

# What Data and Analytics Leaders Should Know Before Implementing a Data Catalog

Jason Medd

© 2025 Gartner, Inc. and/or its affiliates. All rights reserved. Gartner is a registered trademark of Gartner, Inc. and its affiliates. This publication may not be reproduced or distributed in any form without Gartner's prior written permission. It consists of the opinions of Gartner's research organization, which should not be construed as statements of fact. While the information contained in this publication has been obtained from sources believed to be reliable, Gartner disclaims all warranties as to the accuracy, completeness or adequacy of such information. Although Gartner research may address legal and financial issues, Gartner does not provide legal or investment advice and its research should not be construed or used as such. Your access and use of this publication are governed by [Gartner's Usage Policy](#). Gartner prides itself on its reputation for independence and objectivity. Its research is produced independently by its research organization without input or influence from any third party. For further information, see ["Guiding Principles on Independence and Objectivity."](#)

**Gartner**®

# How Many People Made a New Year's Resolution to Exercise More?



You bought the yoga mat.

You had a few sessions at the gym.



But by March ...

# Typical reason for quitting:

- Not enough time
- Not sure how to train properly
- Not seeing results fast enough





# Key Issues



**Why adopting a data catalog can be so challenging?**



**How data catalogs support data, analytics and AI?**



**What can you do to improve your chances of success?**

# Key Issues



**Why adopting a data catalog can be so challenging?**



**How data catalogs support data, analytics and AI?**



**What can you do to improve your chances of success?**

# Strategic Issues

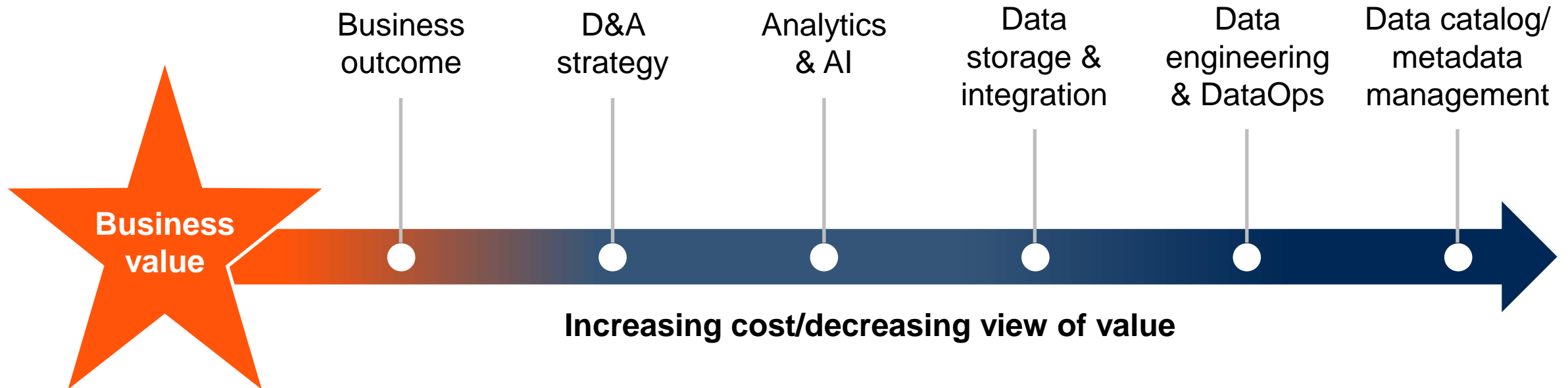
- Poor alignment of metadata management needs to business outcomes
- Poor communication on business need and required effort
- Long payback period



# The Role of Metadata in Your Data Strategy

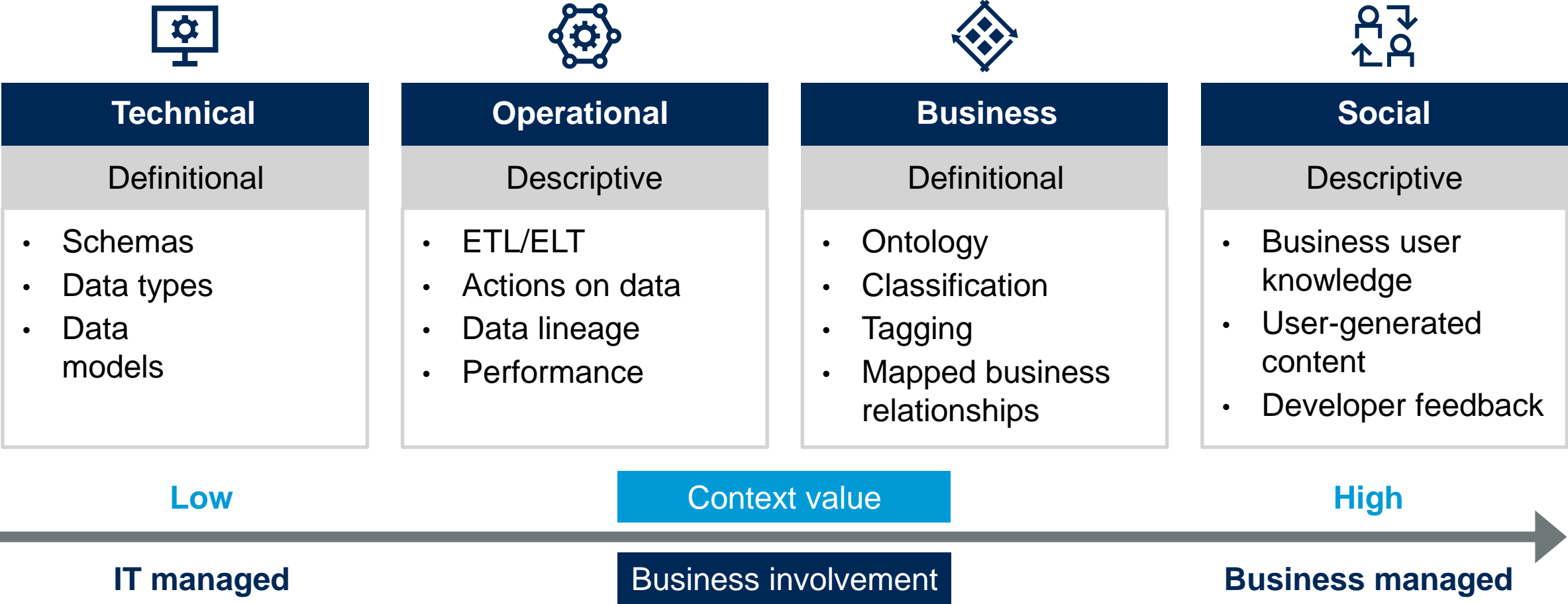
<b>Visible</b>	Locate the needed data
<b>Accessible</b>	Retrieve the data
<b>Understandable</b>	Recognize the content, context and applicability
<b>Connected</b>	Exploit related data elements together
<b>Trustworthy</b>	Be confident in all aspects of data for decision making
<b>Interoperable</b>	Have a common representation of data
<b>Secure</b>	So that data is protected from unauthorized use

