DAMA International

DAMA-DMBOK2 and CDMP

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DAMA-DMBOK2 Guide Production Editor,

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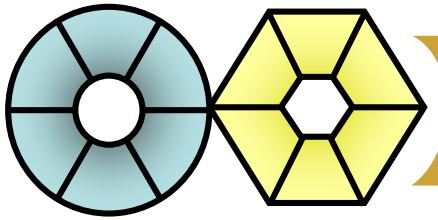
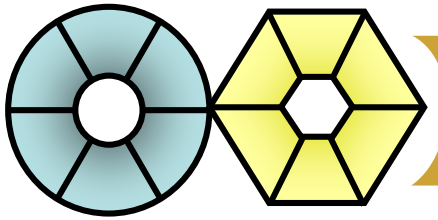


Agenda

- The DAMA-DMBOK2
- Data Management Overview
- Environmental Elements
- Knowledge Areas
- Additional Topics
- ICCP and Certification Testing

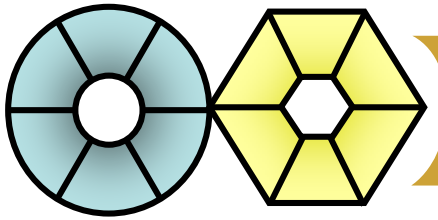
DAMA-DMBOK2 Purpose

The DAMA-DMBOK2 Guide is intended to be a definitive introduction to data management as it currently exists.



DAMA-DMBOK2 Goals

1. To build consensus for a generally applicable view of data management Knowledge Areas.
2. To provide standard definitions for commonly used data management Knowledge Areas, deliverables, roles, and other terminology.
3. To identify guiding principles for data management.
4. To overview commonly accepted good practices, widely adopted methods and techniques, and significant alternative approaches, without reference to specific technology vendors or their products.
5. To briefly identify common organizational and cultural issues.
6. To clarify the scope and boundaries of data management.
7. To guide readers to additional resources for further understanding.



DAMA-DMBOK2 Audience

- Certified and aspiring data management professionals.
- Other IT professionals working with data management professionals.
- Data stewards of all types.
- Executives with an interest in managing data as an enterprise asset.
- Knowledge workers developing an appreciation of data as an enterprise asset.
- Consultants assessing and helping improve client data management Knowledge Areas.
- Educators responsible for developing and delivering a data management curriculum.
- Researchers in the field of data management.

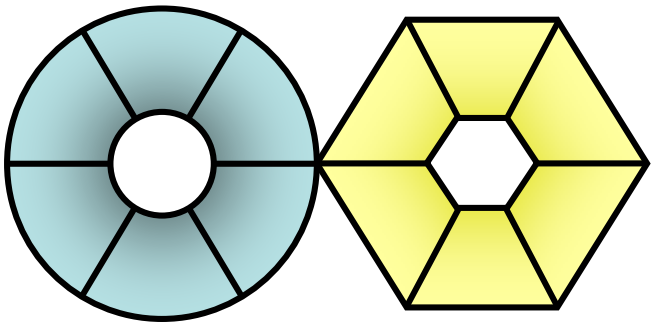
DAMA-DMBOK2 Uses

- Informing a diverse audience about the nature and importance of data management.
- Helping standardize terms and their meanings within the data management community.
- Helping data stewards and data management professionals understand their roles and responsibilities.
- Providing the basis for assessments of data management effectiveness and maturity.
- Guiding efforts to implement and improve their data management Knowledge Area.
- Pointing readers to additional sources of knowledge about data management.
- Guiding the development and delivery of data management curriculum content for higher education.
- Suggesting areas of further research in the field of data management.
- Helping data management professionals prepare for CDMP and CBIP exams.

