



# Maturity Models

IS465: Data Management and Governance

# Assessing and Improving Data Management Capabilities

- Data management and governance are critical for organizations to make informed decisions and achieve business objectives
- Maturity models provide a framework for assessing and improving data management capabilities



# Characteristics of Maturity Models

- Define a set of maturity levels (e.g. initial, repeatable, defined, managed, optimized)
- Assess data management capabilities across multiple dimensions (e.g. data quality, data security, data governance)
- Provide a roadmap for improvement and a framework for measuring progress
- Are industry-agnostic and can be applied to various organizations

# Benefits

- Improved data quality and reduced errors
- Enhanced data security and compliance
- Increased transparency and accountability
- Better decision-making and business outcomes
- Improved collaboration and communication across the organization
- Identification of areas for cost reduction and optimization

# Examples

- CMMI's Data Management Maturity (DMM) Model
- DM-BOK (Data Management Body of Knowledge) Maturity Model
- Gartner's Data Management Maturity Model
- IBM's Data Governance Maturity Model

# What is a Data Management Maturity Model?

- A Data Management Maturity Model is a framework or set of frameworks for evaluating the maturity level of an organization's data-related capabilities.
- It may be used to identify opportunities for improvement through internal assessment (rather than by benchmarking against competitors).
- It can serve as a yardstick for measuring capability development over time, evaluating progress against specific objectives, or understanding gaps to best practice.

# How do I choose the best one for my organization?

- Selecting the right model involves evaluating your organization's specific Data Management needs, industry requirements, organizational goals, and available resources.
- Assess the strengths and weaknesses of each model within the context of your organization.
- Look for alignment with your objectives, scalability, adaptability, ease of implementation, and potential fit for effectively addressing your specific Data Management challenges.

# What are the key steps involved in implementing Maturity Model?

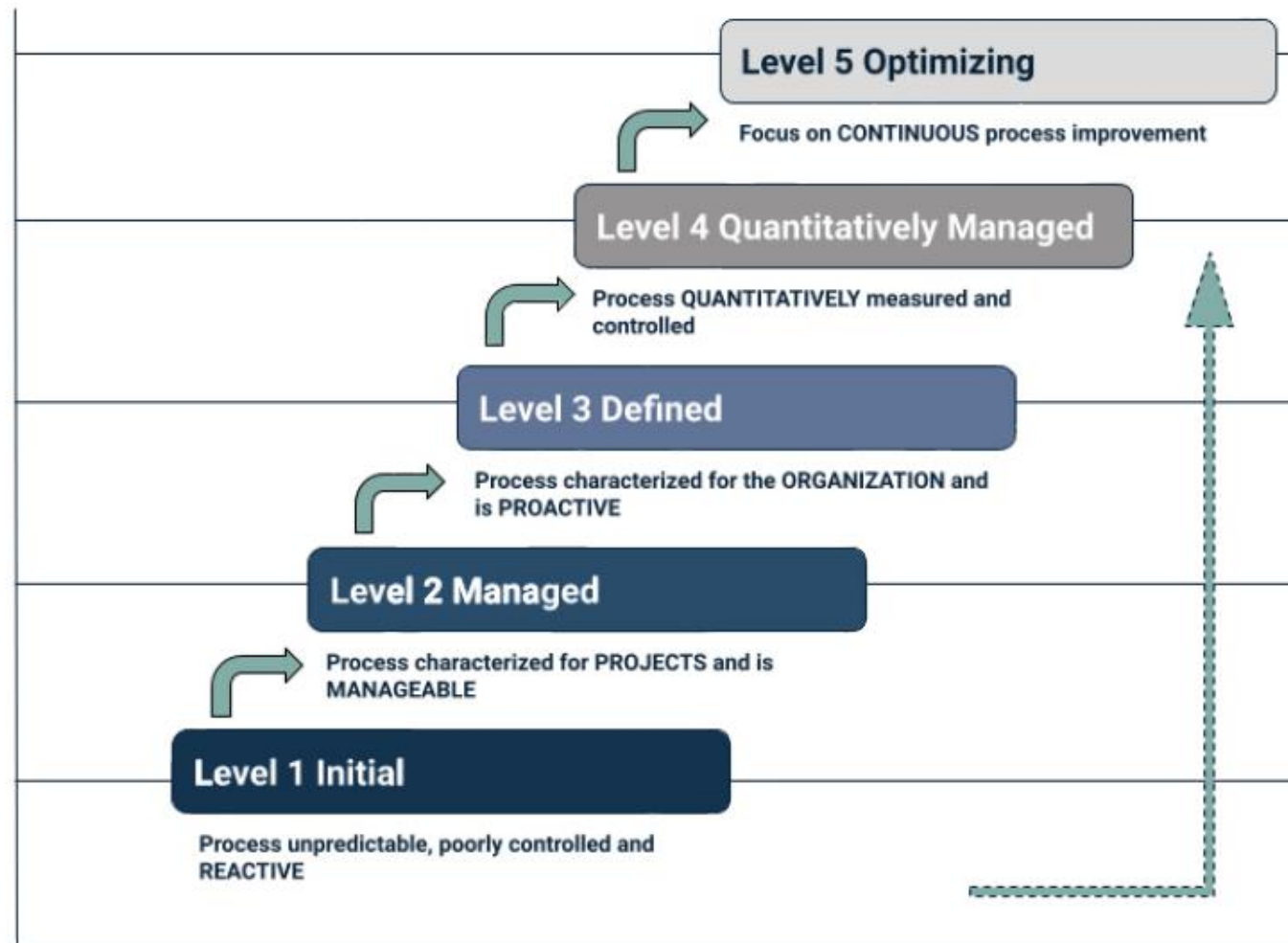
- Implementing a Data Management Maturity Model typically involves numerous steps.
- First, assess organizational needs, then select a suitable model, engage stakeholders, and plan for implementation.
- Next, pilot the model in a specific data domain and evaluate the results before rolling out to the broader organization.
- You may choose to seek external support if needed.
- As you and your team conduct the assessment, it's important to adapt the chosen model based on your organization's needs.



