

Data Governance in the Energy & Utilities Industry

Point-of-View & Takeaways from Industry CIOs

2023

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Context

Data governance promotes the availability, quality, and security of an organization’s data through different policies and standards. These processes determine data owners, data security measures, and intended uses for the data. Overall, the goal of data governance is to maintain high-quality data that’s both secure and easily accessible for deeper business insights.

A group of Chief Information Officers (CIOs) from energy and utilities (E&U) companies met to discuss data governance related topics for the industry and their businesses.

Topics from the discussion centered on data governance frameworks, data management within matrixed organizations, growing data literacy, and implementing new technologies and analytics into decision-making.

We coupled insights from the CIO discussion with market trends influencing data governance initiatives for the utility industry, to create this paper.

In this paper, you will learn about:

- Data governance benefits, building blocks, and challenges
- Responsibilities of data governance leaders, influencers, and users
- Key insights from C-level data leaders (CDOs and CIOs)
- Data governance platforms for utilities, objectives, and client stories
- IBM point-of-view and solutions on data governance for utilities

Energy & Utility CIO Roundtable Series from IBM

The IBM CIO forum provides an opportunity to share leading practices and to discuss topics of mutual interest based on an agenda created through advance interviews. If you are interested in participating in the next CIO roundtable, please contact your IBM representative. To access and share whitepapers from IBM on Energy & Utilities, click the links below.

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Data governance overview

Many organizations struggle to deliver timely, trusted, quality data for business consumption. The growing complexity of data privacy and industry regulations further exacerbates the challenge. Data is useful only when it is protected and its context, content, and quality can be trusted. A strong data governance foundation helps activate business-ready data by helping to increase transparency, trust, and understanding of data and how to use it (aka literacy), to accelerate time to insights, while allowing sensitive data to remain hidden unless appropriate. Data governance helps capture business value from data by simplifying self-service access to governed, quality data to the right data users, while addressing data privacy and compliance requirements.

Key benefits of enterprise data governance

- Data governance can be an enabler of business value as higher levels of data quality and trust can result in positive impact to business metrics.
- A proactive approach to privacy and data protection helps organizations address compliance requirements by reducing the time and effort required to comply with new industry-specific regulatory policies and governance rules wherever data resides.
- Organizations that enable self-service data consumption empower data consumers to find and access what they need to do their work.
- Maintaining appropriate access controls and data protection mechanisms is also key to driving speed to value from data initiatives.
- Automation can help to scale intelligence about data, enriching it with all the relevant context to advance data discovery and trust, and boost productivity of data practitioners.
- Organizations should deploy AI to scale data management tasks like data lineage, data classification, quality analysis, and they should automatically enforce rules to govern data quality and privacy.
- Fostering collaboration among business and technical data experts can help augment trust and add intelligence to data. For example, enhanced technical metadata coupled with business context can help address data discoverability and trust.
- An integrated governance solution is better than point solutions for individual data management scenarios such as data quality, data catalog, and data lineage – which can result in massive overhead cost to integrate.
- An integrated data governance foundation, powered by active metadata, allows data teams to add capabilities as their use cases evolve, all within an integrated data and AI platform.

The building blocks of data governance

Ultimately, the goal of governance is knowing where data comes from, what it is, who can access it and when it should be retired. Several key technology building blocks exist to meet the need to integrate and improve data privacy, access, quality, and traceability for all the data in an organization. Shown in the chart below is what you'll need.