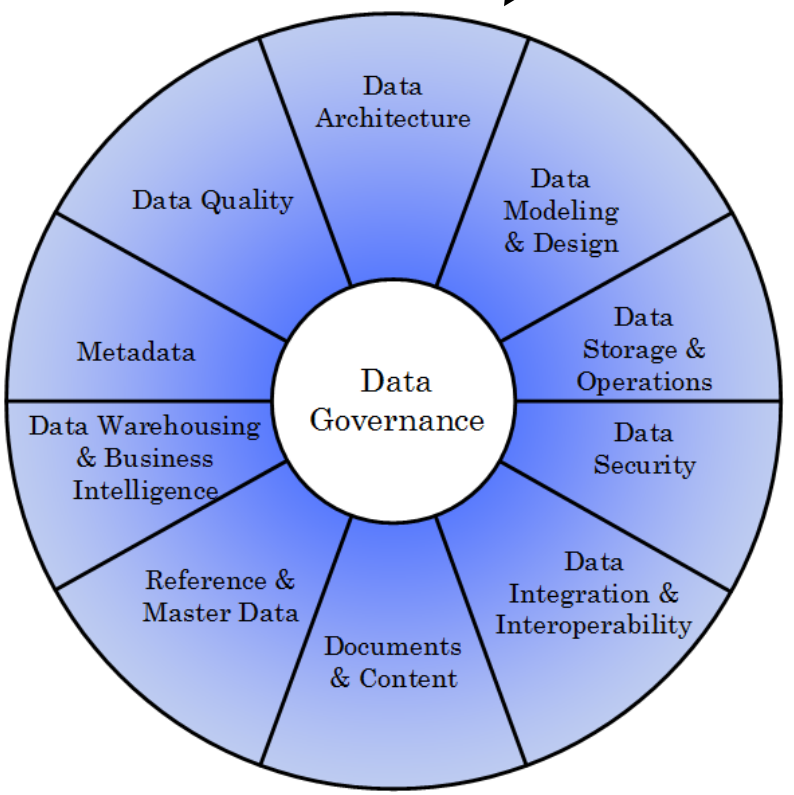
Other BOK Guides

- A Guide to the Project Management Body of Knowledge (PMBOK® Guide), published by the Project Management Institute (PMI®). PMI® is a professional organization for project managers.
- A Guide to the Software Engineering Body of Knowledge (SWEBOK), published by the Institute of Electrical and Electronic Engineers (IEEE).
- A Guide to the Enterprise Information Technology Body of Knowledge (EITBOK), soon to be available as a wiki, published by IEEE.
- The Business Analysis Body of Knowledge (BABOK), published by the International Institute of Business Analysis (IIBA).
- The Common Body of Knowledge (CBK) published by the International Information Systems Security Certification Consortium ((ISC).
- The Canadian Information Technology Body of Knowledge (CITBOK) is a project undertaken by the Canadian Information Processing Society (CIPS) to outline the knowledge required of a Canadian Information Technology Professional.

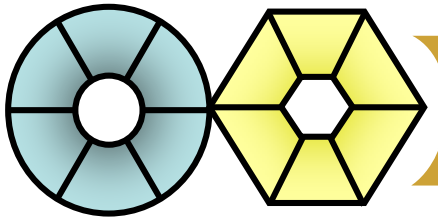
DAMA-DMBOK2 wheels



11 Data Management Knowledge



7 Environmental Elements

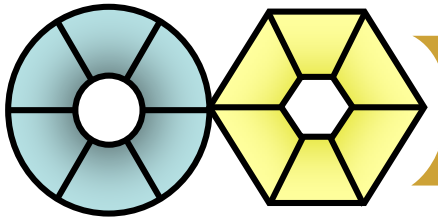


Goals and Principles:

The directional business goals of each knowledge area and the fundamental principles that guide performance of each Knowledge Area.

Goals also include Metrics to measure success.

- Data Management Program Metrics
- Data Value Metrics
- Data Quality Metrics



Environmental Elements

Activities:

Each knowledge area is composed of lower level activities. Some activities are grouped into sub-activities. Activities are further decomposed into tasks and steps.

1. Data Governance
2. Data Architecture
3. Data Modeling and Design
4. Data Storage and Operations
5. Data Security
6. Reference and Master Data
7. Data Warehousing and Business Intelligence
8. Data Integration and Interoperability
9. Documents and Content
10. Metadata
11. Data Quality

Deliverables:

The information and physical databases and documents created as interim and final outputs of each knowledge area. Some deliverables are essential, some are generally recommended, and others are optional depending on circumstances.

- Data Strategy
- Data Architecture
- Data Services
- Databases
- Data, Information, Knowledge, and Wisdom

Roles and Responsibilities:

The business and IT roles involved in performing and supervising the knowledge area , and the specific responsibilities of each role in that knowledge area. Some roles will participate in multiple Knowledge Areas.

Suppliers
Provide input into the Activities

Responsible
Performs the Activities

Consumers
Consumes output from the Activities

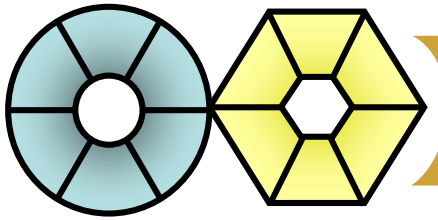
Stakeholder
Has an interest in, or gains a benefit from, the Activities

Practices and Techniques:

Common and popular methods and procedures used to perform the processes and produce the deliverables.