# Visibility: Value/Cost Lenses



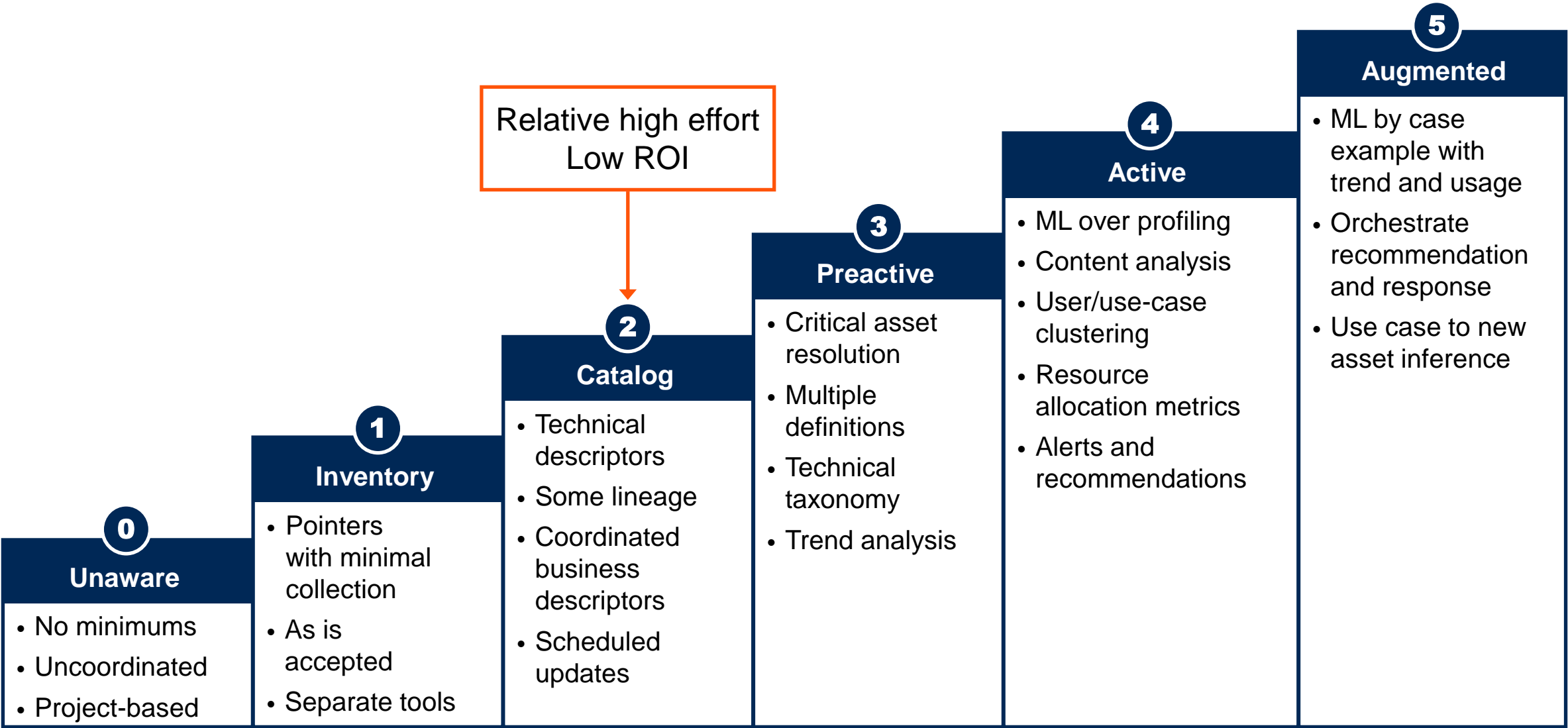


# Communication: What's Needed and Why



Source: Gartner

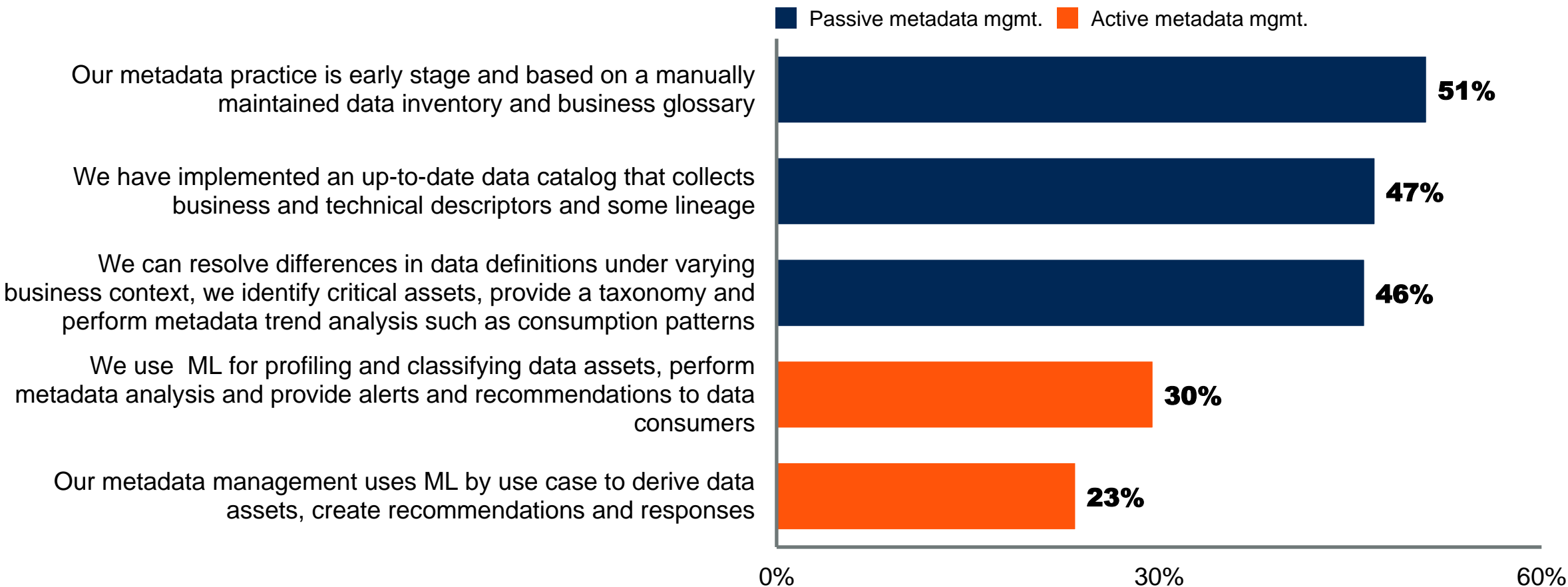
# Payback Period: Metadata Management Maturity



