

# **DAMA-DMBOK2**

## **Framework**

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## 1. About This Document

This document describes the DAMA-DMBOK2 Framework published by DAMA International to help formalize the best practices of our profession.

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## 1.1. Revision History

Version	Date	Author	Description
.1	November 10, 2010	Susan Earley	Restructured functions from 10 to 14, corrected meta data to metadata
.2	November 10, 2010	Robert Abate, Susan Earley	Revisions to Functional Wheel Scope and associated text.
.3	October 2011	Patricia Cupoli	Revisions to document organization and new sections written
.4	October 2011	Deborah Henderson	General Revisions
.5	October 2011	Susan Earley	General Revisions, merge multiple versions
.6	November 2011	Patricia Cupoli	Comments to resolve between multiple versions and added LinkedIn comments
.7	November 2011	Susan Earley	New context diagram and text updates, reordering of sections
8	November 18 2011	Deborah Henderson	General revisions
9	December 6, 2011	Susan Earley	Further refinement of document structure, new images, moved all references to changes from DMBOK 1 to end, added tables to show differences between this framework and DAMA-DMBOK 1 <sup>st</sup> edition.
10	December 30, 2011 – January 3, 2012	Patricia Cupoli	Edited document, added revised context diagram, removed tables to be used in actual DMBOK.
11	March 4 2012	Deborah Henderson	Grammar, obvious errors, enhanced, questions re "methods", roles, regulations, owners, diagrams and expanded some content outline . Added governance to each KA
12	March 9, 2012	Susan Earley	Revised diagrams.
13	March 20-22, 2012	Patricia Cupoli	Revised Section 5.2, expanded/corrected wording, added comments for discussion. Deleted Section 4.2 and last paragraph in Section 7.
14	March 24-25, 2012	DAMA-DMBOK2 Project Committee	Revisions done within Google Docs and transferred to this version.
15	April 23, 2012	Patricia Cupoli	Removed NEIMS – too USA centric
16	July 29-September 4, 2012	Susan Earley, Deborah Henderson	Commentary from review period
17	Sept. 11, 2012	DAMA-DMBOK2 Project Team	Went over Gordon Everest's comments and finalized Framework
18	March 6 2014	DAMA-DMBOK2 Project Team	Revised and updated according to editorial decisions

## 2. What is the DAMA-DMBOK Guide?

DAMA International's Guide to the Data Management Body of Knowledge (DAMA-DMBOK Guide) is a collection of processes and knowledge areas that are generally accepted as best practices within the Data Management discipline. Data Management is an overarching term that describes the processes used to plan, specify, enable, create, acquire, maintain, use, archive, retrieve, control, and purge data. These processes overlap and interact within each data management knowledge area (see section 4.1)

Data Management is vital to every organization. Whether known as Data Management, Data Resource Management, or Enterprise Information Management, organizations increasingly recognize that the data they possess is a valuable asset which must be managed properly to ensure success. Businesses, governments, and other organizations are more effective when they leverage their data assets.

Data Management is a maturing discipline. Data Management exists within a broader social context, and a broader landscape of technology adoption and use, community, and collaboration. Data Management concepts and supporting technology have evolved quickly over the last thirty years, and continue to evolve.

Creating a formal, certified, recognized, and respected data management discipline is not an easy task. The current environment can be a confusing combination of terms, methods, tools, opinion, and hype. To mature this discipline, DAMA International's Guide to the Data Management Body of Knowledge (DAMA-DMBOK) provides concepts and capability maturity models for the standardization of:

- Activities, processes, and best practices
- Roles and responsibilities
- Deliverables and metrics
- A maturity model

Standardization of data management disciplines will help data management professionals perform more effectively and consistently. Executives, in particular, need to understand and assign value to data management activities, in order to fully support, fund, and staff the data management function. Moreover, standardization will also help us communicate with our teammates, managers, and executives, and ubiquitous use will elevate Data Management into a formal discipline around the world.

## 3. Introduction to the DAMA-DMBOK2 Guide

### 3.1. History

The DAMA Data Management Body of Knowledge (DAMA-DMBOK) has undergone an evolution over the years. It began as the Guidelines for Implementing Data Resource Management in 1991. It was published by DAMA International in various forms through four versions in collaboration with DAMA Chicago.

DAMA International published The DAMA Guide to the Data Management Body of Knowledge (DAMA-DMBOK Guide, 1<sup>st</sup> edition) in 2009. The DAMA-DMBOK Guide was in development for several years as a complete overhaul of the earlier Guidelines document. A Framework ‘white paper’ was written and floated to the data management community for comment and input, and became the basis for the first publication. Full DAMA-DMBOK Guide text development proceeded with input from contributing authors, the DAMA-DMBOK Guide editors, DAMA-DMBOK Guide Editorial Board, and over 120 DAMA member reviewers.

In preparation for the 2<sup>nd</sup> edition (hereafter referred to as DAMA-DMBOK2), input on existing and proposed content has been collected from DAMA chapter members and Enterprise Data World conference sessions.