| | |
|--|--|
| Augmented data cataloging | A data catalog can help users easily find and use the right data with a rich and metadata-driven index of cataloged assets. Using robust search methods, AI recommendations and user reviews, an intelligent data catalog can provide a strong marketplace experience for well-described and governed data assets. |
| Automated metadata generation | Metadata tracks the origin, privacy level, age, and potential uses of your data. Automatic tagging of metadata allows for policy enforcement at the point of access, so that more sensitive data can be used in a non-identifiable and compliant way. In addition, metadata is used to establish a common vocabulary of business terms that provide context to data which adds semantic meaning to data so that it becomes more findable, usable, and consistent within the organization. |
| Automated data access and lineage | Data lineage shows, traces, and analyzes how data is moved and consumed across all applications and data sources. Knowing where data comes from is useful not only for compliance reporting but also for building trustworthy and explainable AI models. With restrictions built directly into access points like dynamic data masking, only data that users are authorized to access will be visible thereby supporting self-service data demands. |
| Data privacy management | With an open and intelligent approach to accessing, curating, and sharing data across your organization, you can increase compliance with data privacy and industry regulations and enhance your ability to make data-driven decisions. As sensitive data is consumed within key endpoints across your distributed data landscape, data protection rules to de-identify data or deny access can be automatically applied according to user and data attributes. |
| Data quality management | The quality of your data determines how confidently you can act on insights. Getting the best insights means being able to access data that is fresh, clean, and relevant, with a consistent taxonomy. Low-quality data impacts operational and analytical use cases leading to inaccurate, non-compliant or discriminatory results. Address data quality issues with your critical data elements by assigning data quality scores to assets and simplify curation through AI-driven data quality rules with an automated, metadata-driven foundation. Mitigate the potential impact of bad quality data on downstream processes using data observability capabilities to monitor and identify data quality issues closer to the source. |
| Data virtualization | Data virtualization connects data across all locations and makes the disparate data sources appear as a single database. Using the single virtualized governed layer, user access to data is defined in one place instead of at each source, reducing complexity of access management. |
| Reporting and auditing | Organizations must comply with a wide variety of changing regulations that differ according to geography, industry, and data type. They need to be broken down into a catalog of requirements with a clear set of actions that businesses must take. The secret to harmonizing all these data privacy and governance needs with business opportunity is aligning the technology components with a global data strategy and an open and holistic architectures. |

Data governance challenges

Organizations can struggle with extracting business value from data for several reasons.

- **Data siloes:** Today’s data landscapes are complex and consist of distributed data environments (on-prem, public cloud, private cloud), disparate source systems (Relational, NoSQL, Data Warehouses, Data Lakes, Data Lakehouses), and multiple data access tools lacking a standard data access process. The rise of data sharing across partners and vendors and the investment in external datasets can further exacerbate sprawl and may require additional steps for ingestion, protection, and quality assurance.
- **Inadequate data literacy:** Can hinder an organization’s transformation into an insights-driven organization. Expanding company-wide data literacy is a high priority for organizations. Data practitioners should have a consistent understanding of data across the organization and be able to use data to maximize data dividends.
- **Poor governance:** Managing data security, industry governance requirements, and regulatory compliance across an increasingly hybrid and complex environment can be challenging. Choosing the right level of governance and security controls for the right data sets can be difficult and increasingly expensive.
- **Inefficient data discovery:** Manual, time-consuming approaches to core data management tasks can hinder the ability to help give consumers timely access to trusted, governed data while addressing compliance.
- **Lack of trust in data or data sources:** The challenges with data discovery and lack of trust can result in a paradoxical situation where organizations are unable to utilize most of the data for decision-making, even when they are drowning in an ocean of data.
- **Lack of a 360° view of organizational data:** Scattered and siloed nature of data sources can make it difficult to have an integrated view of enterprise data that is easily accessible and ready for analytics.
- **Data practitioner productivity:** Having core data professionals spend much of their time on tasks like data preparation, data cleansing, and data classification, has the potential to reduce the overall productivity of data teams, leaving little time for insights generation. Many data professionals find themselves spending time on non-value-added tasks due to poor data quality and availability.