Source: Gartner

# Most Organizations Have **Not** Invested and Matured Their Metadata Practice to a Stage Where It Can Support Automation in Data Management

Q: Which of the following best describes your metadata management practice maturity?



n = 247; data management leaders. Multiple responses allowed.

Source: 2024 Gartner Evolution of Data Management Survey

# Tactical Issues

- Skills deficit
- Time deficit
- Poor understanding of metadata requirements
- Wrong starting point
- Adoption/handoff issues



# Key Issues



**Why adopting a data catalog can be so challenging?**



**How data catalogs support data, analytics and AI?**



**What can you do to improve your chances of success?**

# Use Case 1: Searchability

No. 1: Most described business problem

We can't find our data!

**But**

- Long payback period
- Self-limiting exercise in some cases





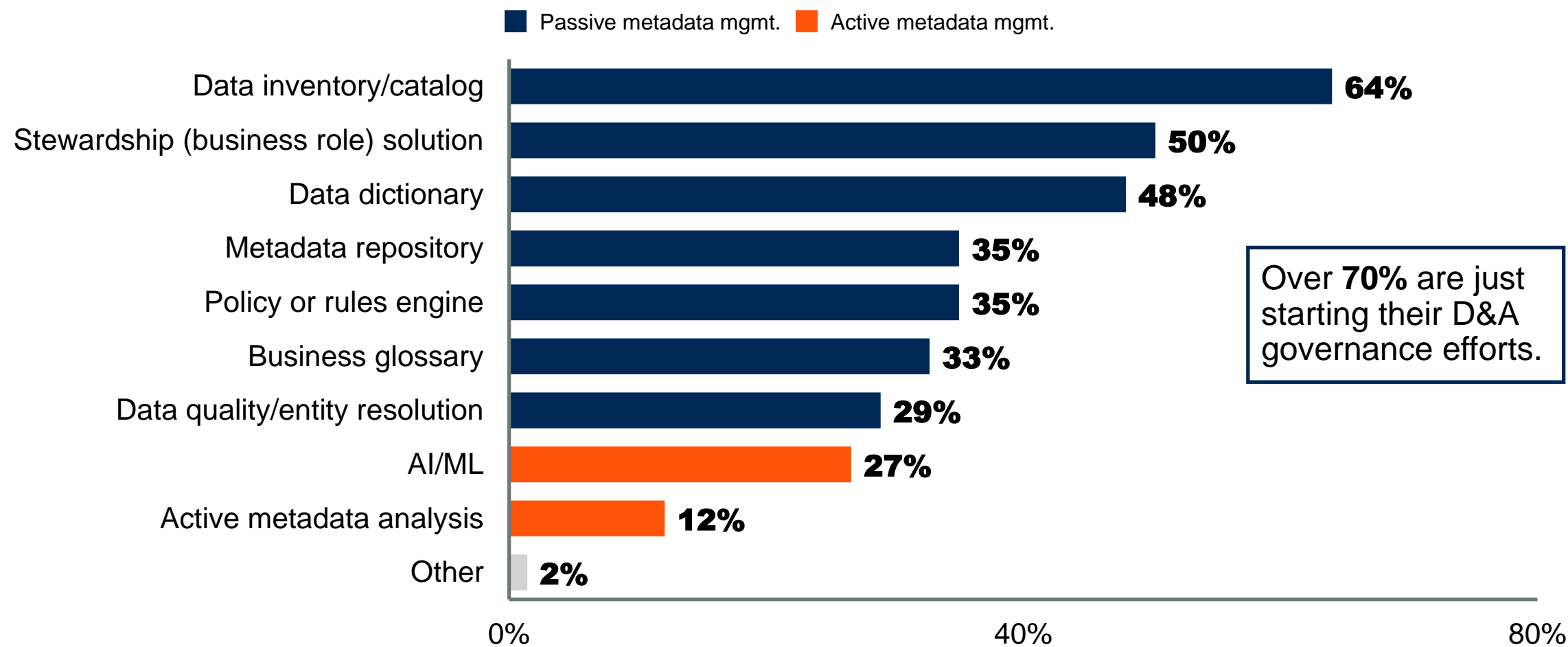
## Use Case 2: Data Governance

- Aligns policies, business definitions and critical data
- High success rate when governance is aligned to business outcomes
- Only creates a limited view of data landscape
  - 5% to 10% of structured data



# Metadata Capabilities Enable D&A Governance

Q: Which of the following technology capabilities are used to enable governance in your organization?

