Requirement Maturity Model Integration
RMMI

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Table of content

1. RMMI overview

1.1. Purpose

The **Requirements Maturity Model Integration (RMMi)** provides a structured and comprehensive framework to evaluate, manage, and improve the maturity of requirements engineering (RE) practices across organizations.

RMMi enables project teams, quality departments, and enterprise governance bodies to:

- Align requirements with strategic goals and operational needs,
- Strengthen traceability, validation, and quality of requirements,
- Support continuous improvement and cross-domain learning,
- Integrate sustainability, automation, and digital transformation principles into RE processes.

1.2. Introduction

Requirements engineering (RE) remains a critical yet complex discipline within software and system development. Despite numerous existing frameworks and guidelines, many widely recognized models provide only partial or indirect coverage of this essential domain.

Frameworks such as CMMI (Capability Maturity Model Integration) and TMMi (Test Maturity Model integration), while extensively adopted in software process and testing management respectively, focus primarily on general software engineering or testing maturity. They do not comprehensively address the specific maturity dimensions necessary for rigorous requirements engineering, such as stakeholder elicitation strategies, semantic management, systematic validation, and explicit RE quality metrics.

Similarly, BABOK (Business Analysis Body of Knowledge) provides a foundational theoretical approach to business analysis but lacks structured maturity progression, detailed maturity levels, and systematic quantitative assessment tools specifically tailored for requirements management.

Standards and frameworks such as the IREB CPRE (Certified Professional for Requirements Engineering) certification program and IEEE 29148:2018 (Systems and Software Engineering – Requirements Engineering) standard offer substantial technical guidance focused explicitly on requirements engineering practices. However, these standards primarily concentrate on individual skill certification or best-practice documentation and do not provide structured maturity levels, organizational assessment methodologies, or continuous improvement cycles.

The broader frameworks like ISO/IEC 12207 (Systems and Software Engineering – Software Life Cycle Processes) and the INCOSE Systems Engineering Handbook deliver valuable general lifecycle management guidance but are limited by their broad perspective, lacking detailed maturity progression explicitly focused on requirements engineering.

The Requirements Maturity Model Integration (RMMi) addresses these identified gaps explicitly. It provides organizations with a structured, detailed, and measurable maturity framework specifically designed for comprehensive requirements engineering. RMMi is not only deeply rooted in

established international standards but also structured to address contemporary challenges such as AI integration, sustainability, remote collaboration, and continuous, measurable improvement of RE practices.

By filling these critical gaps, RMMi serves as a complementary, specialized maturity model positioned uniquely within the existing landscape of process, testing, business analysis, and systems engineering standards.

2. Model description

2.1. Model Structure

RMMi is organized around four structural pillars that reflect the main phases and responsibilities in RE activities. Each pillar includes multiple domains of practices and maturity measurement.The structure of the model is the following:

Pillar	Purpose	Domains Included
Elicitation	Discover and understand stakeholder needs	Elicitation, Communication, Collaboration
Documentation	Specify, structure, and trace requirements	Structuring, Specification, Documentation
Validation	Ensure fitness, correctness, and acceptance	Validation, Quality
Management	Plan, govern, measure, and evolve RE practices	Management, Governance, Tools, People, Sustainability

Each domain includes **five practices**, which are evaluated across five maturity levels using structured indicators, expected behaviors, deliverables, and supporting techniques.

2.2. Definition of a Requirement and Quality Criteria

In the RMMi framework, a **requirement** is defined (according to the IEEE Std 610.12.1990 standard) as follows:

A requirement is:

- a condition or capability needed by a user to solve a problem or achieve an objective (user need),
- a condition or capability that must be met or possessed by a system or system component to satisfy a contract, standard, specification, or other formally imposed document (system obligation),
- a documented representation of a condition or capability as in the two previous items (formal documentation).

This **three-part definition** is foundational to all RMMi domains and ensures that requirements are consistently interpreted as:

1. Rooted in stakeholder needs,
2. Expressed as system-level obligations,
3. Captured and communicated through documented artifacts.

To assess the **quality of requirements**, RMMi adopts the **INVEST** principle, as formulated by **Bill Wake (**Wake, B. (2003). *INVEST in Good Stories, and SMART Tasks*.). This acronym is widely recognized in Agile contexts and broadly applicable in structured RE:

➔ **I** for **Independent**:

User stories should be independent of each other so they can be developed and delivered in any order.

➔ **N** for **negotiable**:

The details of the user story should be flexible and open to discussion, allowing for collaboration between the team and stakeholders.

➔ **V** for **valuable**:

Each user story must deliver value to the end-user or customer, ensuring that the work is meaningful.

➔ **E** for **Estimable**:

It should be possible to estimate the effort required to implement the user story, aiding in planning and prioritization.

➔ **S** for **Small enough**:

User stories should be small enough to be completed within a single iteration or sprint, making them manageable.

➔ **T** for **Testable**:

There should be clear acceptance criteria for testing the user story to verify it meets the intended requirements.

These criteria are reflected in RMMi practices related to **Validation**, **Quality**, and **Documentation**, and are used to construct review checklists, quality scoring grids, and verification mechanisms.

2.3. Maturity levels

RMMi defines **five maturity levels based on INVEST criteria**, applicable to each RE practice and domain:

Level	Label	Key Characteristics
1	Basic	RE practices are ad hoc, undocumented, and reliant on individual experience.
2	Managed	Practices are repeatable and somewhat structured. Responsibilities are locally defined.
3	Defined	Processes are standardized, documented, and integrated with organizational models.
4	Predictable	Metrics and KPIs guide RE performance. Decisions are data-driven and governance is active.
5	Optimizing	RE evolves based on strategic goals and feedback loops. Innovation and reuse are embedded.