The DAMA Dictionary of Data Management is now in its 2<sup>nd</sup> edition and was published in April 2011 containing almost 2000 terms, including terms from the DAMA Certified Data Management Professional (CDMP) exams administered by the Institute for the Certification of Computing Professionals (ICCP). It is aligned to the terms in the DAMA-DMBOK 1<sup>st</sup> edition and is the glossary for the DAMA-DMBOK2 Guide.

### 3.2. Purpose of a Framework Outline

The Framework Outline for the Data Management Body of Knowledge 2<sup>nd</sup> edition (DAMA-DMBOK2) described here aims to provide the proposed structure and outline of content for organizing the second edition of the DAMA-DMBOK2 document. In order to ensure the work is an accurate reflection of the profession, it is essential to gain community consensus for the Framework that becomes the foundation of the document.

### 3.3. Purpose of the Guide

The DAMA-DMBOK2 Guide will continue the 1<sup>st</sup> edition philosophy of offering DAMA standardization of Data Management guidelines, characteristics, and active practices. It will cover the WHAT, WHO and WHY of Data Management and its various knowledge areas. It will be modeled after other professional organizations’ Bodies of Knowledge (BOKs) such as PMI’s PMBOK (Project Management BOK), and IEEE’s SWEBOK (Software Engineering BOK).

DAMA-DMBOK2 Guide expands the ‘environmental elements’ (section 4.2.3). The first edition was more concerned with outlining the functions of data management. This edition will ‘close

the loop'. These elements, along with the context diagram and activity groups, describe the data management processes and activities that are involved in a knowledge area.

The entire body of knowledge about data management is quite large and constantly growing. The DAMA-DMBOK2 Guide is intended to provide a definitive introduction to that body of knowledge. It presents a standard industry view of data management knowledge areas, terminology, and common best practices, without going into implementation details. The DAMA-DMBOK2 Guide introduces alternative views and industry accepted approaches where clear differences of opinion exist.

The DAMA-DMBOK2 Guide should not be read as an attempt to be a complete authority on any specific data management knowledge area. Instead, it points readers to widely recognized publications, articles, and other resources for further reading on the HOW-TO methods and implementation details. DAMA also encourages communities of practice discussions on the topics presented.

### **3.4. Goals**

The goals of the DAMA-DMBOK2 Guide are:

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, in conjunction with the DAMA Dictionary of Data Management, and thus, to move the Data Management Community towards standardization on concepts and activities.
3. To identify guiding principles for data management.
4. To clarify the scope and boundaries of data management activities.
5. To provide an overview of commonly accepted good practices, widely adopted techniques, and significant alternative approaches, without reference to specific technology vendors or their products.
6. To provide common organizational and cultural issues.
7. To identify strategies for data management maturity analysis.
8. To provide additional resources and reference material for further understanding of data management.

### **3.5. Audience**

The audiences for DAMA-DMBOK2 Guide will be similar to the audiences for the 1<sup>st</sup> edition including:

- Certified and aspiring data management professionals.
- Other Information Technology (IT) professionals working with data management professionals.
- Data stewards at all levels.
- Executives with an interest in managing data as an enterprise asset.



- Knowledge workers developing an appreciation of data as an enterprise asset.
- Consultants conducting assessments of client data management areas and helping to implement and improve data management at these clients.
- Educators responsible for developing and delivering a data management curriculum.
- Researchers in the field of data management.

### **3.6. Potential Uses**

DAMA foresees several potential uses of the DAMA-DMBOK2 Guide, including:

- Informing a diverse audience about the nature and importance of data management.
- Helping build consensus within the data management community.
- Helping data stewards, data owners, and data professionals understand their responsibilities.
- Providing the basis for assessments of data management effectiveness and maturity.
- Guiding efforts to implement and improve data management knowledge areas.
- Educating students, new hires, practitioners and executives on data management knowledge areas.
- 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 Certified Data Management Professional (CDMP) data exams.
- Assisting organizations in defining their enterprise data strategy.

## **4. Proposed Framework**

### **4.1. Knowledge Areas**

In the 1<sup>st</sup> edition of the DAMA-DMBOK Guide, Data Management was described as a function that is also known as a high level business process or the name of the program. This process was captured in 10 functions and associated activities.

In the DAMA-DMBOK2 Guide, we are emphasizing ‘knowledge areas’ rather than ‘functions’. A knowledge area is a category of specialization. It could be made up of one or more topics, which will be handled in separate sections.

DAMA International defines 11 knowledge areas covering core areas in the DAMA-DMBOK2 Guide for performing data management. Each knowledge area has section topics that logically group activities. There is also an additional Data Management section containing topics that describe the knowledge requirements for data management professionals. The new Knowledge area is Data Integration and Interoperability.

