

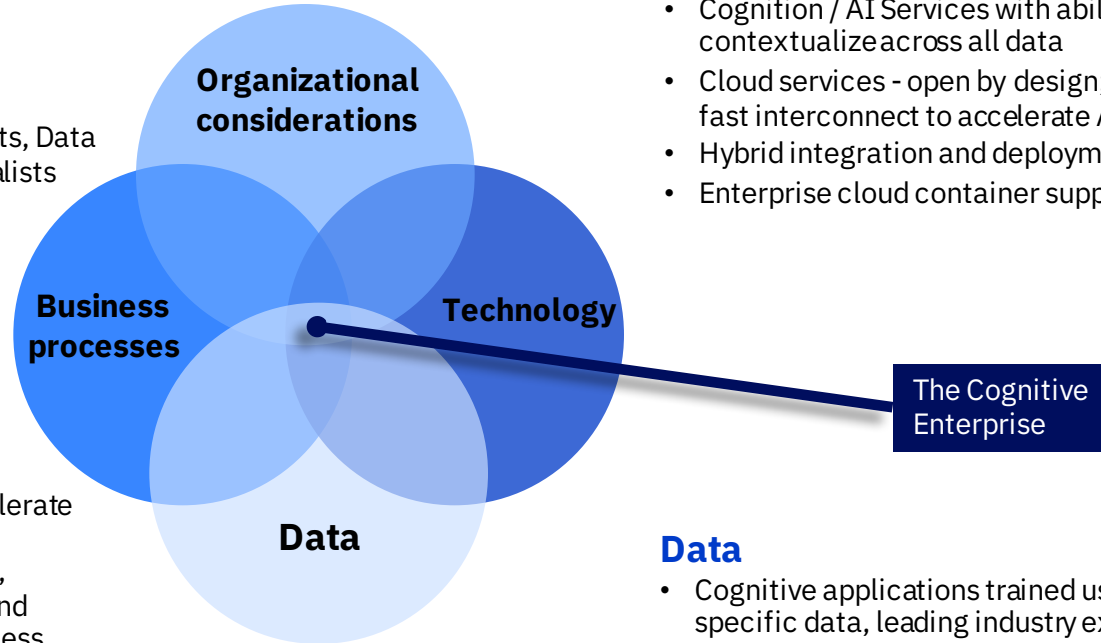
# Cognitive Enterprise Blueprint

## Organizational Considerations

- Data strategy catalysts
- Transform and reinvest
- Recruit, retrain, and retain talent
- Business Unit leadership
- Engage top technical talent: Data Scientists, Data Engineers, Dev Ops, Deep Learning specialists
- Governance & monetization expertise
- Policy and risk
- Essential communities
- Addressing culture change

## Business Processes

- Use previous insights to simplify and accelerate new use cases via transfer learning
- CDO Processes: Technology development, information and data governance, client and product master data processes, and business integration
- Cognitive Enterprise: Supply Chain, Procurement, Finance, Real Estate and Site Operations, Marketing and Communications, and more



## Technology

- Cognition / AI Services with ability to contextualize across all data
- Cloud services - open by design; GPUs, fast interconnect to accelerate AI training
- Hybrid integration and deployment choice
- Enterprise cloud container support

## Data

- Cognitive applications trained using industry specific data, leading industry expertise
- Data-as-a-service, high scale ingestion, accessing data for analysis and manipulation
- Data Responsibility: your data, your insights
- Self-service & out of the box tools

# Cognitive Enterprise Blueprint

## Five foundational use cases

### 1. Data Responsibility

#### IBM's 5 principles of Data Responsibility

##### DATA OWNERSHIP AND PRIVACY

*A world being reshaped by the phenomenon of data requires clarity around the rules of the road to ensure that their rights are protected.*

##### DATA FLOWS AND ACCESS

*IBM is fully committed to protecting the privacy of data, which is fundamental in a data-driven society.*

##### DATA SECURITY AND TRUST

*Drawing on our global array of relationships to convene business, government, academia and all of civil society to address our collective need, while striving to strike the crucial balance among security, privacy and freedom.*

##### DATA AND ARTIFICIAL INTELLIGENCE

*AI capabilities – which are better understood as “augmentation” than “artificial” – represent a positive and transformative force for businesses, institutions, governments and individuals.*

##### DATA SKILLS AND NEW COLLAR JOBS

*Leading efforts to ensure workers worldwide are prepared for technological and business shifts that are changing the way work gets done, and that are driving productivity, economic growth and job creation.*

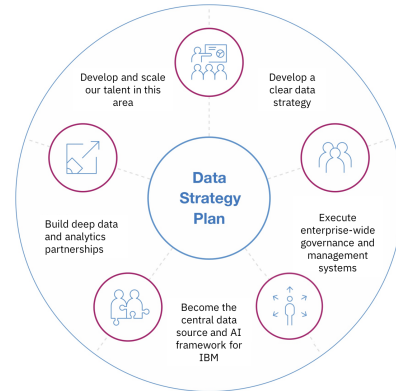
#### The bottom line? Your data means your insights.