# Rationale for Conducting a DMMA

- Knowing where you stand
- Finding the gaps
- Avoiding problems
- Working smarter
- Making better decisions
- Alignment with objectives
- Getting better over time
- Improved data quality
- Reduced data risk
- Enhanced data-driven decision-making

# IBM's Data Governance Council Maturity Model



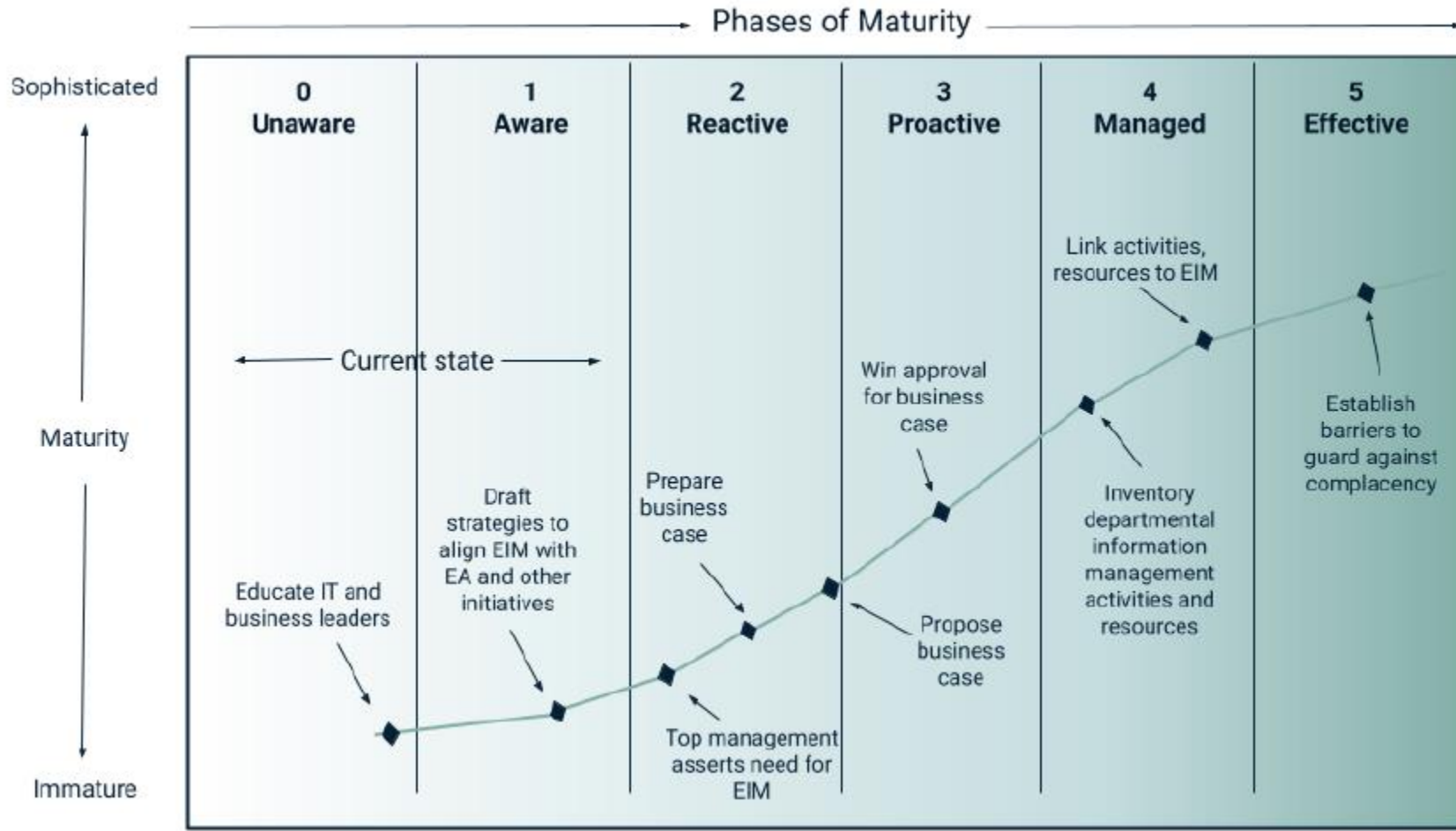
# IBM's Data Governance Council Maturity Model