Data governance leaders, influencers, and users

Many digital transformation efforts seek to use data analytics and AI to optimize operations, improve customer experience, and mitigate risks. Data leaders are leading the charge to support their organizations in driving high-quality and trusted data to inform decision-making from the boardroom to operations. Data influencers and data users have multiple responsibilities, including delivering insights to the business, ensuring data trustworthiness, and matching data across sources. See chart below for an overview of these data roles and responsibilities.

| Responsibilities of Data Governance Focals | |
|---|---|
| <i>Note: The information here has been distilled from the body of knowledge acquired by our client-facing teams including sellers and partners who interact with clients and prospects to understand their pain points.</i> | |
| Data Governance Leaders | |
| Data and IT Leaders | <ul style="list-style-type: none"> ▪ Chief Data Officer (CDO), Chief Information Officer (CIO), Chief Technology Officer (CTO) ▪ Primary decision-makers for an organizations data who influence data investment needs and set the data strategy of the organization |
| Information Governance Leaders | <ul style="list-style-type: none"> ▪ Chief Privacy Officer, Chief Compliance Officer, Chief Regulatory Officer ▪ Ensure regulatory compliance, consult with Data and IT leaders on new requirements, retain expertise in industry requirements |
| Data Governance Users & Influencers | |
| Data Consumer | <ul style="list-style-type: none"> ▪ Data scientist, analyst, knowledge workers ▪ Deliver insights to the business, deliver business intelligence and analytics insights/apps, data lifecycle for auditability, require timely access to data |
| Data Steward | <ul style="list-style-type: none"> ▪ Business intelligence leader, analytics leader, artificial intelligence leader ▪ Discover inefficiencies, ensure data trustworthiness, ensure compliance and regulations are met, address privacy concerns, ensure data quality management |
| Data Engineer | <ul style="list-style-type: none"> ▪ Data scientist, data quality analyst, developer, solutions architect ▪ Identify the correct data sources, discover relevant data, match data across sources, assess data quality, and provide access to data wherever it resides |

Chief Data Officer Insights

Below are highlights from the Institute for Business Value’s (IBV) Global Chief Data Officer (CDO) Study on Energy and Resources (E&R) Insights: “Turning data into value – How top Chief Data Officers deliver outside results while spending less.”

The latest IBM IBV CDO Study revealed that Energy and Resources leaders are behind other industries in terms of using AI to automate decision-making. They are on-par with other industries when it comes to applying AI to their data, but still behind best of breed companies. The top technologies used to drive innovation for E&R are IoT and automation, followed by AI and machine learning. E&R CDOs position greater responsibility, importance, and confidence around data security-oriented topics, reflecting the strong focus on security for the industry. Alternatively, E&R CDOs indicate less responsibility than industry peers to align data and analytics strategy with business strategy, so there is opportunity for E&R to increase strategic focus on their data governance.

| | |
|--|---|
| AI automates decision-making | Only 27% of the E&R CDOs are using AI to automate decision-making, compared with 38% of all industry CDOs – leaving room for continued growth in E&R. |
| Applying AI to data increases speed | Over half (53%) of E&R CDOs are making better and faster decisions by applying AI to their data. This is comparable to all industry CDOs at 55% (but still behind best of breed “Data Value Creators” at 75%). |
| IoT and automation drive innovation | The E&R CDOs top technologies to drive innovation were IoT (68%) and automation (67%) – AI and machine learning (63%) follow closely behind. |
| Data security leads in focus | E&R CDOs cite greater responsibility for ensuring data security than peers across industries (65% for E&R vs. 52% across industries). 71% of E&R CDOs agree their organizational data is secure and protected, which is much greater than their peers across industries at 61%. |
| Data & business strategy alignment lags | E&R CDOs indicate less responsibility for aligning data and analytics strategy with business strategy than their peers across all industries (54% for E&R vs. 63% across industries). |

Source: 2023 IBM Institute for Business (IBV) Global Chief Data Officer (CDO) Study - Energy and Resources (E&R) Insights - Includes CDO input from Chemicals, Energy & Utilities, Petroleum (incl. Oil & Gas).

Chief Information Officer Insights

The recent Energy & Utilities CIO Roundtable on data governance revealed insights and pain points for the implementation of technology in the industry. The next pages highlight themes that are top of mind for utility CIOs.