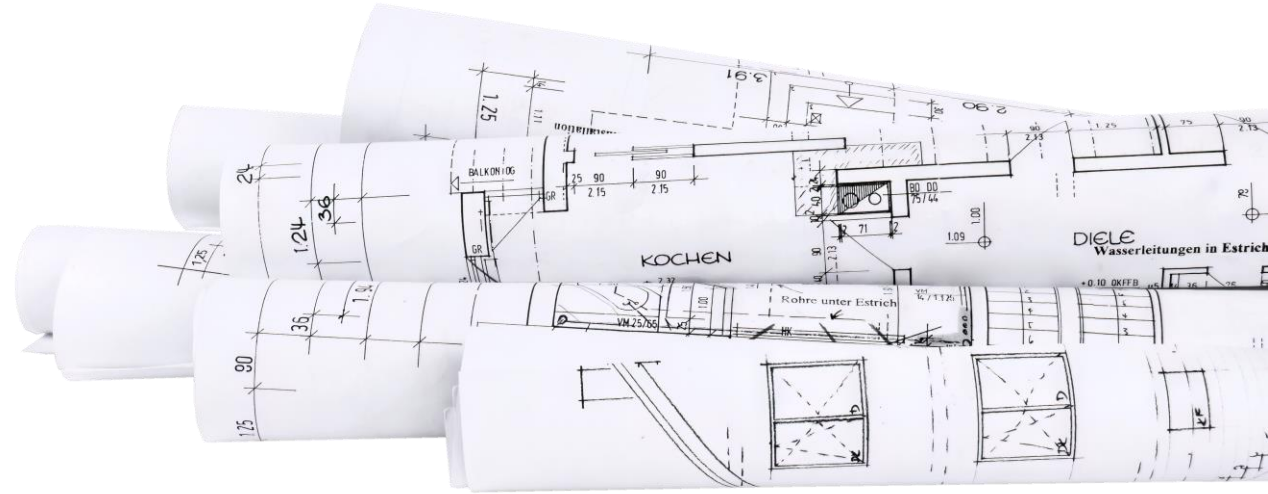


n = 131; D&A governance stakeholders; multiple responses allowed

Source: 2024 Gartner Data & Analytics Governance Survey

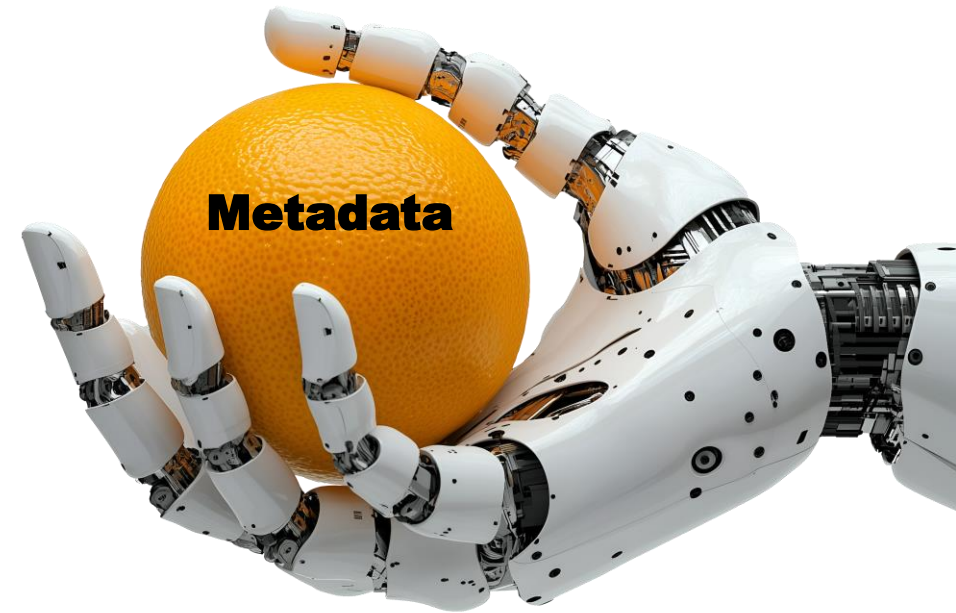
# Use Case 3: Data Engineering

- Supporting impact analysis
- Primarily technical and operational metadata
- Covers critical and noncritical data
  - Limited business context



## Use Case 4: AI-Ready Data

- Key enabler and pillar for supporting AI projects
- AI is not just data hungry — it's metadata hungry
- Composite use case — extension of prior use cases
- Same vulnerabilities to adoption
  - Business outcomes
  - Visibility
  - ROI