Practices and Techniques include

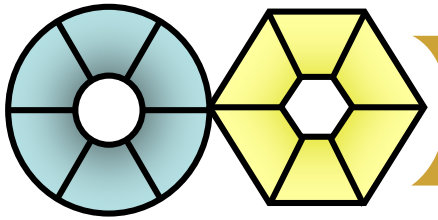
- common conventions,
- best practice recommendations, and
- alternative approaches without elaboration.



Toolsets:

Categories of supporting technology (primarily software tools), standards and protocols, product selection criteria and common learning curves. In accordance with DAMA International policies, specific vendors or products are not mentioned.

- Data Modeling Tools
- Database Management Systems
- Data Integration and Quality Tools
- Business Intelligence Tools
- Document Management Tools
- Metadata Repository Tools



Environmental Elements

Organization and Culture:

- Management Metrics – measures of size, effort, time, cost, quality, effectiveness, productivity, success, and business value.
- Critical Success Factors.
- Reporting Structures.
- Contracting Strategies.
- Budgeting and Related Resource Allocation Issues.
- Teamwork and Group Dynamics.
- Authority and Empowerment.
- Shared Values and Beliefs.
- Expectations and Attitudes.
- Personal Style and Preference Differences.
- Cultural Rites, Rituals and Symbols.
- Organizational Heritage.
- Change Management Recommendations.

Knowledge Areas (KAs)

1. Data Governance
2. Data Architecture
3. Data Modeling and Design
4. Data Storage and Operations
5. Data Security
6. Reference and Master Data
7. Data Warehousing and Business Intelligence
8. Data Integration and Interoperability
9. Documents and Content
10. Metadata
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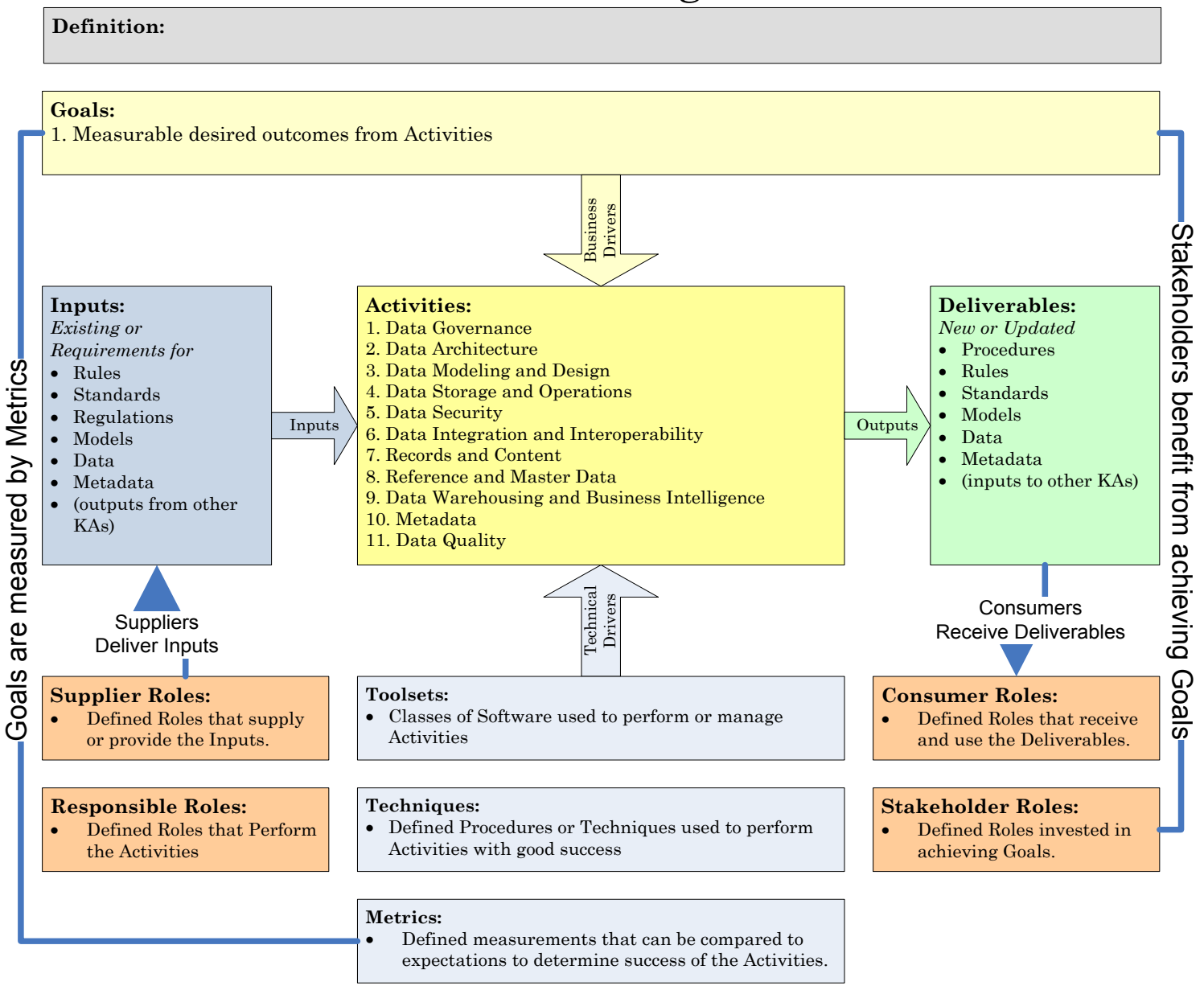
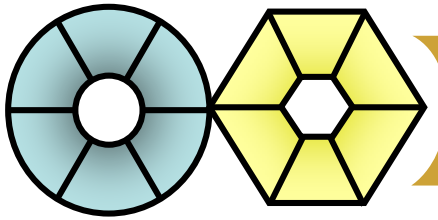
Knowledge Area Context