Enterprise-wide data governance model

Utility CIOs stress the need for a comprehensive Data Governance Model. Traditional systems handle data, but a shift is needed to see data as crucial for ML and AI analytics. While business units' own data, the challenge is employee understanding and adherence, compounded by legal limits. Some utilities form data councils for alignment and regulatory compliance, driven by analytics demands and decarbonization. The aim is holistic governance ensuring compliance and optimization.

Hear about it from utility CIOs

"For traditional systems, it's a very well structured and implemented program. The issue we have is the lack of thinking about how to use data as a key element for any analytics. Everyone has to think that data can be used for more than just a specific purpose, like integrating that data into ML and AI."

"For us data governance is always a real challenge. Hypothetically, everyone agrees that the businesses own their data. We're there to define governance. But only the business units can do things with it. We've got 6,000 employees and they don't all understand that. How do we make it easy for people to do good data governance and open their systems where they need to?"

"We've recently defined our data strategy and we've established a data council in each business. Up until last year our cybersecurity and data council were combined, but we've split them out now, and have three branches. We have a dedicated data council that covers GDPR, an enterprise council at the center, and a council at each business level. Our challenge is driving on with the data strategy and having quality and completeness, and then aligning the business outcomes instead of taking a blanket approach."

"We're aligned historically with the old models of governance – and we have data stewards, business oversight, and IT is the curator. We're working on an enterprise architectural model that will tie everything together. What spurred our interest in advancing our data governance was getting into the analytic use of data, which we have vast amounts of. That can help planning and strategy and decarbonization. We want an overarching data governance model."

Data as an accelerator or roadblock to innovation

Utility CIOs say data quality and accessibility can drive or hinder innovation. While some projects like ML for vegetation management thrive, smart grid endeavors face data challenges. Privacy limits data sharing, prompting solutions like data anonymization and blockchain. Yet, poor data quality hampers digital transitions. The rush for solutions without proper data insights often leads to decisions based on incorrect information, making data a barrier.

Hear about it from utility CIOs

"For example, in the utilities, we have a very nice ML solution for vegetation. We have to invest a lot to cut and remove trees. For other initiatives where we want to see how our smart grid can collect data, ML has been harder there."

"We have an innovation lab, but the challenge is what we can and can't share with third parties. We can't pass that info to a university who wants to do a study. We figured out ways to anonymize the data. Now that we have an equity component in the state of Washington, then we can use that data without being punitive or calling out a group that is less affluent. We can anonymize it so it's private, but it's still useful. We're trying to help people with their rates. We wrote a data exchange platform with blockchain technology to be able to share that anonymized data. The lowest common denominator for multiple industries is data. How do you move it to use it?"

"Not having access to good quality data is inhibiting some transformation and digital initiatives. We don't have visibility of our low voltage network and that is challenging progress. What I find the biggest blocker is the mindset shift about getting insights to inform direction, not so much at the point of solutions. Data and AI will always be part of the solution, but injecting data into the early part of the transformation is a challenge to make happen. People just rush into solution mode, rather than informing the direction of the business and subsequent solutions."

"It has been a roadblock. We have a huge problem in understanding our data, and it prevents us from moving forward on analytics and AI. What's the source of truth? We have data in so many locations and some of it has been manipulated, so we're using wrong information to make decisions."

Using data to improve operational processes

Utility CIOs stress data's role in improving industry operations. Data assists in optimizing solar farm placements and ensures competent resource dispatching. Yet, integrating and sharing data across systems is challenging. Robotic Process Automation brings efficiencies, saving thousands of labor hours yearly. Detailed meter data improves electricity demand forecasts, minimizing idle resources. Effective data integration remains a key challenge.

Hear about it from utility CIOs

"Vegetation is one area. We're using data to design the best locations for solar farms. It's taking into consideration the geography, wind, position of the sun, etc. The data has helped there."

