, of course, happen through the adoption of a **new data and digital platform** that contextually fuses OT and IT data, making this contextualized data conveniently available to a growing audience of data consumers, both inside the enterprise and across its partner ecosystem.

Timing to execute on OT/IT convergence has never been better.

PROGRESSIVE INDUSTRIAL ENTERPRISES ARE:

- Adopting DevOps and low code development.

- Crossing the chasm from PoCs to in-production-at-scale with DataOps.

- Democratizing access to contextually enriched data with data fabrics with data contextualization.

- Realizing operational maintenance and production efficiencies with operational digital twins.

The only dark cloud on the OT/IT convergence horizon is the trend towards centralization of suppliers and solutions focusing on OT only.

Silos and consolidations of power — old or new — are the enemies of digital transformation

Playing the devil's advocate, let's assume the following developments

1 Instead of promoting open interfaces and open architectures between OT and IT, we enter an era of significant consolidation on both sides of the OT and /IT divide, resulting in fewer, yet much more consolidated, OEM hardware/software/services juggernauts - in paticular on the OT side

2 These new juggernauts will focus on traditionally entrenched, highly segregated buyer personas for OT and IT separately. With potential to undo the limited gains towards convergence and collaboration in these departments at industrial enterprises.

3 The result is less systems and vendor choice, with significantly larger risk of vendor lock-in resulting in single source reliance over time. OT and IT remain separated across SMEs, cultures, data - and platforms.

For business and IT leaders seeing the obvious value in OT/IT convergence, this fictive scenario poses two major challenges:
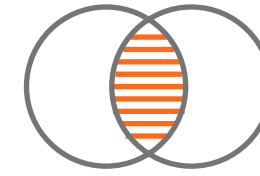
How to align interest towards a common goal around common processesm practices and platform, when the two traditional foes are again pulled in different directions by their solution provider communites.

How CIOs continue to build bridges to OT whilst focusing on the second - and equally significant - divide that needs to be converged to enable industrial AI at scale: the chasm between data management and data analytics.

Openness and a genuine commitment to addressing the needs of both OT and IT professionals is more important now than ever. A new data and digital platform can only succeed on its value promise if it has OT/IT convergence and openness at its core.

Data stories

Engineers and maintenance workers spend a large portion of their time testing and checking equipment. The implementation of a process shutdown valve dashboard is expected to reduce manual tests by up to 80%, the number of maintenance checks by two-thirds, and the duration of an average maintenance session by 50%.

Source: Aker BP Lowers Operating Costs And Increases Productivity With Its Digital Transformation Initiatives. Verdantix.

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Data management (r)evolution in the age of AI and the citizen data scientist

From the convergence of data and analytics, to the rise of augmented data and true human-machine collaboration, we look ahead to the future of data management.

Data and analytics are converging

All the signs point towards a growing integration of two related but still relatively separate domains: data and analytics.

BY 2023,

95%

of Fortune 500 companies will have converged analytics governance into broader data and analytics governance initiatives.