Based on received input, the DAMA-DMBOK2 Guide will use this revised Data Management knowledge area wheel (Figure 1):

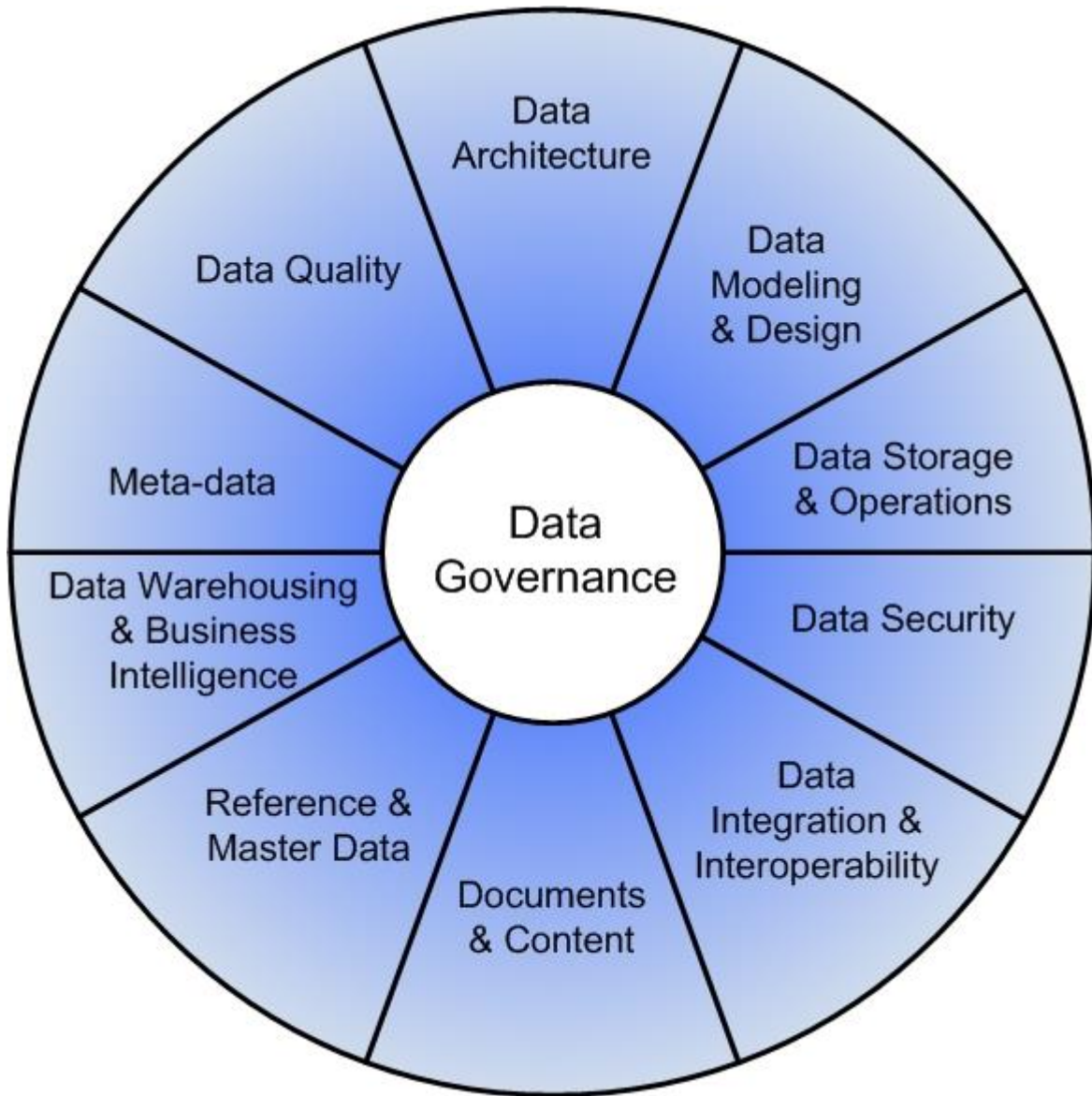


Figure 1. The DAMA-DMBOK2 Guide Knowledge Area Wheel

The 11 Data Management Knowledge Areas are:

- **Data Governance** – planning, oversight, and control over management of data and the use of data and data-related resources. While we understand that governance covers ‘processes’, not ‘things’, the common term for Data Management Governance is Data Governance, and so we will use this term.
- **Data Architecture** – the overall structure of data and data-related resources as an integral part of the enterprise architecture
- **Data Modeling & Design** – analysis, design, building, testing, and maintenance (was Data Development in the DAMA-DMBOK 1<sup>st</sup> edition)
- **Data Storage & Operations** – structured physical data assets storage deployment and management (was Data Operations in the DAMA-DMBOK 1<sup>st</sup> edition)
- **Data Security** – ensuring privacy, confidentiality and appropriate access
- **Data Integration & Interoperability** – acquisition, extraction, transformation, movement, delivery, replication, federation, virtualization and operational support ( a Knowledge Area new in DMBOK2)
- **Documents & Content** – storing, protecting, indexing, and enabling access to data found in unstructured sources (electronic files and physical records), and making this data available for integration and interoperability with structured (database) data.
- **Reference & Master Data** – Managing shared data to reduce redundancy and ensure better data quality through standardized definition and use of data values.
- **Data Warehousing & Business Intelligence** – managing analytical data processing and enabling access to decision support data for reporting and analysis
- **Metadata** – collecting, categorizing, maintaining, integrating, controlling, managing, and delivering metadata
- **Data Quality** – defining, monitoring, maintaining data integrity, and improving data quality

#### ***4.1.1. Context Diagrams***

Each knowledge area has a context diagram that outlines and frames the scope of that area. The diagram format is more tailored to describing the processes in terms of inputs (documents and plans), outputs (documents and products), business drivers (goals, regulations, and standards), tools and techniques. The roles in a context diagram will take on RACI (Responsible, Approver/Accountability, Consult and Inform) responsibilities depending on activities.