- **Hybrid cloud** - your data, enhancements to data, and insights are only present behind your firewall.
- **Public cloud** - your data, enhancements to data, and insights never leave your dedicated space.
- **Access controls** - e.g., role based access, advanced encryption.
- **AI** - pre-trained networks that are customized using your data only within your dedicated space or behind your firewall.

### 2. Data Strategy

#### Develop a clear data strategy

Hire a Chief Data Officer; secure approval and buy-in from senior leadership internally. Execute strategy into action.



#### Execute enterprise-wide governance and management systems

Establish Chief Data Officer as a trusted steward of data who enforces consistent monetization efforts. Internally that means cost reduction, streamline processes, reduce and shift costs, increase sales and revenues.

#### Become the central data source and AI framework for IBM

Consolidate enterprise critical data and make it available as a service. Right now, data is scattered across business units, siloed. One data source provides consistency and data accessibility across the business.

#### Build deep data and analytics partnerships

Special teams focused on rapid integration of critical data, including data from third-party acquisitions, into the consolidated data platform. Help enable yourself to become a competitive differentiator.

#### Develop and scale talent in this area

Hire and retain talent in key areas: data engineering, data science, and deep learning for engineering and devops teams. Create a true agile environment where several Build-Operate-Service teams work autonomously and fluidly off the same cognitive data platform.

# Cognitive Enterprise Blueprint

## 3. Cognitive Enterprise Data Architecture

A **world-class enterprise data infrastructure** that integrates strategic cognitive IBM offerings on a **cloud platform** with our enterprise data in fundamentally new ways.

- **Cognitive Enterprise Data Lake (CoEDL)** on flash storage
- **Hybrid Cloud** Infrastructure
- **GPU, fast interconnect, accelerators** to address AI workloads
- Advanced linkage between **structured and unstructured** data

Accelerate cognitive enterprise with:

- Enable the subject matter experts
- Introduce Machine Learning with a “human-in-the-loop”
- Automation of business rules, roles, policies and consent

Comprehensive

Connected

Automated

Timely

Real Time

Standardized

Dynamic

### Use cognitive capabilities to accelerate your GDPR preparation

### IBM GDPR Program Management



#### Security

Protection of the fundamental privacy rights (e.g. protecting the security and confidentiality of Personal Data, but also providing proper use, notice, consent, choice, access, rectification and erasure).



#### Governance

Determine how you can translate GDPR into actions, norms and values. Consider what measures need to be taken, are they effective and how can you improve them.



#### Cloud

IBM Cloud is agile and scalable with built-in data security that can be consumed on premises or as SaaS offerings. Our comprehensive data security platform is designed to help safeguard sensitive data wherever it resides.



#### People, Processes and Communications

Support your employees as they train on GDPR requirements. They need to understand the risks and impact of improper data use, how GDPR will influence them, what's the impact and how you can manage the required changes.



#### Data

Govern the quality of your data, assess what data you have, what you're using it for and consider how you can interact with individual customers, clients, or third parties.



#### Cognitive insights

IBM Regulatory Compliance Analytics with IBM Watson utilized to digest and identify controls and obligations.



#### Compare

Insight with the ability to load contracts for Watson to analyze and consider the key language, clauses or paragraphs driving the need for further analysis or change.



#### GDPR cartridges

Plug-in extensive unstructured personal data discovery rules using both Regular Expression and machine learning.



#### Data protection

Structured personal data discovery and classification, personal data access and data subject rights audit trails, and reports associated with your GDPR responsibilities and data risk dashboards.

#### GDPR Go-To-Market

**Mission:**

Create a unified GDPR solution to help our clients with their GDPR readiness programs.

#### IBM Client & Contract Management

**Mission:**

Make the client buying process GDPR ready.

#### IBM Vendor Management

**Mission:**

Align our supply chain to the upstream obligations we make to our clients and to our internal responsibilities.

#### IBM GDPR Common Services

**Mission:**

Deploy enterprise tools and common services to facilitate GDPR-related policy, system and business process changes.

#### IBM as a Data Processor

**Mission:**

Ensure compliance and governance for all IBM offerings and services that process personal data.

#### IBM as a Data Controller

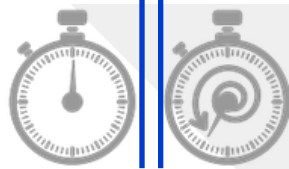
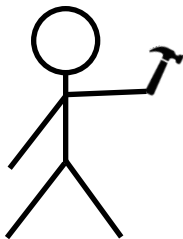
**Mission:**

Address IBM's obligations for managing internal data.

# 5. Automated Metadata Generation

How can we leverage cognitive capabilities to automate metadata generation?

Today's Standard Approach



30 days → 2 hours

IBM's Cognitive Approach

Traditional ML Approach

Watson Knowledge Studio

Watson Developer Cloud API's

IBM Cloud

Watson Explorer

Watson Discovery Service

Deep Learned Approach

**IBM GCDO Deep Learning:**

Uses available data in the Cognitive Enterprise Data Platform to naturally learn the business level meta-relationships while using existing metadata.

- *Neural network model that can be customized for industries and clients*
- *Power8 and Power9 processors*

**SAVES TIME**

Subject matter expert spends much less time reviewing/approving business terms