- The model measures maturity on a scale of five levels of maturity.
- It features 11 Data Governance categories composed of many subcategories.
- These categories and subcategories can be individually assessed for their current maturity level, resulting in concrete steps for improvement.
- Assessing domains individually allows for the DMMA to be better tailored to the specific needs of a given organization.
- Best suited for:
  - an organization looking to establish, evaluate, or refine their Data Governance office; the model helps assess current practices and design effective programs aligned with industry standards

# IBM's Data Governance Council Maturity Model

- Benefits:
  - Builds on best practices contributed by real world data leaders
  - Each of the 11 separate data domains identified by the model can be individually assessed, contributing to the ability to prioritize the assessment based on immediate business need
  - Clear criteria for each of the five capability levels
- Drawbacks:
  - Lacks implementation support and limited guidance on actual implementation
  - Establishes near-unobtainable standards for Level 4 (Quantitatively Managed) and Level 5 (Optimizing)

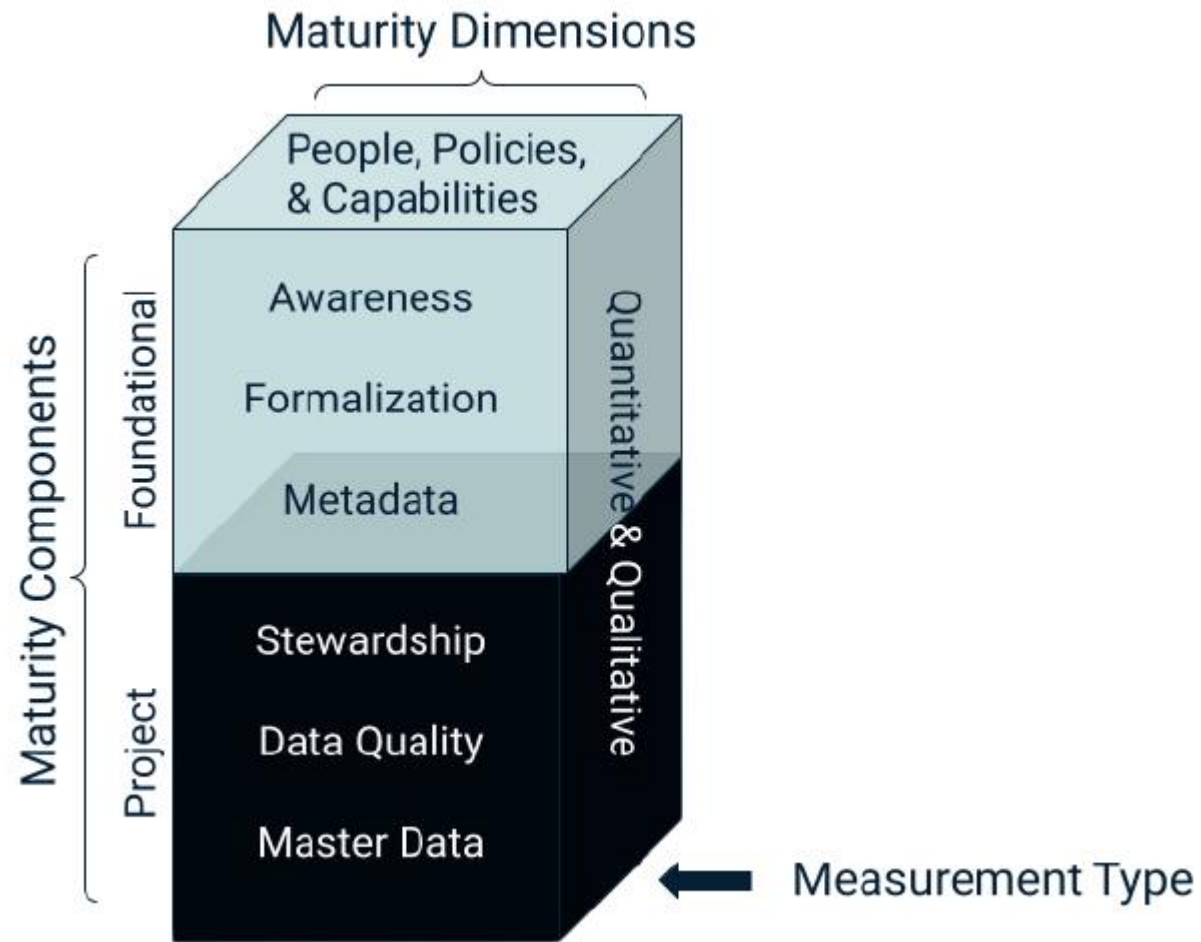
# Gartner's Enterprise Information Management Maturity Model