Gartner

How will this convergence manifest itself? We can already see evidence of several areas, once discrete, coming together in a more holistic fashion. Data management, including its various subdisciplines of data preparation, data catalogs, data quality, and master data management, is coming into the arena of active data governance.
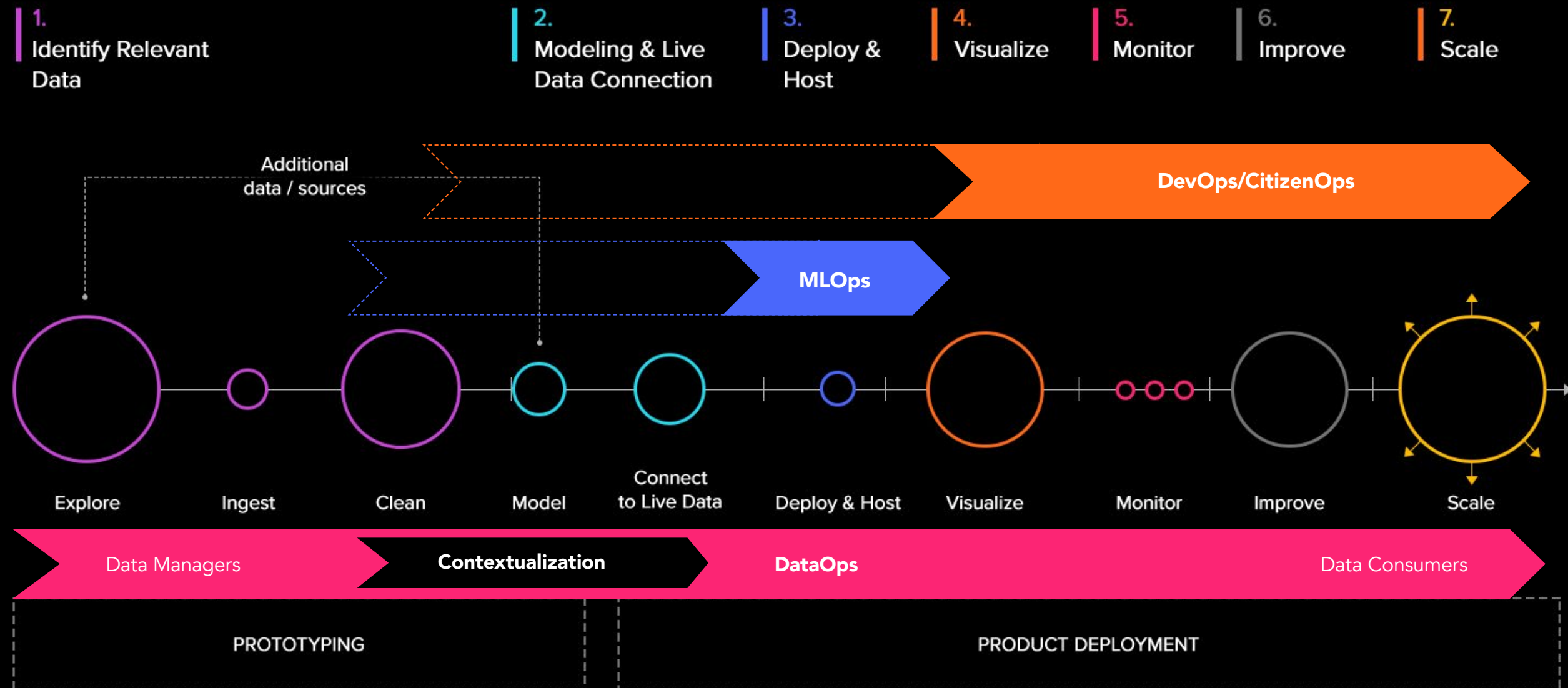
Analytics and business intelligence (BI) platforms increasingly incorporate data science and machine learning (ML). The different elements of data integration, data profiling, data cataloguing, and database are also converging with analytics and BI tools themselves - as well as other low-code application development frameworks.

In line with the trend towards democratization of data and data management, this convergence is bringing new, less specialist users into the picture.

The traditional roles of data architect, data scientist, and application developer are being joined by 'citizen roles' such as citizen data integrator, citizen data scientist, and citizen developer, for greater productivity across greater scope of use case solving.

Truly solving the converged data-to-scaled-applications workflow is the largest software opportunity cloud

1.
Identify Relevant Data

2.
Modeling & Live Data Connection

3.
Deploy & Host

4.
Visualize

5.
Monitor

6.
Improve

7.
Scale

Additional data / sources

DevOps/CitizenOps

MLOps

Explore

Ingest

Clean

Model

Connect to Live Data

Deploy & Host

Visualize

Monitor

Improve

Scale

Data Managers

Contextualization

DataOps

Data Consumers

PROTOTYPING

PRODUCT DEPLOYMENT

Relationships are the key to data and analytics value

> **By 2023, graph technologies will facilitate rapid contextualization for decision making in 30% of organizations worldwide.**
>
> Gartner

The use of graph techniques at scale, to enable the discovery of relationships within diverse data, is fundamental to the development of modern data and analytics. This is relevant for a number of different things, including:

- Knowledge graphs
- Data fabrics

- Natural language processing (NLP)
- Explainable AI
- 'X analytics' — analytics for a range of structured and unstructured types of content
- Richer context for ML and artificial intelligence (AI)

As contextual intelligence emerges as a crucial discipline on the new landscape, organizations are set to increase their investments in automated and guided data contextualization capabilities.

Moreover, there is a move away from imposing a single structure on data sets, in favour of an active metadata approach. This is a product of the multiple diverse structures and insights that emerge from data via AI and ML augmentation.

The data fabric of tomorrow must above all be agile and transparent, relying on metadata that is agile, dynamically inferred and trusted.

Indeed, the ability to identify meaningful relationships — across data types, people, places, and objects — is one that is absolutely fundamental to generating real value from data and analytics.

Rise of AI and augmented data

A welcome change is also coming for IT specialists, who currently spend too much of their time on repetitive and low impact data management tasks that can and will be automated. Manual data management tasks are set to be vastly reduced as machine learning and automated service-level management develop and expand across industry.

This will liberate IT specialists and increase the amount of time they can spend on higher-value tasks including collaboration, training, and strategic data management activities.

BY 2023, CLOUD-BASED AI WILL INCREASE

5x

from 2019, making AI one of the top workload categories in the cloud.

Gartner

When assessing modern data management solutions, augmented capabilities are becoming a key differentiator. Under increasing commercial pressures, data and analytics leaders need ways to connect, ingest, analyze, and share data more efficiently, with both increased speed and lower cost implications.