Goals will be reworded to be SMART (Specific, Measurable, Achievable/Attainable, Realistic, and Timely), and matched to metrics. Regulations and Industry Standards will be moved from Inputs into new categories. Metrics will be enhanced.

The Participants section from the DAMA-DMBOK Guide is split in DAMA-DMBOK2 into Responsible Roles (responsible for performing an activity) and Stakeholder Roles (consulted or

informed by in a Process). Primary Deliverables are renamed Deliverables, as they were not listed with any contrasting secondary deliverables.

Because Responsibility Assignment Matrices (RACI) are organization- and situation-specific, we will not explore roles to that level of detail in the DAMA-DMBOK2, although RACI matrices are mentioned at a high level in Chapter 16, Section 5.

Finally, the level of detail on the diagrams will be kept to a very high level, consistent with an overview, and consistent across knowledge areas. The text will provide more detail.

Each context diagram includes:

- *Definition*: A concise description of the Knowledge Area.
- *Goals*: The desired outcomes of the Knowledge Area within this Topic.
- *Process*: The list of discrete activities and sub-activities to be performed, with activity group indicators.
- *Inputs*: What documents or raw materials are directly necessary for a Process to initiate or continue?
- *Supplier Roles*: Roles and/or teams that supply the Inputs to the Process.
- *Responsible Roles*: Roles and/or teams that perform the Process.
- *Stakeholder Roles*: Roles and/or teams Informed or Consulted on the Process execution.
- *Tools*: Technology types used by the Process to perform the Function.
- *Deliverables*: What is directly produced by the Processes?
- *Consumer Roles*: Roles and/or teams that expect and receive the Deliverables.
- *Metrics*: Measurements that quantify the success of Processes based on the Goals

Figure 2 is an example of what the context diagram for a knowledge area would contain. If appropriate, a sub-topic section of a knowledge area may have its own context diagram for clarity.