"One area is doing full competency-based routing. That says, "I know where the problem is, I know where my people and trucks are, and I send the nature of the problem, so we can send the right truck and the right qualified person to solve the problem." It's data that allows us to do that. It's data in the structured systems, not a database. The sharing of data between those systems is where we're short on outcomes. We dump it into a pool and ask it a question. Our structures and integrating systems have been a desired outcome of a 5-year transformation we've been working through. When you think about the number of systems we had to manipulate, it was challenging. Is it a data problem or a systems integration problem?"

"We're in the process of using RPA and feeding data into that. We want to automate process around cost reduction and efficiency of labor. We have some use cases that we're going to save 10k hours of labor this year."

"One of the key things that IESO does is forecast the electrical demand for the province, both shorter term and longer into years and decades. We've found that we're able to utilize data from the pool of meters to get more granular access. We can more accurately predict demand and what we need from a supply perspective. That means less generators sitting on standby and less resources being idle."

CIO Roundtable Takeaways

Data categorization and prioritization

Digital and data transformation requires a clear strategy for data management and a major data cleanup. Incomplete or messy data infrastructure can lead to compliance risk and poor business analysis, so there is internal pressure to get it right. Clean data is also a prerequisite for tools like advanced distribution management systems (ADMS).

One way to approach a major data overhaul is by breaking up the data into categories such as customer, employee, financial, and operational data, making it easier to tackle the regulatory requirements associated with each category individually. For organizations that manage both utilities and non-regulated business, data segmentation is an especially important consideration. In addition to segmenting the data, there is also a need to segment data platforms due to the different outcomes that businesses are attempting to achieve.

Following the implementation of advanced metering infrastructure (AMI) and a robust data governance model, businesses should prioritize data loss prevention. This need precedes the implementation of other solutions that leverage organizational data.

Prioritizing legal compliance and recoverability can provide teams with the motivation needed to complete a data transformation. Segmentation is not only important at the start of a data project, but also for managing the entire data environment. It is essential to focus on areas where poor data integrity impacts innovation and operations, and to plan for change management as part of any data transformation project. Focusing first on key data is a great way to get quick wins within the data management practice.

Collaborative data strategy

To avoid overwhelming the data group with too much change, it can be useful to segment the data strategy into cyber and resilience strategies. Creating a hub team with representation from several business units can be an effective way to manage data projects and spread ownership across various areas of the enterprise. This approach also provides more granularity in terms of how different business units are prioritized, surveyed, and monitored. Master data management strategies are more challenging in a siloed organization, so it is crucial to spend time with each function to determine where organizational data is located.

Data education is also important for data management as it can enable self-service of data products. One leader noted that their hybrid model – collaborating on data strategy with business partners – has allowed the expertise of both business units and IT to complement rather than counteract each other. Data governance and data cataloging were important prerequisites the team tackled first. The first major win for this project was a significant reduction in the amount of time it takes to obtain data from various business systems.

Data ownership and growing data literacy

When determining ownership of data management, many companies initially assign this task to Legal due to regulatory requirements. However, once data becomes a driver for business performance, ownership becomes more complex and data access needs become more complicated. At one organization, information governance and data governance are separate, with data being managed by the data team and information governance remaining under the purview of Legal. Despite this, there is still a need to establish a stronger business case for data management in the utility sector. With growing requirements around sustainability and electrification, there is increasing interest in leveraging data for business analysis at the top levels of management in utilities.

A hub and spoke model for data management can help distribute data ownership across the business and IT teams while also improving non-IT data literacy and usage. Implementing a data literacy program is another effective way to improve business data usage, and such programs can be rolled out alongside talent management initiatives to bring data-specific talent into each business unit. Another option for upskilling talent on data risks is through data compliance programs.

Making programs engaging for non-data professionals can be a challenge, but it can be achieved by bringing the focus to data that is specifically relevant to each learner's business unit. Similarly, change management for data-related projects can enhance employees' data literacy. One of the reasons non-data professionals find data programs daunting is their fear or unease around using numbers, which often arises in discussions of data. Programs should be designed to alleviate this anxiety.

Bringing data awareness to a company requires an internal cultural shift. Similarly, ensuring a company culture of safety involves employees considering the impact of their decisions on their colleagues. Data cleanliness can be viewed in the same light: as a benefit to colleagues.