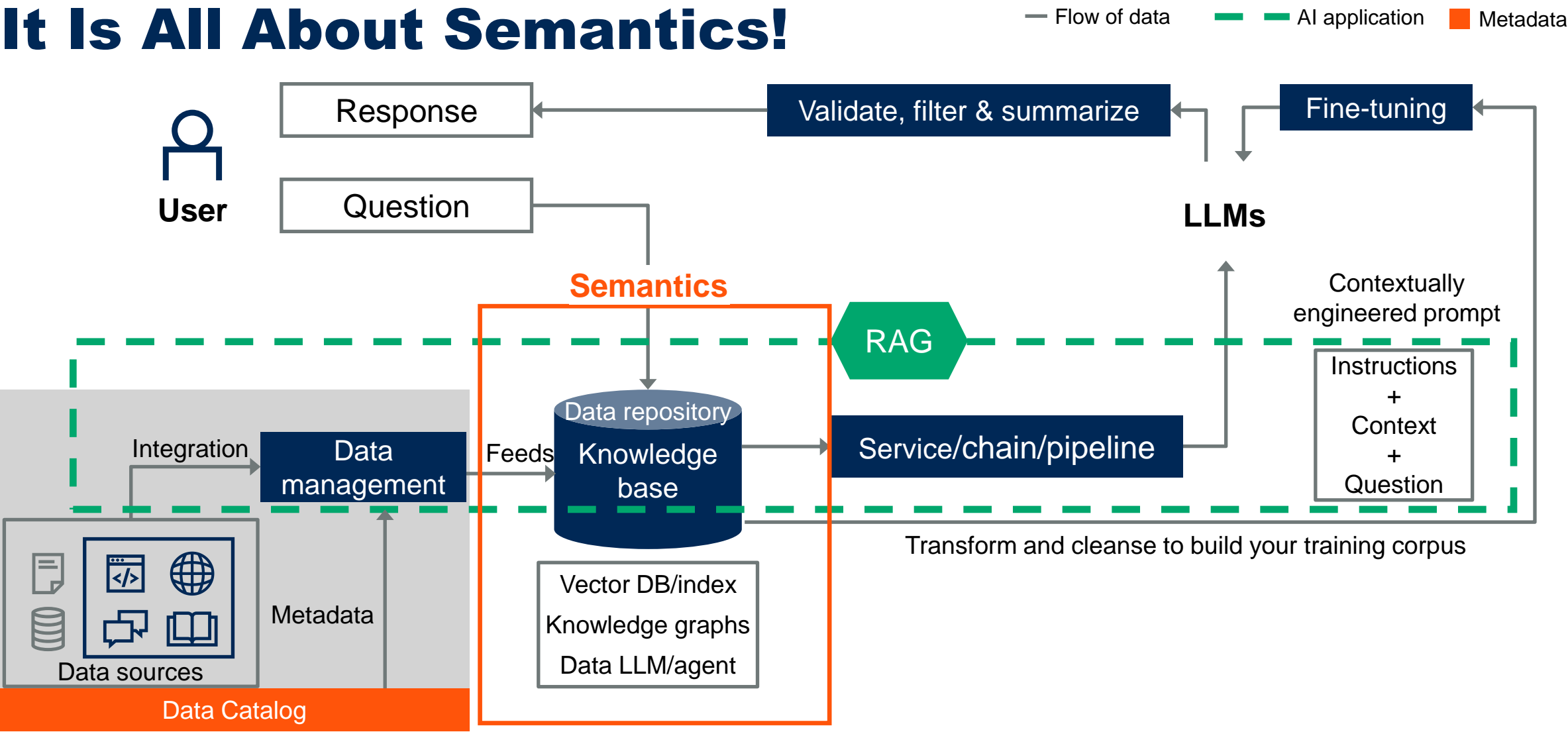
# Use Case 4: AI-Ready Data



Alignment	Qualification	Governance
<ul style="list-style-type: none"><li>• Quantification</li><li>• Semantics</li><li>• Quality</li><li>• Trust and fairness</li><li>• Diversity</li><li>• Lineage</li></ul>	<ul style="list-style-type: none"><li>• Consistency assessment</li><li>• Validation and verification</li><li>• Operational SLAs</li><li>• Versioning</li><li>• Continuous regression testing</li><li>• Observability metrics</li></ul>	<ul style="list-style-type: none"><li>• Data stewardship</li><li>• Inference and derivation</li><li>• Regulatory and compliance</li><li>• AI standards support</li><li>• Data sharing</li></ul>

Source: Gartner

# LLMs Use Data in a New Way: It Is All About Semantics!







**If you are serious about AI,  
you need to get serious  
about metadata.**

# Key Issues



**Why adopting a data catalog can be so challenging?**



**How data catalogs support data, analytics and AI?**



**What can you do to improve your chances of success?**

# Strategic Actions

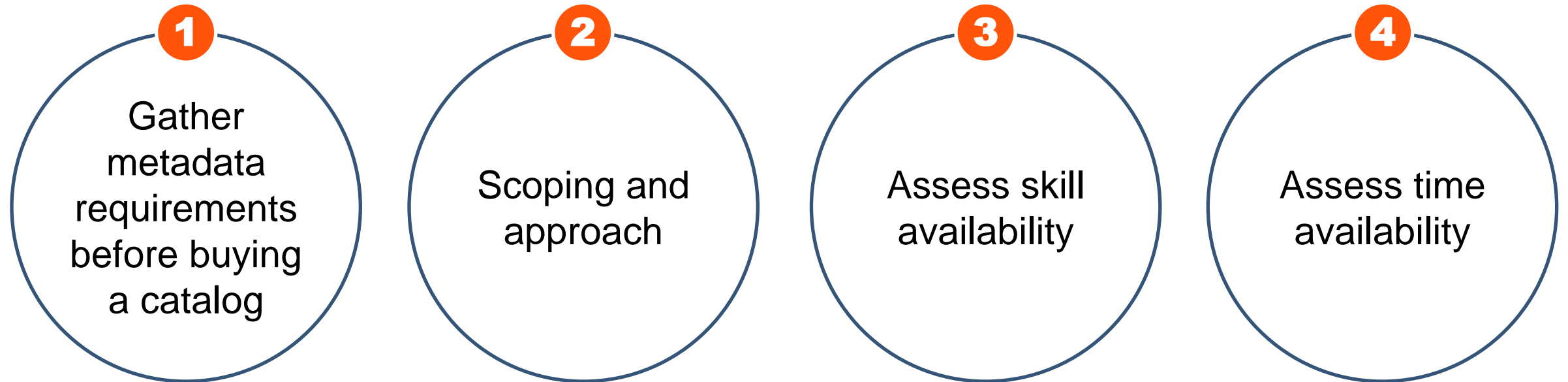
- Communicate a why and articulate expected outcomes
  - Utilize storytelling
- Stakeholder engagement
  - Expectation setting on outcomes and effort required
- Education and enablement
  - Data literacy
  - Training on usage of the catalog





**Remember: Use cases are a “what” not a “why.” Do not expect stakeholders to connect the dots by themselves.**

# Tactical Actions



# Metadata Requirements

## Create a metadata application profile

- Documents intended usage
- SMEs
- Input rules, vocabulary and formatting standards

Metadata Application Profile					
Element Name	Mapped to Dublin Core	Obligation	Vocabulary/Encoding Scheme	Input Guidelines	Examples
Author	Creator	Required	Library of Congress Name Authority File (LCNAF)	Enter the name(s) of the creator(s) of the object. Construct names according to Library of Congress Name Authority File.	Hoff, Syd, 1912- / Skofield, James
Title	Title	Required		Transcribe title from the resource itself, such as the book title or object name, using the same punctuation that appears on source.	Jurassic poop
Illustrator	Creator	Required if available	Library of Congress Name Authority File (LCNAF)	Enter the name(s) of the creator(s) of the object. Construct names according to Library of Congress Name Authority File.	Teague, Mark
Publisher	Publisher	Required		Enter name(s) or institution of publisher of the object.	HarperCollins / Dial Books for Young Readers
Copyright Year	Rights	Required		Enter copyright date as listed within copyright information of source.	1993 / 2006