Context Diagram





Knowledge Area Context

Definition – What is the Knowledge Area?

Goals – What does the Knowledge Area accomplish? Why does the Knowledge Area exist?

Activities – What are the Knowledge Area's tasks that accomplish the goals?

Inputs – What do the Knowledge Area's tasks use?

Suppliers – Who provides the inputs to the Knowledge Area's tasks?

Responsible – Who is performs the Knowledge Area?

Tools – What tools do the Knowledge Area's tasks use?

Deliverables – What does the Knowledge Area deliver?

Consumers – Who uses the primary deliverables?

Stakeholders – Who has an interest in the Knowledge Area's success?

Metrics – What is used to measure the Knowledge Area's success?

Note: no where, how, when

Activity Groups:

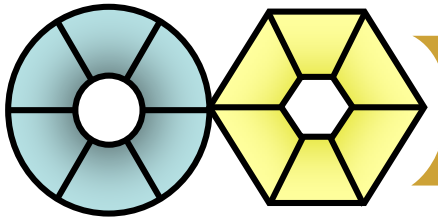
Each activity belongs to one of four Activity Groups:

- **Planning Activities (P)**
  Activities that set the strategic and tactical course for other data management activities. Planning activities may be performed on a recurring basis.
- **Development Activities (D)**
  Activities undertaken within implementation projects and recognized as part of the systems development lifecycle (SDLC), and creating data deliverables through analysis, design, building, testing, preparation, and deployment.
- **Control Activities (C)**
  Supervisory activities performed on an on-going basis.
- **Operational Activities (O)**
  Service and support activities performed on an on-going basis.

Data Management Overview

Definition: The planning, execution and oversight of policies, practices and projects that acquire, control, protect, deliver, and enhance the value of data and information assets.

Mission: To meet the data availability, quality, and security needs of all stakeholders.



Data Management

Goals:

1. To understand the information needs of the enterprise and all its stakeholders.
2. To capture, store, protect and ensure the integrity of data assets.
3. To continually improve the quality of data and information, including:
   - Data accuracy.
   - Data integrity.
   - Data integration.
   - The timeliness of data capture and presentation.
   - The relevance and usefulness of data.
   - The clarity and shared acceptance of data definitions.
4. To ensure privacy and confidentiality, and to prevent unauthorized or inappropriate use of data and information.
5. To maximize the effective use and value of data and information assets, by
   - Controlling the cost of data management.
   - Promoting a wider and deeper understanding of the value of data assets.
   - Managing information consistently across the enterprise.
   - Aligning data management efforts and technology with business needs.

Guiding Principles

1. Data and information are valuable enterprise assets.
2. Manage data and information carefully, like any other asset, by ensuring adequate quality, security, integrity, protection, availability, understanding, and effective use.
3. Share responsibility for data management between business data stewards (trustees of data assets) and data management professionals (expert custodians of data assets).
4. Data management is a business Knowledge Area and a set of related disciplines.
5. Data management is also an emerging and maturing profession with the IT field.

Data Management

Definition: The planning, execution and oversight of policies, practices and projects that acquire, control, protect, deliver, and enhance the value of data and information assets.