# Gartner's Enterprise Information Management Maturity Model

- This model consists of six maturity phases, each delineating unique attributes and actionable steps.
- Best suited for:
  - a Gartner customer who interested in assessing current maturity level, identifying areas for improvement, developing an EIM strategy, and measuring progress over time
- Benefits:
  - Uses a straightforward six-level scale to measure maturity
  - Provides clear action items to achieve improvements
  - Backed by research-based best practices and support
- Drawbacks:
  - Proprietary tool that requires a Gartner subscription, starting at \$30,000 per year
  - Effectiveness relies on continued subscription and Gartner's periodic updates and revisions

# Stanford's Data Governance Maturity Model



# Stanford's Data Governance Maturity Model

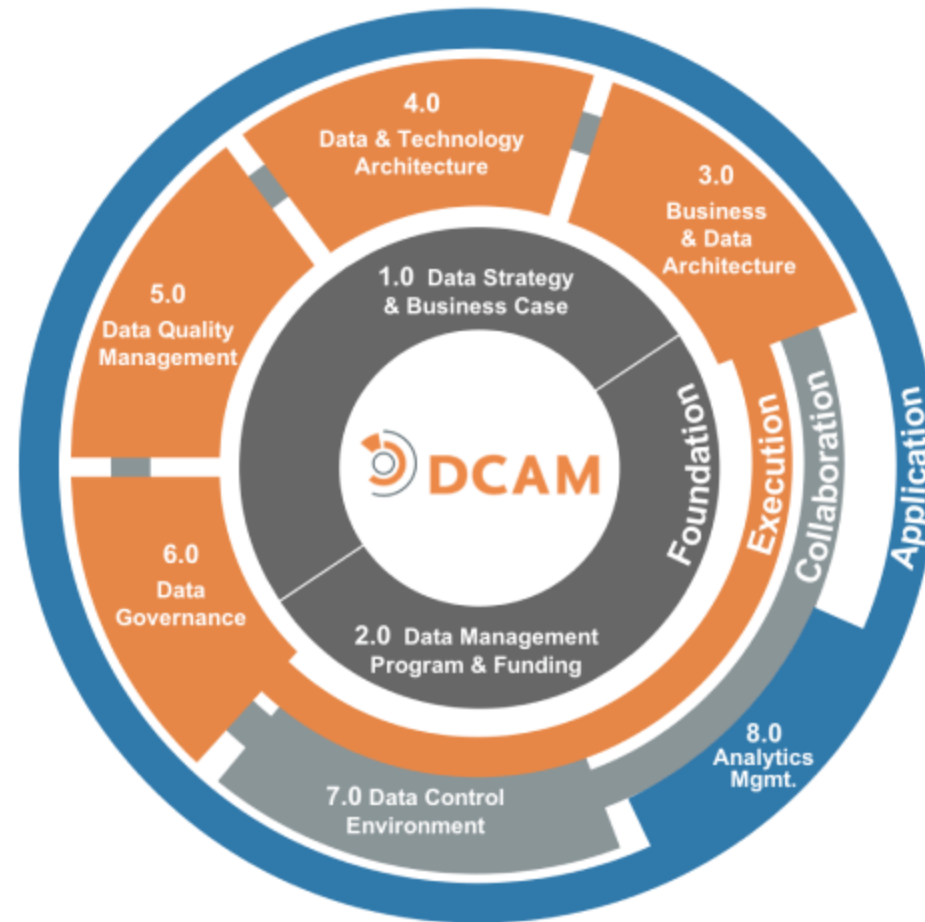
- It serves as a good example of a model that provides practical guidance.
- It focuses on Data Governance and separates the foundational competencies of this domain (awareness, formalization, and metadata) from project-related applications (such as stewardship, data quality, and master data).
- In each section, it helps explain what motivates people, policies, and capabilities.
- Best suited for:
  - an organization seeking to evaluate and enhance their Data Governance office