Utility Data Governance Overview

Data governance principles such as data traceability, data lineage, data accessibility, and data regulation compliance are critical to enable data leaders to steer the use of data within their organizations. Utilities can use an industry standard data model and an automation-powered data governance strategy to transform asset, customer, and enterprise processes, while maintaining proper protocols for their data.

The chart below shows key utility industry imperatives, challenges, and the business objectives that can be achieved for each with IBM’s differentiated data governance offerings. Client stories for each utility platform bring these examples to life.

Utility industry platforms overview and outcomes with data governance from IBM

| Platforms: | Asset | Customer | Enterprise |
|----------------------------------|--|--|---|
| About: | Enable network resilience and operational excellence | Deepen engagement through customer experiences | Rearchitect enterprise with flexible, secure capabilities |
| Challenges: | Aging asset infrastructure along with a transitioning workforce impacts the safety and reliability of the grid. Climate-related extreme weather threatens major disruption to utility operations and businesses. | Customers are more engaged, asking sophisticated questions, and seeking sustainable options. Deliver proactive, personalized, and intuitive omni-channel interactions, and reduce agent handling time. | Pressure to increase operational efficiencies and reduce costs. Manage increasing regulation within the industry. |
| Business Categories: | <ul style="list-style-type: none"> Asset configuration, inspection and performance Power Asset & Gas Asset SCADA Work Management | <ul style="list-style-type: none"> Customer Account Gas + Electric Usage Load profile Billing Collections Payments | <ul style="list-style-type: none"> Accounting & Finance Human Resources Personal Data Protection Supply Chain & Inventory Weather |
| Industry Alignment (IBM): | <ul style="list-style-type: none"> Maximo Manage (asset management) Common Information Model (CIM) standards for Power Systems IEC 61968, IEC61970, and 300+ CIM reference data sets | <ul style="list-style-type: none"> California Consumer Privacy Act (CCPA) General Data Protection Regulation (GDPR) Personal Information Taxonomy | <ul style="list-style-type: none"> IBM Weather Data California Consumer Privacy Act (CCPA) General Data Protection Regulation (GDPR) |
| Client Stories: | <p>European distribution system operator Solution: Asset performance management for E&U, Data Model for E&U with data governance Objective: Support distribution processes and decision-making across the entire sector <i>Challenges:</i></p> <ul style="list-style-type: none"> Asset data fragmented in many siloed information sources Limited reporting & insights that didn't support decision making + a lack of dashboards and visualization Desire to innovate with advanced modeling <p><i>Outcomes:</i></p> <ul style="list-style-type: none"> Created centralized data warehouse for distribution operations Enabled self-service business intelligence and reporting infrastructure Foundation for advanced predictive analytics and data mining Supports process innovation for asset management and reliability-centered maintenance | <p>North American energy & utility company Solution: IBM InfoSphere Information Server, SPSS, Data Model for E&U with data governance Objective: Enable customer analytics use cases such as collections risk and demand response <i>Challenges:</i></p> <ul style="list-style-type: none"> Manage increasing volumes of data from smart meters and infrastructure investments Reduce complexity associated with siloed, data warehouse that manage data from various data sources Meet regulatory standards that govern reliability, security, performance, and costs in a constantly changing business environment <p><i>Outcomes:</i></p> <ul style="list-style-type: none"> Transformed a siloed data warehouse landscape into a fully integrated data model across the whole business Established a better data governance strategy Created a comprehensive information and data warehouse model with integrated reporting and analytical capabilities based on standardized business terminology Increased business agility and better decisions based on accurate and timely information | <p>North American utility company Solution: IBM security products including identity and access management + QRadar Objective: Address C-level and board concerns over smart meter security and privacy of data <i>Challenges:</i></p> <ul style="list-style-type: none"> Centralize data security policy to protect data against unauthorized access Reduce costs in managing web services security and administration Meet security and privacy regulatory requirements <p><i>Outcomes:</i></p> <ul style="list-style-type: none"> Integrated data protection strategy with meter vendor to apply encryption as product evolved Strategy roadmap allow prioritizing of quick wins and security investment by risk gained C-Level & Board confidence Informed what to monitor, analyze, and how to respond with integration of NOC/SOC for threat detection, event monitoring and response |

IBM Point-of-View

Data governance for utilities

An effective data governance strategy is dependent on a technology stack designed to gain end-to-end governance, deliver quality data, and ultimately accelerate collaboration. The value of data governance is amplified when this capability is combined with data integration and entity resolution capabilities.