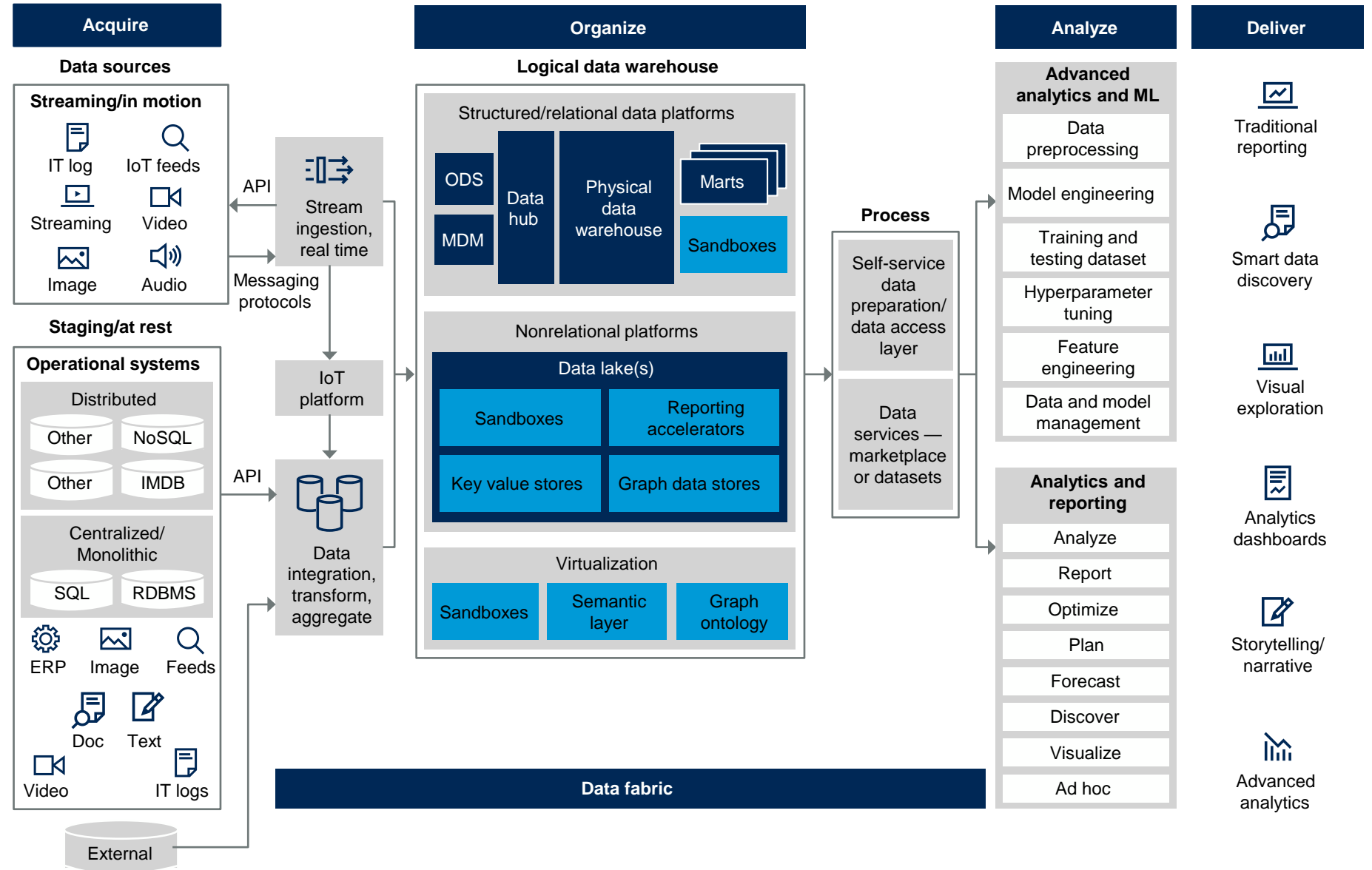
Source: [Metadata Application Profile](#), SlideShare



# Scoping and Approach

End-to-end architecture for data management, analytics and DSML

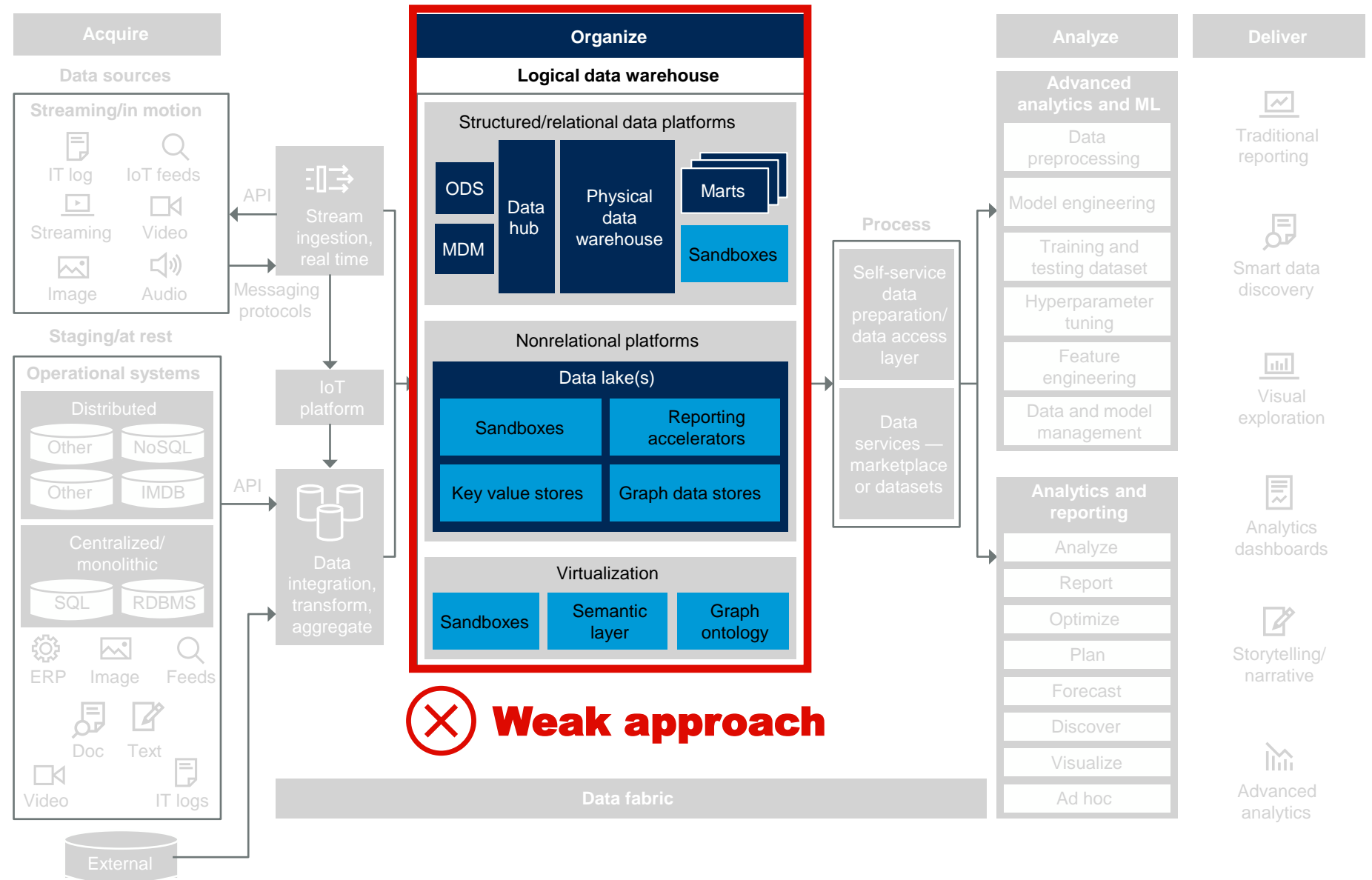
**Manage and govern:** information governance (metadata management, data quality, data modeling and master data management), data management (data admin, security, privacy and identity) and organization (people)