Goals:
1. To understand the information needs of the enterprise and all its stakeholders.
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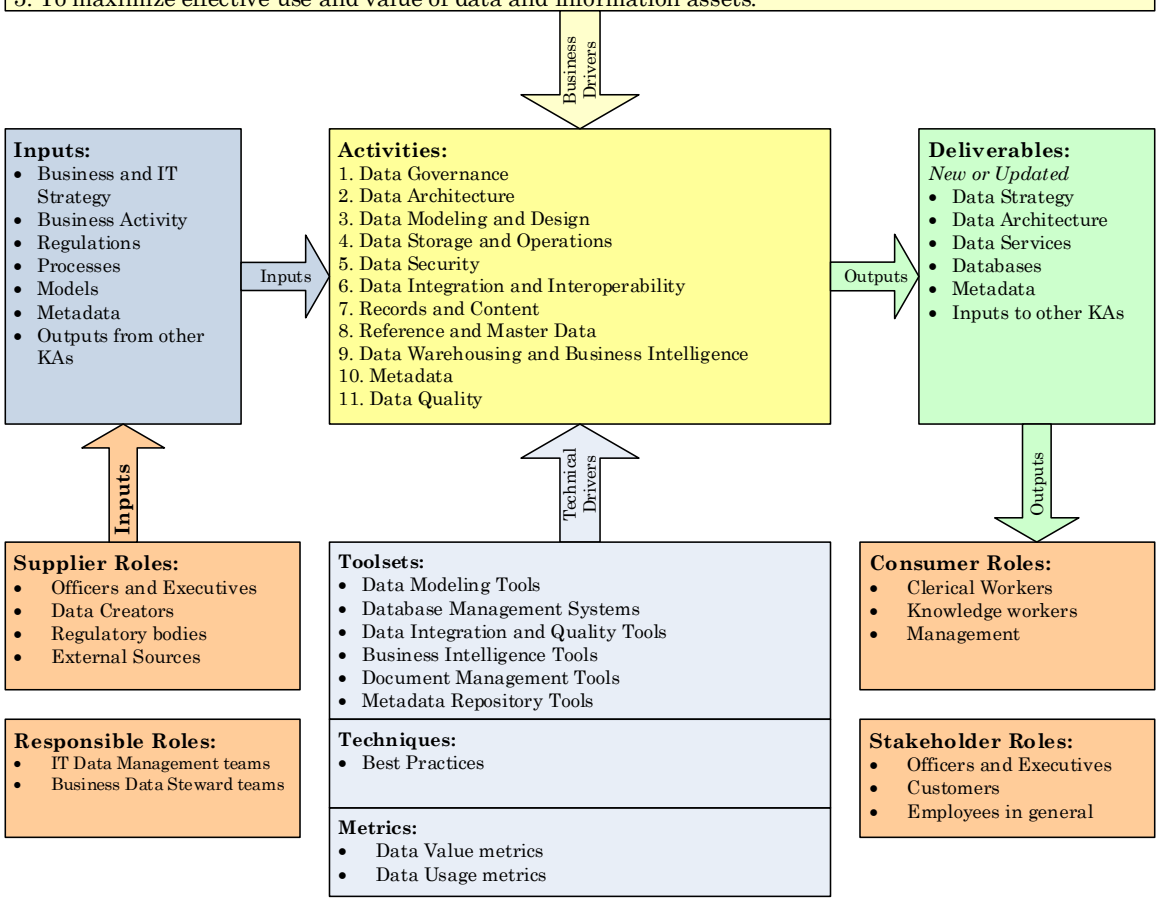

(P) Planning, (C) Control, (D) Development, (O) Operations

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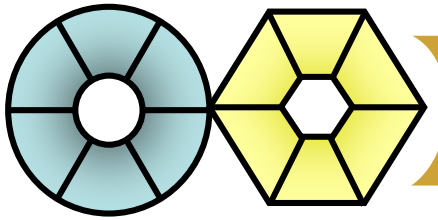


1. Data Governance

Planning, supervision and control over data management and use.

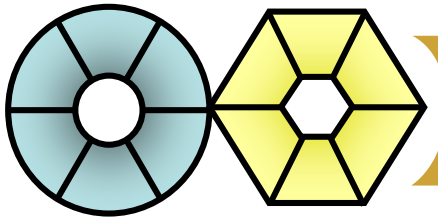
1.1 Data Governance and Stewardship

Goals

1. Define, approve, communicate, and implement principles, policies, procedures, metrics, tools, and responsibilities for data management.
2. Track and enforce compliance to regulatory and internal data policies.
3. Monitor and guide data usage and management activities.