# Knowledge Area

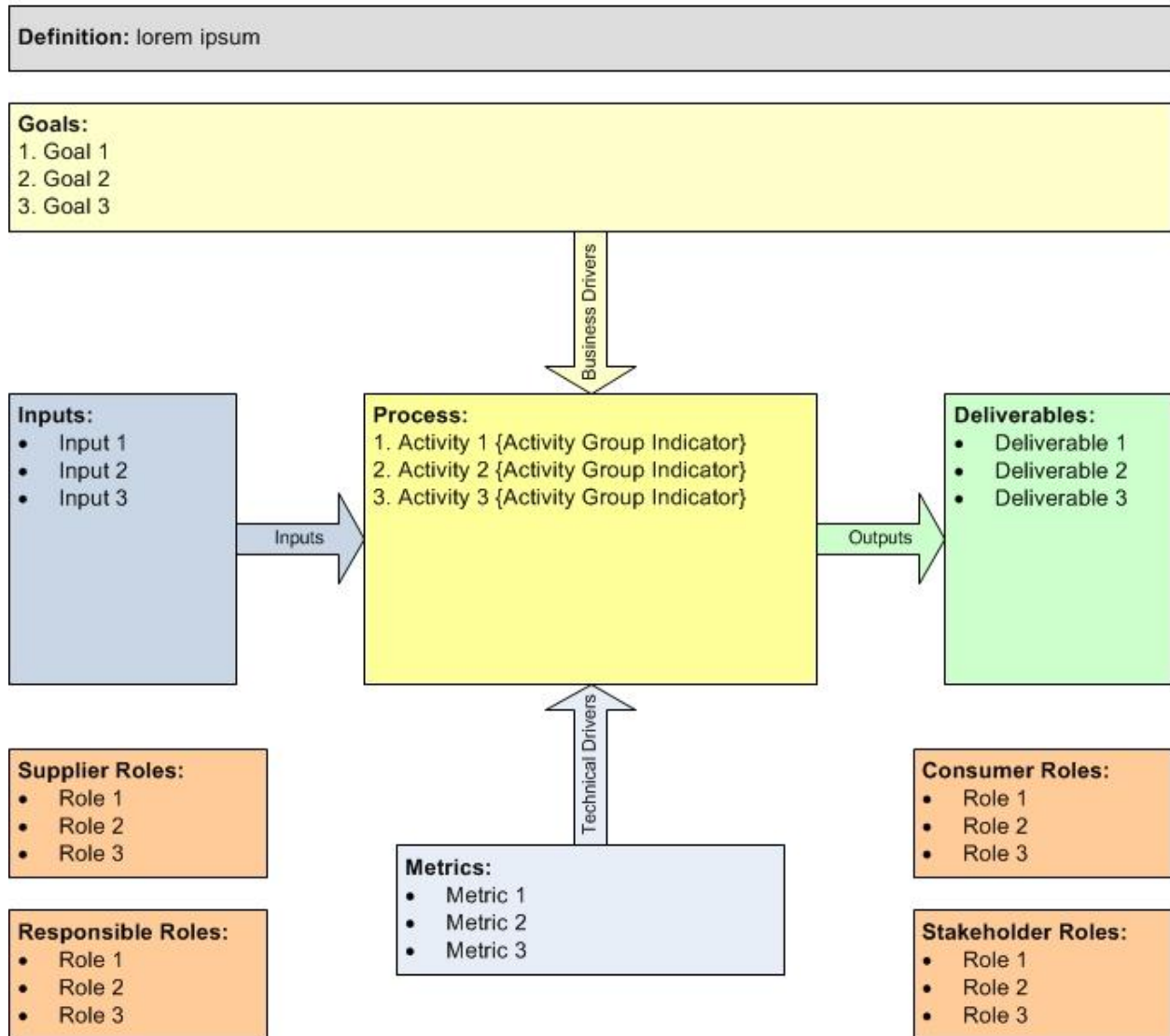


Figure 2. Knowledge Area Context Diagram Format

### 4.1.2. Activity Groups

In the center of each context diagram, there is a box listing the processes for that knowledge area and topic.

Each process has activities classified as belonging to one of four Activity Groups:

- **Planning Activities (P)** High level or supervisory activities that set the strategic and tactical course for other data management activities. Planning activities may be performed on an **iterative** basis.
- **Control Activities (C)** Oversight activities performed on an **on-going** basis, with frequency determined by business needs.
- **Development Activities (D)** Activities undertaken within projects and recognized as part of the systems development lifecycle (SDLC), creating data deliverables through analysis, design, building, testing, and deployment, may be performed on an **iterative** basis.
- **Operational Activities (O)** Service, support, and maintenance activities performed on an **on-going** basis, with frequency determined by business needs.

Below is an overview of the work profile for the four Activity Groups

	<b>Iterative</b>	<b>On-going</b>
Oversight	Planning (P)	Control (C)
Attention to Detail	Development (D)	Operational (O)

### 4.1.3. Environmental Elements

The seven Environmental Elements provide a logical and consistent way to describe each knowledge area.

The Framework identifies the following seven elements consistent with DAMA-DMBOK Guide version 1. Each Element now has an additional type descriptor: People, Process, or Technology.



Figure 3. Environmental Elements

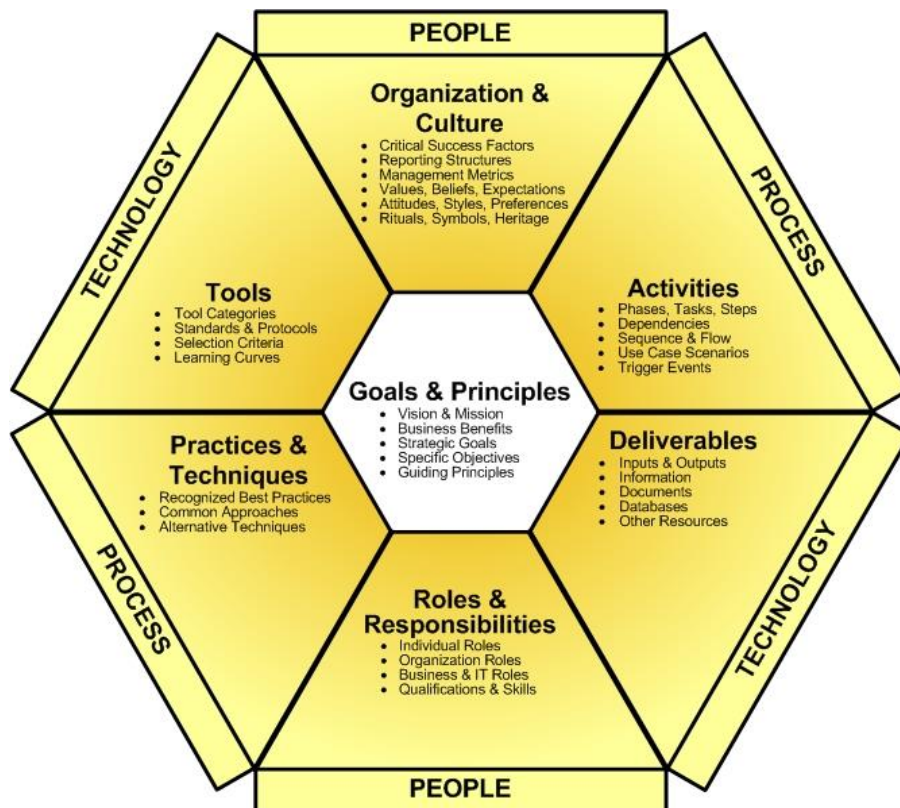


Figure 4. Environmental Elements – Scope Detail

Environment Elements relate to the Knowledge Area Context Diagrams and Activity Groups in the following way:

<b>Environment Elements</b>	<b>Knowledge Area Context Diagrams</b>	<b>Activity Groups</b>
	Definition	
Goals & Principles	Goals	Planning
Activities	Process	Activity Indicators or Classifications
Deliverables	Inputs & Deliverables	All activities
Roles & Responsibilities	Supplier Role Responsible Role Consumer Role Stakeholder Role	All activities
Practices & Techniques	Techniques & Metrics	All activities
Tools	Toolsets	Possibly involve all Activities
Organization & Culture		All activities



## 5. DAMA-DMBOK2 Guide Structure

This framework document describes the structure of the DAMA-DMBOK2 Guide in two main parts: the Book outline and the Chapter outline.