# Scoping and Approach

End-to-end architecture for data management, analytics and DSML

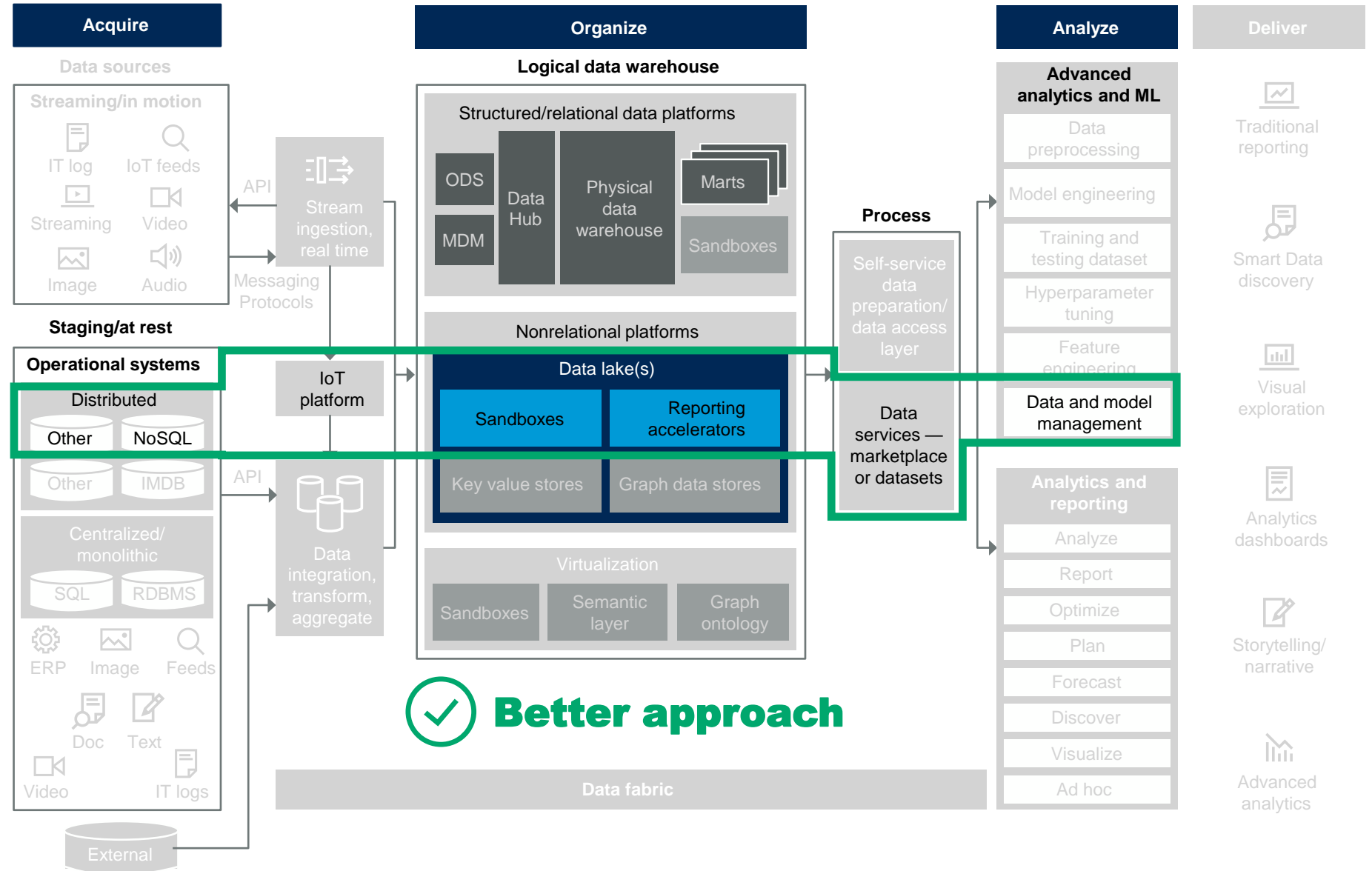
**Manage and govern:** information governance (metadata management, data quality, data modeling and master data management), data management (data admin, security, privacy and identity) and organization (people)



# Scoping and Approach

End-to-end architecture for data management, analytics and DSML

**Manage and govern:** information governance (metadata management, data quality, data modeling and master data management), data management (data admin, security, privacy and identity) and organization (people)



# Skills

## Cataloging is a skill

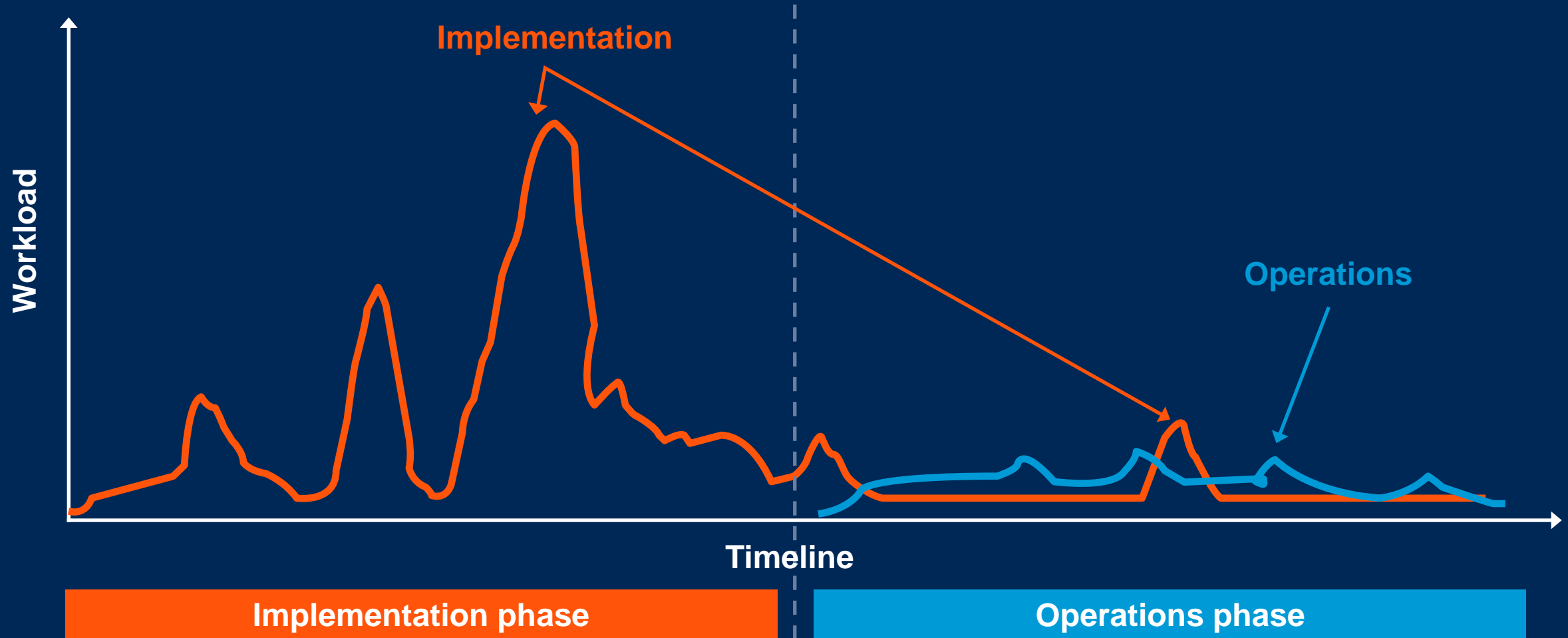
- Taxonomies
- Ontologies
- Controlled vocabularies
- Defining and enforcing standards
- Enabling users to effectively use a catalog