# Stanford's Data Governance Maturity Model

- Benefits:
  - Easy to understand and use
  - Practical and project-oriented
  - Adaptable to different organizational contexts, customizable to meet specific needs
- Drawbacks:
  - May be difficult to scale and inappropriate for more complex organizations
  - Specific focus on Data Governance may not be helpful for organizations that are seeking a broader assessment of Data Management capabilities
  - Lack of clear recommendations based on result of assessment
  - Limited information and lack of support

# EDM Council's Data Management Capability Assessment Model (DCAM)



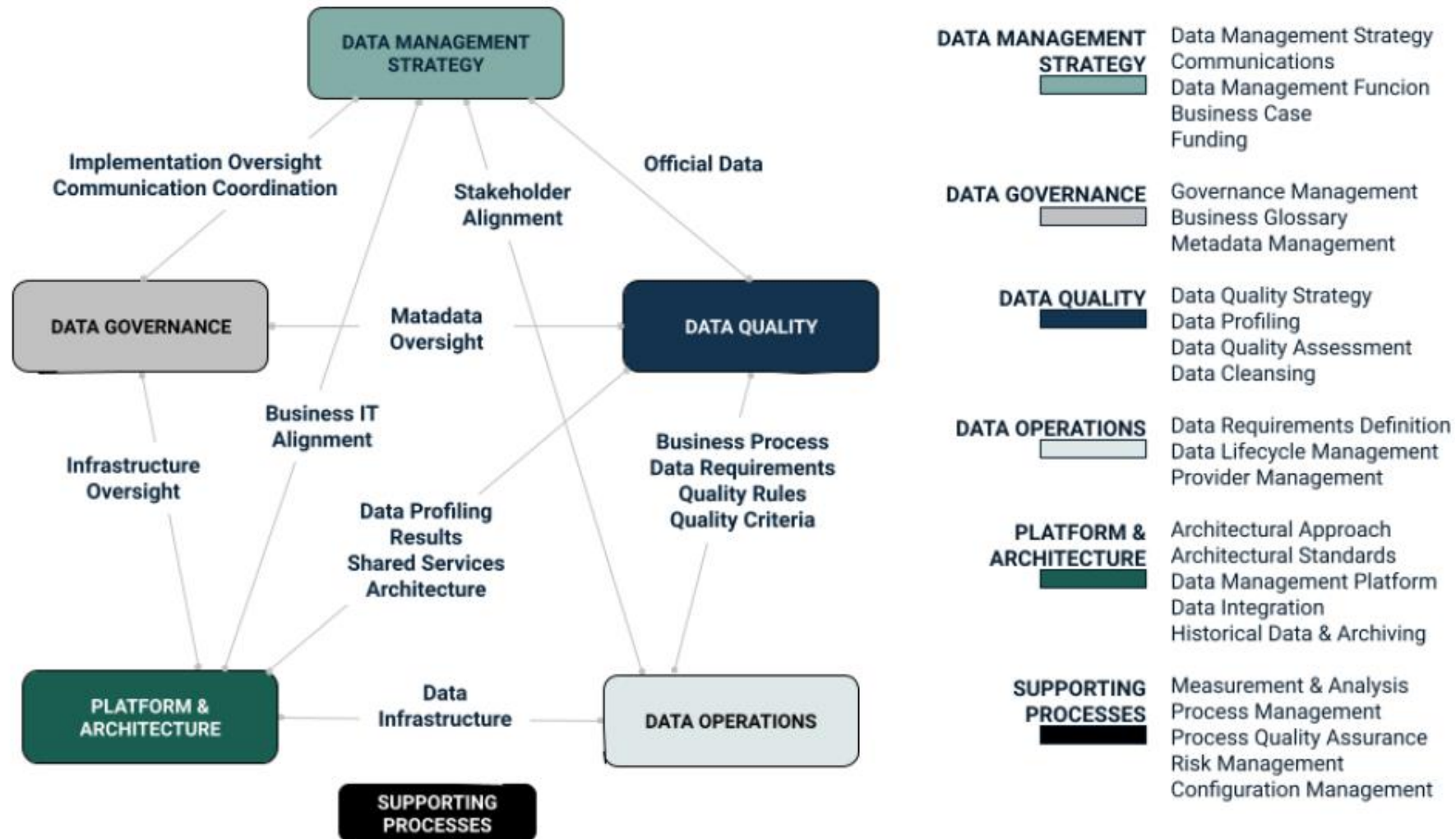
# EDM Council's Data Management Capability Assessment Model (DCAM)

- DCAM emerged as a framework for evaluating governance, quality, and architecture within data functions.
- The framework helps organizations to identify Data Management areas needing improvement.
- The DCAM framework is available for download and use exclusively by member firms of EDM Council for their in-house data management programs.
- DCAM Authorized Partners are also entitled to use DCAM in their client assessments and engagements.
- Best suited for:
  - an organization in the finance industry or another heavily regulated field, particularly one that may prefer support in assessment and implementation