Within the Book are multiple chapters. Section 5.1 describes all the chapters. The content of chapters 4 through 14 (the Knowledge Area chapters) will follow a pattern that is described in section 5.2.

### 5.1. Outline

The proposed outline is as follows below. Bulleted items under each chapter and section are provided to clarify the content; however, they are not necessarily inclusive, exhaustive, or in any particular order.

Foreword

Preface

Acknowledgements

#### Chapter 1: Introduction

Body of Knowledge (BOK) Framework overview

- Vision Statement
- Scope of this BOK – what has changed since DAMA-DMBOK Guide 1<sup>st</sup> edition
- Overlap/Interface with other BOKs and standards frameworks (e.g., ANSI)

#### Chapter 2: Use of the DAMA-DMBOK2 Guide

Case Studies

#### Chapter 3: Overall Process: Data Management

- Data vs. Information
- Core Concepts :
  - Knowledge Area overview
  - Environmental Elements overview
- Knowledge Areas and Value
- Data Management Strategy

The core Knowledge Area chapters follow. Below are the general outlines for each chapter. Bullets under sections signify topics to be covered within that section, in no particular order.

#### Chapter 4: Knowledge Area: Data Governance

##### Section 1 = Data Governance

- Data Governance - as oversight for all data management, moving towards a unified theory of data management strategy and control (also included within chapters as a focus for each knowledge area)

Context: Relationship to Information Governance, IT Governance, IT Service Management, Business Management, PMO, Business Operations, and Risk Management

- Stewardship, and Ownership
- Data valuation Return on Investment
- Data Governance and Government Sector
- Operationalizing Data Governance
  - Governance respository

##### Section 2 = Overall Data Management Maturity Model

- Maturity benchmarking
- Maturity development (targets and activities)
- Data audits

##### Section 3 = Business Cultural Development

- Explaining relationships between business process, data architecture, data models, and databases.
- SDLC incorporation in various methodologies such as waterfall and agile
- Change management inclusion
- Communication challenges

##### Section 4 = Data in a Cloud

##### Section 5 = Ethics

#### Chapter 5: Knowledge Area: Data Architecture

Note: Specific architectures for knowledge areas are included in those knowledge areas.

##### Section 1 = Enterprise Data Architecture

- General Frameworks: Zachman Framework for Enterprise Architecture
- Specific Frameworks
- Working within Enterprise Architecture (Information vs. Infrastructure, Business, and Application, specialized architectures (e.g., network))

##### Section 2 = Data Architecture Implementation

- Roadmap Development (Strategy, Scope, Implementation, Risk Assessment)
- Enterprise architecture models vs. project architecture models
- Data in the Cloud
- Open Data
- Linked data architecture
- Semantic data architecture (Resource Description Framework (RDF), reference data)

- Data as a Service (See Data Integration & Interoperability)
  - Mobile Data
- Web data architecture (aka information architecture)

#### Section 3 = Big Data Architecture

- Big data analytics – See also Data Warehouse & Business Intelligence
- Big data modeling – See also Data Modeling & Design
- File storage systems (Hadoop, big data), No SQL – See also Data Storage & Operations

#### Data Architecture Governance:

- Standard data architectures, compliance through project execution
- Metrics
- Government Regulations and Industry Standards Alignment to Business Architecture

### Chapter 6: Knowledge Area: Data Modeling & Design

#### Section 1 = Modeling Techniques Overview

- Relational
- Entity-Relationship and Object modeling
- Object-Role Modeling / Fact-Oriented Modeling / Natural Language Information Analysis Method (ORM / FOM / NIAM)
- Object Oriented
- Data Warehouse modeling (star, snowflake, outrigger)
- Semantic modeling and Resource Description Framework (RDF)
- Master Data modeling – (See also Reference & Master Data)

#### Section 2 = Conceptual/Logical Modeling

- Data requirements analysis, data flow diagrams, source-to-target mappings
- New and Existing model analysis and integration
- Data Profiling as it relates to validation of logical models - interrogation and verification of the data behavior (See also Data Quality, Data Warehousing & Business Intelligence, Data Integration & Interoperability, and Reference & Master Data)
- Logical modeling requirements
- Normalization Discussion (1<sup>st</sup> through 6<sup>th</sup>, other)
- Modeling techniques for model expansion
- Industry standard models
- Fully Communication Oriented – Information Modeling (FCO-IM)
- Logical Modeling for Data as a Service (DaaS)
- Creating a Logical Model from Physical Models

#### Section 3 = Physical Modeling

- Conversion of Logical Models to Physical Models
- Designing for physical database characteristics
- De-normalization Discussion
- Data Vault Overview (modeling, hub, link, satellite)
- Non-normalized-Storage Modeling Discussion
- Historical Data Retention Designs, including partitioning