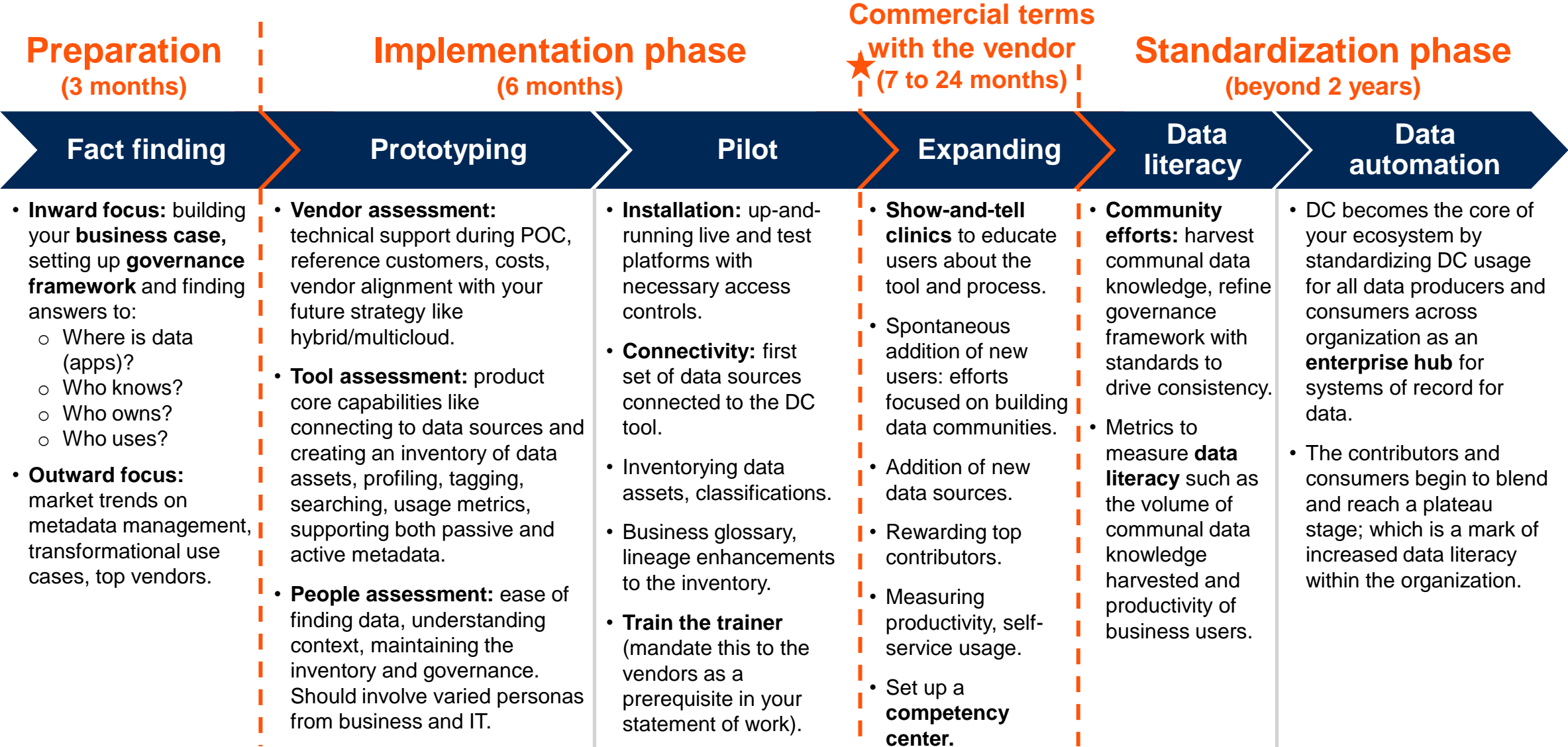
# Time

## Workload Based on Implementation and Maintenance of a Data Catalog

Illustrative



# Roadmap for Deploying an Enterprise Data Catalog





# Recommendations

- ④ **Supplement** people and process of a data catalog project with technology. Do not offer technology as a replacement for people and process.
- ④ **Build** user engagement for a data catalog by using storytelling to describe both what can be possible thought-effective metadata management, and to describe the challenges and pitfalls along the way.
- ④ **Gauge** metadata management requirements and participation by building a metadata application profile prior to selecting and implementing a data catalog.
- ④ **Advocate** the need for appropriate skills in managing standards and procedures in operationalizing the data catalog by identifying obvious gaps in knowledge and enthusiasm from the steward community for the job.

# Recommended Gartner Research

To learn more about access to Gartner research, expert analyst insight, and peer communities, contact your Gartner representative or click on “Become A Client” on [gartner.com](https://gartner.com) to speak with one of our specialists.

- 🔍 [How D&A Leaders Can Use Metadata for Better Business Outcomes](#)  
Thornton Craig
- 🔍 [State of Metadata Management: Aggressively Pursue Metadata to Enable AI and Generative AI](#)  
Mark Beyer and Guido De Simoni
- 🔍 [Successful Generative AI Projects Require Better Metadata Management](#)  
Mark Beyer, Roxane Edjlali, Ehtisham Zaidi, Melody Chien and Others
- 🔍 [What Data Architects Need to Know About Data Quality](#)  
Jason Medd