# EDM Council's Data Management Capability Assessment Model (DCAM)

- Benefits:
  - Rigorous evaluation criteria
  - Benchmark Data Management practices against industry standards
  - Simplifies regulatory compliance
  - Potential support from DCAM-certified consultants
- Drawbacks:
  - Potential lack of adaptability outside financial institutions
  - May not be appropriate for assessing the capabilities of smaller organizations
  - Relatively complex with components, capabilities, and sub-capabilities
  - Access requires becoming or partnering with a member of EDM Council

# CMMI's Data Management Maturity (DMM) Model



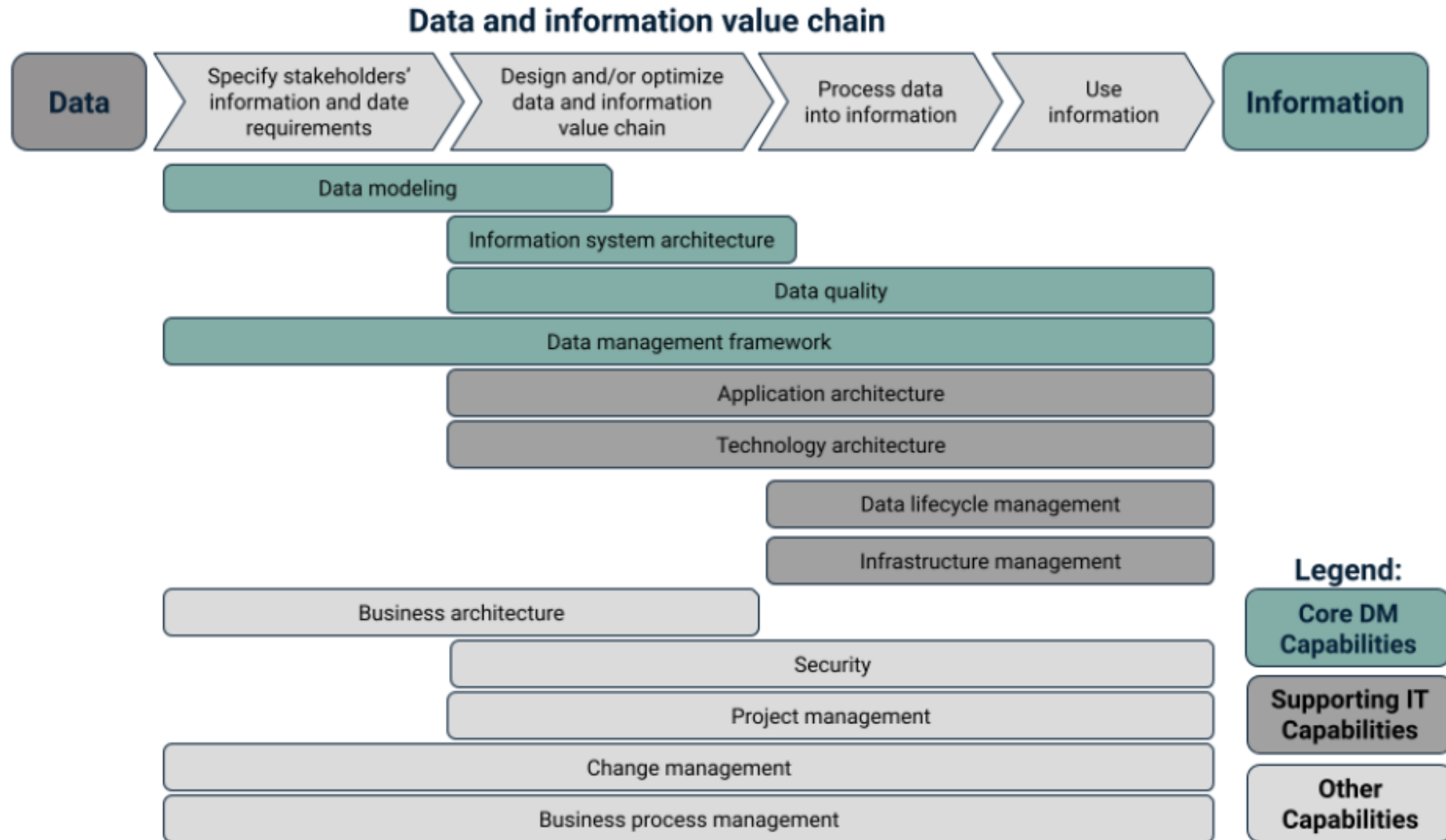
# CMMI's Data Management Maturity (DMM) Model