As part of a modern data fabric, data governance creates an end-to-end user experience rooted in metadata and active policy management that allows users to view, access, manipulate and analyze data without the need to understand its physical format or location, and without having to move or copy it.

The technology components of the IBM data fabric approach allow companies to automatically apply industry-specific regulatory policies and rules to their data assets, securing across the enterprise, with:

- an AI-augmented data catalog allowing business users to easily understand, collaborate, enrich, and access the right data
- a metadata and governance layer for all data, analytics, and AI initiatives increases visibility and collaboration on any cloud
- the ability to mask data dynamically and consistently at a user-defined granular level
- the ability to create anonymized training data and test sets while maintaining data integrity

IBM Data Governance Solutions for Utilities

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| <p>IBM Cloud Pak for Data</p> <p>IBM Cloud Pak for Data is a platform built with a data fabric architecture in mind to help prepare for outcomes faster and allow you to collect, organize, and analyze your data, no matter where it may reside. The platform thus helps to improve productivity and reduce complexity by connecting siloed data distributed across a hybrid cloud landscape. Cloud Pak for Data consists of a full stack of components for every stage of the data lifecycle.</p> | <p>IBM Match 360</p> <p>IBM Match 360 with Watson helps consolidate data from disparate sources across domains and systems to provide a broad view of persons, organizations, and custom entities. This is done with the assistance of ML and governance capabilities, for a simplified experience for business users.</p> | <p>Databand</p> <p>Data Observability with Databand allows customers to identify and fix data and machine learning pipeline errors, pipeline failures, and poor quality. Databand technology allows engineers to tackle challenges associated with bad or incomplete data at the source.</p> | <p>IBM Security Guardium Insights</p> <p>With out-of-the-box compliance capabilities and workflows such as compliance policy creation, audit process definition, access privilege assignment, and user activity reports, IBM Security Guardium Insights allows the enterprise to quickly meet its data regulatory needs. Guardium Insights is architected to provide data security specialists with features such as automated compliance, audit and reporting, and real-time monitoring.</p> |
| <p>IBM Watson Knowledge Catalog</p> <p>IBM Watson® Knowledge Catalog enables intelligent governance through advanced data discovery, data quality management, automated data lineage, data cataloging, and data protection capabilities across a hybrid distributed data landscape. The solution is powered by active metadata and is designed to enable self-service access to trusted data for insights generation as well as for regulatory compliance use cases. Access, curate, categorize, share data and knowledge assets and their relationships, wherever they reside.</p> | <p>IBM Knowledge Accelerator E&U</p> <p>The IBM® Knowledge Accelerator for E&U (KAEU) is an industry-specific glossary for E&U organizations that is imported to IBM Watson Knowledge Catalog. The comprehensive, multilayer business glossary includes thousands of interrelated terms that are grouped by intuitive subcategories. An energy and utilities glossary, independent from a single source and with connected categories, can give a holistic view of the data to help provide information to address typical, as well as emerging and unexpected immediate, business challenges.</p> | <p>IBM Watson Query</p> <p>Applying sweeping governance rules across data lakes, databases, and warehouses is time consuming, and often leaves users with long delays to get access to the right data. Watson Query enforces governance policies when data is accessed across multiple sources, quickly providing data to your end applications through one view without manual changes, data movement, or replication.</p> | <p>watsonx.governance</p> <p>The more AI is embedded into daily workflows, the more you need proactive governance to drive responsible, ethical decisions across the business. watsonx.governance allows you to direct, manage, and monitor your organization's AI activities, and employs software automation to strengthen your ability to mitigate risk, manage regulatory requirements, and address ethical concerns without the excessive costs of switching your data science platform—even for models developed using third-party tools.</p> |