- Distributed designs
  - Big Data
  - Columnar database modeling
  - Canonical XML schema/Electronic Data Exchange
  - Semi-structured/unstructured data modeling
- Issues in:
- Views or model?
  - Indexing (map reduce approach, traditional Online Transaction Processing, hash) leading edge discussions here on retrieval issues and solutions
  - Referential integrity enforcement
- Modeling for virtualization

Data Modeling & Design Governance:

- Documenting the Model (including versioning, lineage) and its use as a data governance tool
- Best practices in Naming conventions
- Identifying and protecting sensitive data
- Metrics
- Government Regulations and Industry Standards

Chapter 7: Knowledge Area: Data Storage & Operations

Section 1 = Types of DBMS and Data file Systems

- RDBMS
- triple store
- federation/cloud
- transaction vs. bulk load support
- row-based vs. column-based
- configuration management
- Virtualization (cloud)
- Object / multi-media database
- Statistical and scientific databases
- Hadoop
- No SQL
- Flat Files/XML

Section 2 = Data store support

- Change Management/Impact Analysis
- Performance
- Backup/Recovery
- Archive/Purge (lifecycle maintenance)
- Monitoring, including mobile monitoring, bots.
- Emergency Preparedness (hot sites, team response, SLA conditions)

Section 3 = Data Store Technology Management

Data Storage & Operations Governance:

- Enterprise demands in service management for data storage
- Develop and Maintain Local & Cloud Data Requirement
- Advise and Control Data Replication / System of Record
- Specify Data Access Method
- Specify Physical Data Naming Conventions
- Support Data Audits and Data Valuation
- Metrics
- Government Regulations and Industry Standards

#### Chapter 8: Knowledge Area: Data Security

Section 1 = Security Requirements (HIPPA, PCI, PII, SOX PIPEDA)

Section 2 = Privacy

Section 3 = Database Vulnerability Assessment

Section 4 = Data Security Maintenance

- Access management
- Internet security
- Mobile device security
- Costs of data breaches (monetary and otherwise)
- Analyzing traffic patterns
- Agents vs. native logging
- Data correction
- Encryption

Data Security Governance:

- Working with Risk Management, Legal
- Security breach response
- Access to information (government)
- Identity management
- MetricsGovernment Regulations and Industry Standards

#### Chapter 9: Knowledge Area: Data Integration & Interoperability (DII)

Section 1 = Data Integration and Interoperability

- Approaches: integration or interoperate?
- Drivers for DII
  - Mergers and acquisitions
  - Data.gov, Open Data (government published data)
- Standards
- Architectures
  - Data as a Service
  - Batch
  - Near real time, trickle
  - Real time
  - Event driven
- Data profiling ( see also data modeling, data warehousing, MDM, or data modeling)

- Data acquisition (get data in)
  - Buying / selling data, contracting
  - Integrating 3rd party data
  - User interface interaction (transactions), sensor input, etc.
- Data movement/services (move data around)
  - Data integration (combine data for use),
  - Approaches to structured / (un)structured data integration / issues
  - Data transformation (change data in place or in combination with above activity)
  - Virtualization
  - Data Migration/Conversion
  - Messaging
- Data interoperability (use separate data together with OR without integration)
  - Reference data
  - Standardized structures (for app sharing/ESB use)

#### Section 2 = Operational Intelligence Support

- Complex Event Processing (CEP)

#### Data Integration & Interoperability Governance:

- Redundancy control
- Security
- Lineage
- Value chain (impact analysis)
- Data sharing agreements
- Quality and recombination
- Exception handling
- Metrics
- Government Regulations and Industry Standards

### Chapter 10: Knowledge Area: Documents & Content

#### Section 1 = Common activities regardless of document type

- Architecture
- Data as evidence
- Data retention
- Identifying and protecting sensitive data and information
- Confidentiality including data marking

#### Section 2 = Content Management (classification, taxonomies, tagging, indexing)

#### Section 3 = Physical Documents (Printed documents/records)

#### Section 4 = Electronic Documents

- Documents/records
- Images/Audio/Video

#### Document & Content Governance:

- Working with Risk Management, Legal
- Security breach response
- Access to information (government)

- Service management
- Metrics
- Government Regulations and Industry Standards

## Chapter 11: Knowledge Area: Reference & Master Data

### Section 1 = Common activities regardless of data type

- Architecture & modeling
- Administration approaches / compliance
- System of record / System of reference / Data of record (gold data)
- Data profiling (See also data profiling in support of Data Modeling & Design, Data Warehousing & Business Intelligence, Data Interoperation & Integration, or Data Quality)

### Section 2 = Reference Data

- GIS (base spatial data)
- Solids models (CAD)
- Temporal data
- Purchased data such as Bloomberg, Post Office
- GIS business reference data / enterprise specific GIS reference data (where and what company assets are)

### Section 3 = Master Data

- Business rules (match/merge)
- Data sources

### Reference & Master Data Governance:

- Determining systems/data of record
- Determining and managing business rules
- Exception handling
- Metrics
- Government Regulations and Industry Standards

## Chapter 12: Knowledge Area: Data Warehousing & Business Intelligence

### Section 1 = Data Warehousing (Back-office specialization)

- Kimball vs. Inmon
- Update frequency (batch, real-time, near-real-time)

Note: ETL (Extract Transform and Load) is covered in Data Integration & Interoperability.