- This framework provides a structured approach, delineating maturity levels and domains for assessing Data Management practices.
- Its subsequent versions have evolved with technological advancements, gaining traction across various industries.
- DMM was discontinued in January 2022.
- It enables businesses to fortify Data Governance, adopt effective practices, and navigate complex data challenges, thereby demonstrating its ongoing relevance and adaptability.
- Best suited for:
  - an organization seeking to understand alternative methodologies to compare fundamental principles of different approaches

# CMMI's Data Management Maturity (DMM) Model

- Benefits:
  - Based on how organizations typically build their Data Management program
  - Scores are based on the scope of the organization, so this model scales well for small organizations
- Drawbacks:
  - No longer updated or supported by CMMI Institute

# Data Crossroads' "Orange" Data Management Framework (DMF)

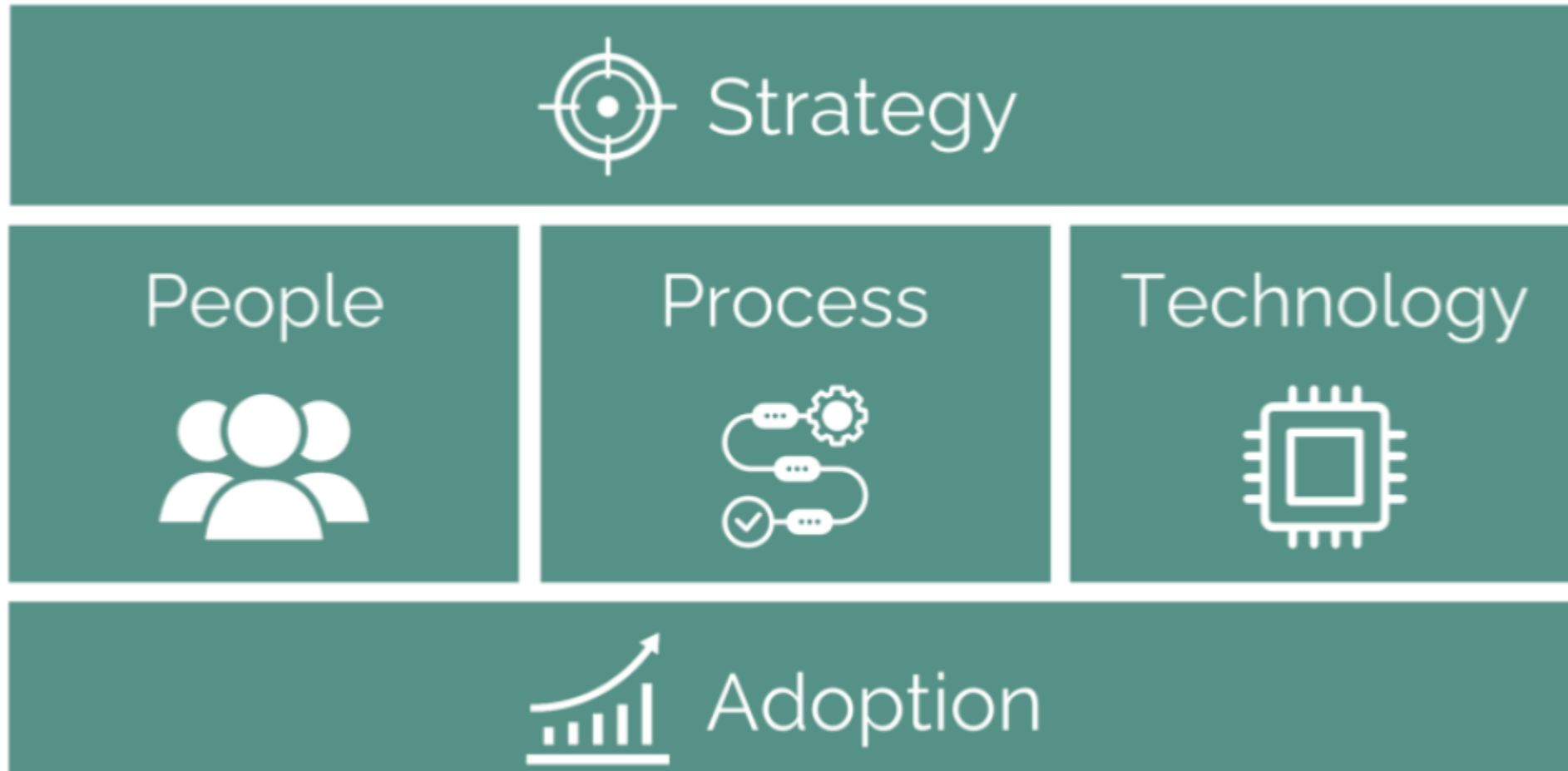




# Data Crossroads' "Orange" Data Management Framework (DMF)

- It is a combination of models, methods, and templates whose design has been informed by assessments of other common models such as DCAM to improve Data Management practices such as DMMAs.
- Best suited for:
  - particularly useful for an organizations seeking to implement Data Management function from scratch or develop a new Data Management sub-capability due to comprehensive nature of DMF approach
- Benefits:
  - Provides assessment of Data Management capabilities and maturity level
  - Supports implementation of Data Management function
  - Methodology to document data lineage and develop a knowledge graph of data assets
- Drawbacks:
  - Broad scope may be less useful for practitioners seeking a straightforward capability assessment