IBM Knowledge Accelerator for Energy and Utilities

The IBM Knowledge Accelerator for Energy and Utilities (KAEU) is an industry-specific glossary for energy and utilities organizations that is imported to IBM Watson Knowledge Catalog. The comprehensive, multilayer business glossary includes thousands of interrelated terms that are grouped by intuitive subcategories. The terms in these subcategories (Business Core Vocabulary, Business Performance Indicators, Business Scopes, and Industry Alignment Vocabularies) are used by different business users to establish, understand, navigate, and use an enterprise vocabulary.

Differentiating elements of the IBM KAEU

- **Reference Data:** Includes approximately 300 collections of reference data with thousands of reference values sourced from the Common Information Model (CIM) standard.
- **Data Classes:** Extends the set of data classes provided in Watson Knowledge Catalog with several data classes based on CIM reference data sets.
- **Data Privacy and Protection:** Contains key concept terms from two leading data privacy regulations, as well as internal IBM Personal Data taxonomies. It also includes Personally Identifiable Information (PII), Sensitive Personal Information (SPI), and Personal Information (PI) data classifications. Hundreds of business terms have been pre-classified to aid in data governance.

IBM Maximo Asset Management

The knowledge accelerators are aware of the Maximo APIs allowing quick and seamless discovery of Maximo data for automating data classification, analyzing data quality, detecting sensitive data, and automating assignment business vocabularies.

The Weather Company Data

The knowledge accelerators are aware of the IBM weather data APIs allowing quick and seamless discovery of weather data for automating data classification, analyzing data quality, detecting sensitive data, and automating the assignment business vocabularies.

Common Information Model (CIM) 61968 and 61970

The knowledge accelerators provide alignment and lineage to CIM 61968 and 61970 industry standards through its glossary of terms, accelerating auto classification of your organization various data sources. In addition, the accelerators contain more than 300 CIM Reference data sets.

GDPR (EU General Data Protection Regulation)

Supports the General Data Protection Regulation (GDPR) and provides an industry-specific vocabulary – that can help you discover and govern privacy data – and KPI templates for regulatory reporting. It can help organizations ensure that their enterprise data architecture is able to provide the necessary data artifacts to report on data protection issues and can help to determine and define the personal data types your business uses.

CCPA (California Consumer Privacy Act of 2018)

Supports the California Consumer Privacy Act (CCPA) and provides an industry-specific vocabulary, that can help you understand requirements for privacy data. Building on the foundations put in place with GDPR, CCPA identifies the key terms within the regulation, which are then mapped to the Business Core Vocabulary terms. The coverage can help you understand what components to be considered including consumer rights, personal data types, processing activities, processing purposes, and roles.

Personal Information Taxonomy

IBM KAEU supports IBM's sample taxonomy for personal information, which is designed to be a template to accelerate the discovery and governance of data privacy information and the activities related to processing such information. The taxonomy is not intended to be a definitive standard for data privacy and protection requirements, as the classifications of information may vary in different legal jurisdictions. This taxonomy complements specific regulations (e.g., GDPR or CCPA) as it helps accelerate the building of your own data privacy taxonomy and an inventory of data assets that contain personal information.

In Closing

Data governance is top-of-mind for energy and utility industry leaders. An effective data governance strategy is dependent on a technology stack designed to gain end-to-end governance, deliver quality data, and ultimately accelerate collaboration. The value of data governance is amplified when this capability is combined with data integration and entity resolution capabilities. Implementing a data governance framework can increase the value of data within your organization. Since data governance helps improve overall data accuracy, it also impacts outcomes based on that data, which can range from more simple day-to-day business decisions to more complex automation initiatives.

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Produced in the United States of America

October 2023

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