Augmented data management has emerged as a vital tool in various offerings, including active metadata, AI and ML algorithms, and data fabric designs using semantic knowledge graphs.

There is also a shifting emphasis in how progressive companies are assessing data management solutions. While the focus used to be on the means of data retention and control, we now see far much more attention paid to the ways in which data is utilized and accessed. This is particularly true for the cloud.

Augmented data management is ushering in a new phase of data management, where the long-anticipated collaboration between humans and machines — specifically the AI and ML engines — becomes a reality.

Together the two work across the flow of data within the company, with humans performing creative and strategic activity, supported by the processing and 'heavy-lifting' power of artificial intelligence.

Embrace the smart engineer

In this new environment, the organizations that succeed will be those who can take the leap beyond traditional approaches. Mainstream self-service analytics are no longer adequate. Neither is a continued reliance on specialist data scientists, given their scarcity and high cost.

Instead, industry must embrace the 'citizen data scientist', who is not a specialist in data by background, but is empowered with the capabilities and practices that enable them to harness data effectively.

The democratization of data management and technology means that more team members can glean predictive and prescriptive insights from data.

They can come from a variety of roles. Despite not having the same analytical or technical skills as expert data scientists, they are still able to drive real value for the enterprise.

Cognite combines a powerful blend of machine learning, rules engine, and subject matter expertise codification to convert data into actionable knowledge. Our main product, Cognite Data Fusion, creates a fully contextualized data fabric unique for its industrial data understanding.

Discover what wider accessibility to meaningful data across your smart engineers and professional data scientists can do for your organization by contacting us today.

Data stories

**How Cognite Data Fusion speeds up the power grid connection process**

Cognite worked with a major grid operator to reduce the time it takes to connect new assets to the grid. Collecting and contextualizing data from different systems simplified the processing of grid connection applications, leading to:
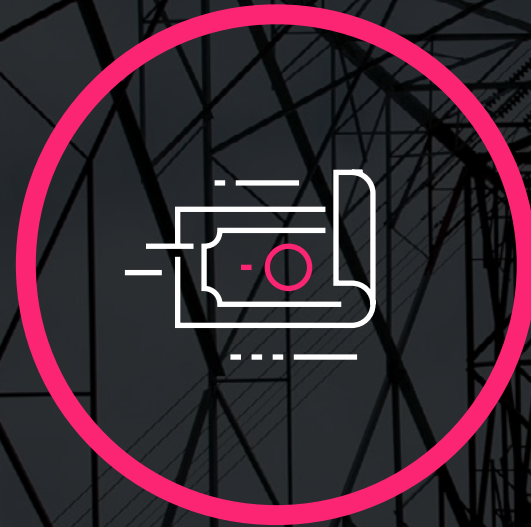
1.2 million in estimated annual value

Less time spent collecting and cleaning data
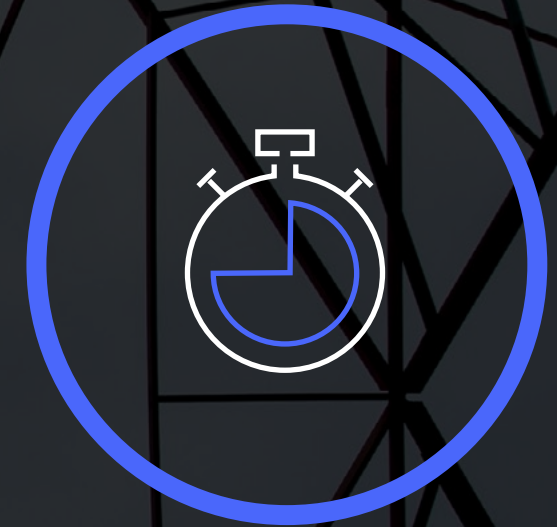
Assets connecting to the grid faster

GET THE FULL PICTURE

Special report

Aker BP lowers operating costs and increases productivity with its digital transformation initiatives

The initiative included:

- A well surveillance system to detect early signs of well failure and provide alerts.

- A smart monitoring system combining physics-based modelling and domain knowledge to optimize produced water disposal.

- An analytics-based method for calibrating multiphase flow meters (MPFMs).

- A 3D model of its oilfields to reduce time spent on manual inspections and locating equipment.

These initiatives are estimated to reduce Aker BP's operating expenses by 15%, saving $22.5 million annually.

FIND OUT MORE IN YOUR COPY OF THE FULL REPORT

COGNITE

Cognite is a global industrial AI Software-as-a-Service (SaaS) company supporting the full-scale digital transformation of heavy-asset industries around the world. Our key product, Cognite Data Fusion (CDF), empowers companies with contextualized OT/IT data to drive industrial applications that increase safety, sustainability, and efficiency, and drive revenue.

Learn more at cognite.com

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