Activities

1. (P) Define Data Governance for the organization
2. (P) Define the Operating Framework
3. (P) Create and implement data principles and policies
4. (P) Define roles
5. (O) Implement and sustain



1. Data Governance

Planning, supervision and control over data management and use.

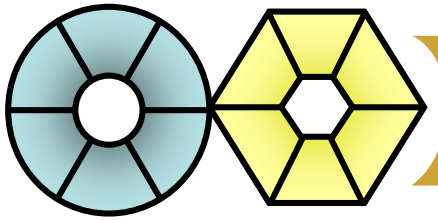
1.2 Business Cultural Development

Goals

1. To define a data-centric organization
2. To understand how business culture development supports data governance
3. To define change management activities that can support data management and business culture alignment
4. To highlight the need for communication and training in data management activities

Activities

1. (P) Create a data-centric organization
2. (D) Develop organizational touchpoints
3. (C) Develop data-centric culture controls



1. Data Governance

Planning, supervision and control over data management and use.

1.3 Data in the Cloud

Goals

1. Define, contract, implement, and monitor cloud based data management areas of programs.
2. Define implement/contract, monitor and report SLAs on internal and external data stores.

Activities

1. (P) Assess organizational readiness
2. (P) Define cloud and outsourcing requirements for the organization
3. (P) Define and (D) execute contracting requirements
4. (P) Select and (D) execute cloud infrastructure vendor environment
5. (D) Develop security rules and ETL/capture data change (CDC) code
6. (O) Operationalize cloud data activities
7. (C) Report on service monitoring

1. Data Governance

Planning, supervision and control over data management and use.

1.4 Data Handling Ethics

Goals

1. (P) Review Data-Handling Practices
2. (P) Develop the Ethical Data Handling Strategy
3. (D) Communicate and Educate Staff
4. (D) Address Practices Gaps
5. (C) Monitor and Maintain Alignment

Activities

1. (P) Review Data-Handling Practices
2. (P) Develop the Ethical Data Handling Strategy
3. (D) Communicate and Educate Staff
4. (D) Address Practices Gaps
5. (C) Monitor and Maintain Alignment

2. Data Architecture

Defining the blueprint for managing data assets.

Goals

1. Plan with vision and foresight to provide high quality data.
2. Identify and define common data requirements.
3. Design conceptual structures and plans to meet the current and long-term data requirements of the enterprise.

Activities

1. (P) Establish Enterprise Data Architecture
    1. Select Specific Reference Frameworks
    2. Adopt Specific Frameworks
    3. Work Within Enterprise Architecture
    4. Develop a Roadmap
    5. Enterprise vs Project Architecture Models
2. (C) Design and Implement Data Architecture

3. Data Modeling and Design

Data modeling is the process of discovering, analyzing, and scoping data requirements, and then representing and communicating these data requirements in a precise form called the "data model".

Goals

To confirm and document our understanding of different perspectives, which leads to applications that more closely align with current and future business requirements, and creates a foundation to successfully complete broad-scoped initiatives such as master data management and data governance programs.

Activities

1. (P) Plan for Data Modeling
2. (D) Build the Data Model
    1. Forward Engineering
    2. Reverse Engineering
3. (C) Review the Data Models
4. (O) Maintain the Data Models

4. Data Storage and Operations

The design, implementation, and support of stored data to maximize its value.

Goals

1. Manage availability of data throughout the data lifecycle
2. Ensure the integrity of data assets
3. Manage performance of data transactions

Activities

1. Database Technology Support
    1. (P) Understand Database Technology Characteristics
    2. (O) Manage and Monitor Database Technology
2. Database Operations Support
    1. (P) Understand Storage Requirements
    2. (P) Understand Usage Requirements
    3. (P) Understand Resiliency Requirements
    4. (P) Understand Access Requirements
    5. (D) Develop Storage Containers
    6. (C) Manage Database Access Controls
    7. (O) Manage Database Performance
    8. (O) Manage Data Migration

5. Data Security

Definition, planning, development, and execution of security policies and procedures to provide proper authentication, authorization, access, and auditing of data and information assets.

Goals

1. Enable appropriate, and prevent inappropriate, access to enterprise data assets.
2. Understand and comply with all relevant regulations and policies for privacy, protection, and confidentiality.
3. Ensure that the privacy and confidentiality needs of all stakeholders are enforced and audited.