- Database inventory (what data is stored where and at what level)
- Data profiling (see also Data Quality, Data Integration & Interoperability, Reference & Master Data, or Data Modeling & Design)

### Section 2 = Business Intelligence & Analytics (Front-office specialization)

- Querying & Reporting
- Delivery
- Storyboarding, 'See also' suggestions / autosuggest
- Dynamic search
- Personalization

- Mashups
- Big data analytics
- Operational Intelligence
- Data discovery (not modeling, but inventory, classification and assessment)
- Data Sharing / Social Analytics
- Predictive and Reactive Requirements
- Mobile Analytics
- RFID

Section 3 = Visualization

- including GIS

Data Warehousing & Business Intelligence Governance:

- Reporting Strategy
- Appropriate use and interpretation of data
- Data architecture compliance
- Training
- BICC (Business Intelligence Competency Center)
- Metrics
- Government Regulations and Industry Standards

Chapter 13: Knowledge Area: Metadata

Section 1 = Metadata Management Architecture

Section 2 = Semantics and metadata identification, types

- Multilingual environments

Section 3 = Metadata solutions

- Business glossary
- Repository Architecture
- Collection and maintenance

Metadata Governance:

- Standard data definition (models, glossary)
- Data Asset Discovery (data store inventory, process inventory, model inventory, code inventory, etc.)
- Master data, gold data source,
- Classification, Sensitivity
- Owners and Stewards
- Metrics
- Government Regulations and Industry Standards

Chapter 14: Knowledge Area: Data Quality

Section 1 = Plan Data Quality

- Implementing data quality during planning and design
- Measuring and Monitoring (Defining quality, Impacts of low quality)
- Data Profiling process, data correction



Section 2 = Data Manipulation

Data Quality Governance:

- Ensuring data quality (process engineering, rules, ownership and compliance)
- Metrics
- Government Regulations and Industry Standards

Chapter 15: Data Management Maturity Models

- Knowledge Area-specific Maturity benchmarking
- Knowledge Area-specific Maturity development (targets and activities)

Chapter 16: Additional Data Management Topics

Section 1 = Professional Development (certification, facilitation, DAMA participation)

Section 2 = Business Data Requirement Development

- How to get good data requirements
- Deliverable verification to requirements

Section 3 = Communicating Data Management value to the business

Section 4 = Data Management Cost Control

Section 5 = Data Management Organization & Role Expectations

- Types of organizations (hierarchical, network, matrix)
- Organizations and Roles

Section 6 = Facilitation

Appendix

1. Primary Contributing Authors (by chapter or section)
2. Contributing Reviewers and Commenters
3. Context Diagram contents by context area consolidations
4. Chart relating DAMA-DMBOK Guide 1<sup>st</sup> edition to DAMA-DMBOK2 Guide (Concordance)
5. Bibliography
6. Cross reference between CDMP exams and DAMA-DMBOK2

## **5.2. Knowledge Area Chapter Structure**

Each knowledge area will have a chapter in the DAMA-DMBOK Guide that may contain multiple sections. The extent of each discussion will vary by chapter and section, as appropriate to the topics and environmental elements involved. At the end of each chapter will be a section on Governance for that knowledge area.

Standard chapter outline is as follows:

1. Introduction/Knowledge Area Definition
  - a. Executive Summary/Context Diagram
  - b. Essential Concepts, Common Vocabulary, and Popular Frameworks
2. Goals and Principles
  - a. Concepts and Activities
 

For each activity 'story' include:

    - Inputs
    - Deliverables
    - All roles and responsibilities
    1. Activity 1
    2. Activity n....
3. Tools and Techniques
4. Implementation Guidelines
  - i. Readiness Assessment / Risk Assessment ( Q&A format permissible)
  - ii. Organization & Cultural Change
5. Knowledge Area Governance
  - a. Knowledge Area governance topics
  - b. Knowledge Area Metrics
  - c. Knowledge Area Government Regulations and Industry Standards
6. Activity Summary
7. Inter-Section Relationships/Interfaces
8. Reference Citations/Additional Reading

## 6. Concordance between DAMA-DMBOK Guide Editions

Many of the concepts are similar between the editions and are covered in this section. These concepts include:

- Context diagrams
- Environmental elements
- Activity groups and classifications

The DAMA-DMBOK2 Guide will contain some different concepts than the 1<sup>st</sup> edition and these concepts are covered in section 4 of this Framework.

They include, in summary:

- A revised DAMA-DMBOK Guide 1<sup>st</sup> edition knowledge area wheel to include eleven knowledge areas with the addition of Data Integration & Interoperability
- A re-ordering of the knowledge area wheel so that Documents & Content (was Documents & Content Management) is introduced earlier in the lifecycle of the wheel (as read clockwise from the top)
- An emphasis on knowledge areas (rather than functions) that will contain multiple topics
- A re-structured format for each chapter / sections, including re-formatted context diagrams
- An emphasis on data governance as a unifying oversight mechanism in data management

A table describing the areas of similarities and differences between editions will be included in the DAMA-DMBOK2 as an appendix.