# ZS' Data Maturity Compass (DMC)



# ZS' Data Maturity Compass (DMC)

- The Data Maturity Compass (DMC) is a largely automated DMMA system that uses Generative AI, standard benchmarks, and best practices to streamline the assessment process within organizations.
- The DMC consists of three modules:
  - Input
  - Analysis
  - Insights
- Best suited for:
  - an organization ready for an automated approach to data management maturity assessment

# ZS' Data Maturity Compass (DMC)

- Benefits:

- Offers tailored recommendations in the form of strategic profiles
- Logical roadmap stages toward improvement auto-generated in real time
- Automated end-to-end process using cloud-native infrastructure that efficiently connects individual system components and automates key processes, reducing costs

- Drawbacks:

- Given the recent development of the model, there are limited customer reviews and a lack of proven effectiveness
- Reliance on complex automations could generate unexpected results

# Relevant Professional Certificates

- Certified Data Governance Professional (CDGP)
- Certified Data Manager (CDM)
- Certified Business Intelligence Analyst (CBIA)
- Certified Data Scientist (CDS)

# Certified Data Governance Professional (CDGP)

- The CDGP certification is designed for professionals who work in data governance, data management, data quality, data security, or related fields.
- To become a CDGP certified professional, you'll need to meet the following requirements:
  - Education: A bachelor's degree or higher in a related field (e.g., computer science, information systems, business administration).
  - Experience: A minimum of 2 years of experience in data governance, data management, or a related field.
  - Training: Completion of a DGPA-approved data governance training program or equivalent.
  - Exam: Pass the CDGP certification exam, which consists of 100 multiple-choice questions that test your knowledge and skills in data governance.
  - Continuing education: Complete ongoing professional development requirements to maintain your certification.

# Certified Data Governance Professional (CDGP)

- What is the CDGP certification exam like?
  - The CDGP certification exam is a 2-hour, multiple-choice exam that covers the following topics:
    - Data Governance Frameworks and Models
    - Data Quality Management
    - Data Security and Privacy
    - Data Management and Architecture
    - Data Governance Policies and Procedures
    - Data Governance Roles and Responsibilities
    - Data Governance Metrics and Reporting

# Certified Data Manager (CDM)

- CDM Certification Requirements:
  - Education: Bachelor's degree or higher in a related field (e.g., computer science, information systems, business administration).
  - Experience: Minimum 2 years of experience in data management or a related field.
  - Training: Completion of a DAMA-approved data management training program or equivalent.
  - Exam: Pass the CDM certification exam, which consists of 100 multiple-choice questions.
- CDM Certification Exam Topics:
  - Data Governance and Management
  - Data Architecture and Design
  - Data Security and Privacy
  - Data Quality and Integrity
  - Data Storage and Operations
  - Data Analytics and Reporting



# Certified Business Intelligence Analyst (CBIA)

- CBIA Certification Requirements:
  - Education: Bachelor's degree or higher in a related field (e.g., computer science, information systems, business administration).
  - Experience: Minimum 2 years of experience in business intelligence, data analysis, or a related field.
  - Training: Completion of a Business Intelligence Institute-approved training program or equivalent.
  - Exam: Pass the CBIA certification exam, which consists of 100 multiple-choice questions.
- CBIA Certification Exam Topics:
  - Data Analysis and Modeling
  - Data Visualization and Reporting
  - Business Analytics and Decision Support
  - Data Mining and Machine Learning
  - Business Intelligence Tools and Technologies

# Certified Data Scientist (CDS)

- CDS Certification Requirements:
  - Education: Bachelor's degree or higher in a related field (e.g., computer science, statistics, mathematics).
  - Experience: Minimum 2 years of experience in data science, data analysis, or a related field.
  - Training: Completion of a DASCAs-approved data science training program or equivalent.
  - Exam: Pass the CDS certification exam, which consists of 100 multiple-choice questions.
- CDS Certification Exam Topics:
  - Data Acquisition and Preparation
  - Data Analysis and Modeling
  - Data Visualization and Communication
  - Machine Learning and AI
  - Big Data and NoSQL Databases
  - Data Science Tools and Technologies