Activities

1. (P) Identify Relevant Data Security Requirements
2. (C) Define Data Security Policy
3. (D) Define Data Security Standards
4. (P) Assess Current Security Risks
5. (O) Implement Data Security Controls and Procedures

6. Data Integration and Interoperability

Managing the movement and consolidation of data within and between applications and organizations.

Goals

1. Make data available in the format and timeframe needed by the consumer
2. Consolidate data physically and virtually into data hubs
3. Lower cost and complexity of solutions by using shared objects
4. Identify meaningful events and automatically trigger alerts and actions
5. Support business intelligence, analytics, master data management, and operational efficiency efforts

6. Data Integration and Interoperability

Managing the movement and consolidation of data within and between applications and organizations.

Activities

1. Data Interoperability
    1. Acquire
    2. Move
    3. Transform
    4. Integrate
2. Data Integration
    1. (P) Plan and Analyze
    2. (P) Design Data Integration Solutions
    3. (D) Develop Data Integration Solutions
    4. (O) Integrate and Interoperate Data
    5. (C) Monitor Data Movement Operation
3. Operational Intelligence Support
    1. Perform Predictive Analytics
    2. Perform Complex Event Processing

7. Documents and Content

Planning, implementation, and control activities for lifecycle management of data and information found in any form or medium.

Goals

1. To comply with legal obligations and customer expectations regarding Records management.
2. To ensure effective and efficient storage, retrieval, and use of Documents and Content.
3. To ensure integration capabilities between structured and unstructured Content.

Activities

1. (P) Develop records and content management strategies
2. (P) Understand records and content requirements
3. (P) Determine Information Architecture, Content and Semantic Models
4. (D) Define and Develop Content Organization
5. (D) Develop E-Discovery
6. (O) Capture and Manage Records and Content
7. (O) Retain, Dispose, and Archive Records and Content
8. (O) Publish and Deliver Content

8. Reference and Master Data

Managing shared data to reduce redundancy and ensure better data quality through standardized definition and use of data values.

Goals

1. Enable sharing of information assets across business domains and applications within an organization.
2. Provide authoritative source of reconciled and quality assessed master and reference data.
3. Lower cost and complexity through use of standards, common data models, and integration patterns.

Activities

1. (P) Identify Reference and Master Data Needs
2. (P) Determine Data Requirements
3. (C) Validate Data Definitions
4. (C) Evaluate Data Sources
5. (D) Establish Data Sharing/Integration Architecture
6. (D) Identify Trusted Reference and Master Data
7. Implement Data Sharing/Integration Services
    1. (D) Acquire Data Sources for Sharing
    2. (O) Publish Reference and Master Data

9. Data Warehousing and Business Intelligence

Planning, implementation, and control processes to provide decision support data and support knowledge workers engaged in reporting, query and analysis.

Goals

1. To support and enable effective business analysis and decision making by knowledge workers.
2. To build and maintain the environment and infrastructure to support business intelligence activity, specifically leveraging all data management Knowledge Areas to cost effectively deliver consistent integrated data for all BI activity.

Activities

1. (P) Understand Requirements
2. (P) Define and Maintain the DW / BI Architecture
3. (D) Implement Data Warehouses and Data Marts
4. (D) Populate the Data Warehouse
5. (D) Implement Business Intelligence Portfolio
6. (O) Maintain Data Products

10. Metadata

Planning, Implementation, and control activities to enable access to high quality, integrated metadata

Goals

1. Provide organizational understanding of business terms and usage
2. Collect and integrate metadata from diverse sources
3. Provide standard way to access the metadata
4. Ensure metadata quality and security

Activities

1. (P) Define the Metadata Strategy
2. (P) Understand Metadata Requirements
3. (P) Define Metadata Architecture
4. (D) Create MetaModel
5. (C) Apply Metadata Standards
6. (C) Manage Metadata Stores
7. (O) Create and Maintain Metadata
8. (O) Integrate Metadata
9. (O) Distribute and Deliver Metadata
10. (O) Query, Report and Analyze Metadata

11. Data Quality

The planning, implementation, and control activities that apply quality management techniques to data, in order to assure it is fit for consumption and business purpose(s).

Goals

1. Develop a governed approach to measurably improve the quality of data according to defined business rules.
2. Define requirements and specifications for integrating data quality control into the system development lifecycle.
3. Define and implement processes for measuring, monitoring, and reporting conformance to acceptable levels of data quality.

Activities

1. (P) Create a Data Quality Culture
2. (C) Perform Preliminary Data Quality Assessment
3. (P) Define Data Quality Requirements
4. (O) Assess Data Quality
5. (D) Develop and Deploy Data Quality Operations
6. (O) Measure and Monitor Data Quality

12. Additional Topics – Big Data and Data Science

The collection (Big Data) and analysis (Data Science, Analytics and Visualization) of many different types of data to find answers and insights for questions that are not known at the start of analysis.

Goals

1. Discover relationships between data and the business.
2. Support the iterative integration of data source(s) into the enterprise.
3. Discover and analyze new factors that might affect the business.
4. Publish data using visualization techniques in an appropriate, trusted, and ethical manner.

Activities

1. Find and load the data sources (source)
2. Prepare the data for analysis (ingest)
3. Develop data visualizations and analytics (store and process)
4. Expose data insights and findings (present)
5. Re-iterate with additional data sources (repeat)

13. Data Management Maturity

A method for categorizing and ranking the management of data to create an input into organizational capability improvement.

Goals

1. To establish prioritization and relevancy of data management capabilities.
2. To create a quantifiable input to organization priorities, resource allocation, and direction
3. To model expected outcomes based on change in targeted capabilities

Activities

1. (P) Plan the Assessment Activities
    1. Plan Communications
    2. Define Capabilities to Assess
    3. Acquire Comparative Benchmarks
2. (O) Perform Maturity Assessment
    1. Conduct Information Gathering
    2. Perform the Assessment
    3. Interpret the Results
3. (D) Develop Recommendations
4. (P) Create a Remediation Program
5. (O) Re-assess

14. Additional Topics

1. Professional Development and Certification
2. Business Data Requirement Development
3. Establishing Data Management Value
4. Communicating Data Management Value to the Business
5. Data Management Organizations and Role Expectations
6. Facilitation

ICCP

The Institute for Certification of Computing Professionals (iccp.org) is a non-profit society of Professional Associations. DAMA is one of the many member organizations.

ICCP manages testing for many certifications, CDMP (and CBIP for TDWI) being just a few.

ICCP provides testing opportunities at many conferences, such as EDW, DMZ, etc. Proctoring may also be privately arranged.

Test contents

Test questions have been developed by knowledge leaders to reflect real-world situations. There is no one source to study to guarantee passage of the tests – experience is the best source. These tests are designed so that academic learning by itself will not be sufficient to pass the test.

ICCP reviews each test's questions annually. It has multiple teams of test question reviewers who evaluate the currency and accuracy of questions, as well as the efficacy of each of the questions, based on statistics collected from each test taken. Each question result is compared to the self-evaluation for each test-taker (novice, intermediate, expert). Questions that seem to have trouble with particular segments are reviewed for accuracy, and modified if necessary. Modified questions are added to the test bank but are not counted toward a score until they are verified in the next review cycle.

ICCP and Certification

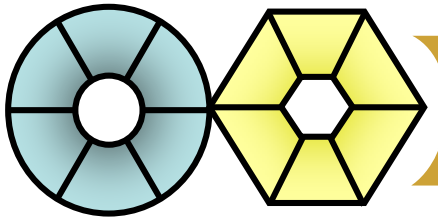
Certification has multiple requirements:

- Annual Ethics Code signature
- Education level
- Relevant Experience (may be substituted by higher education)
- Test results
  - 50% or higher is passing at Practitioner level
  - 70% or higher is passing at Mastery level
  - Passing all three exams with 70% or better earns Mastery level certification.

Certification has two levels:

Entry level – typically has no experience requirement

Professional level – has both experience and educational requirements



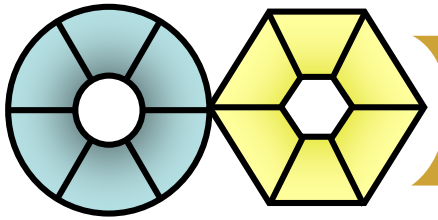
ICCP and Certification

CDMP certification has these requirements:

- Annual Ethics Code signature
- Relevant Experience (higher education may substitute)
- Test results for 3 tests
  1. Information Systems Core Examination
  2. Data Management Core Examination
  3. one Data Specialty Examination:
     - Database Administration
     - Systems Development
     - Data Warehousing
     - Business Intelligence & Analytics
     - Data & Information Quality
     - Data Governance and Stewardship
     - Systems Security
     - Zachman Enterprise Architecture Framework
     - Business Process Management

Costs:

Tests are $299 each, and fees are only due if the test is passed.



ICCP and Certification

ICCP also offers training for certification:

Self-study materials
Exam-cram online
Exam-cram onsite
Tutor-led online courses (12 weeks)
On-site training