2.4. Use of the RMMi Model

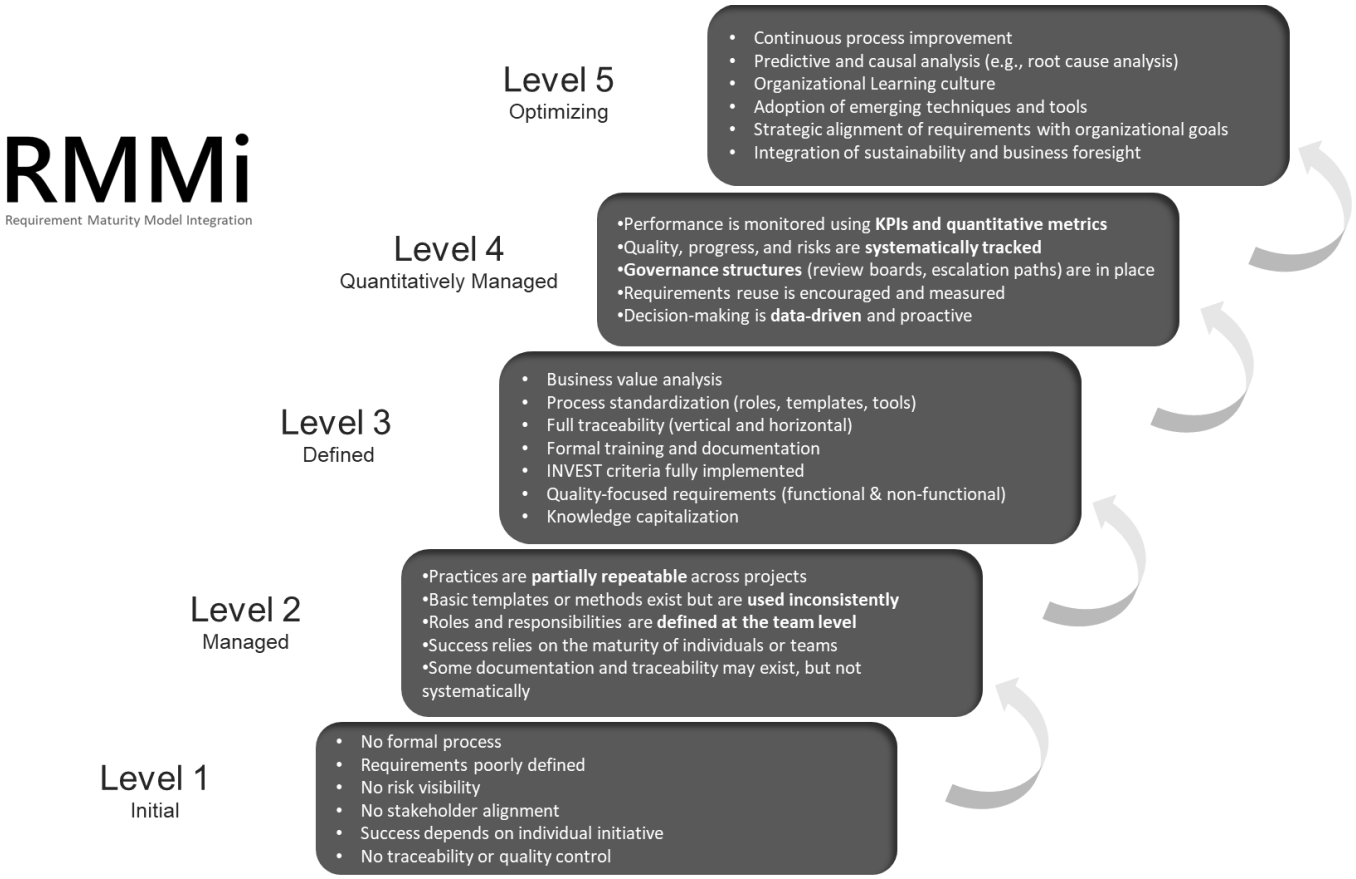
RMMi can be used in multiple contexts and by a variety of stakeholders:

- **Self-assessment** of RE maturity at project or team level
- **Organizational audit** across departments or business units
- **Continuous improvement initiatives**
- **Training and onboarding** programs
- **RE governance planning** and portfolio-level alignment
- **Benchmark RE** capabilities against industry and peer organizations

RMMi is compatible with **Agile**, **Waterfall**, **DevOps**, and hybrid approaches.
It also integrates naturally into strategic planning frameworks such as the **Strategic Execution Framework (SEF)**, enabling traceable alignment between business objectives and RE outcomes.

Note on specialized roles:
In some organizations, specific roles such as the **Quality Master (QM)** or the **Quality Train Engineer (QTE)** may be established to structure, drive, and improve the maturity of requirements engineering practices.
These roles are aligned with the RMMi governance principles and can play a key role in ensuring consistent application of the model's best practices (see detailed role profiles in the annexes)

RMMi Levels and generic domains


RMMi
Requirement Maturity Model Integration
Level 5
Optimizing
• Continuous process improvement
• Predictive and causal analysis (e.g., root cause analysis)
• Organizational Learning culture
• Adoption of emerging techniques and tools
• Strategic alignment of requirements with organizational goals
• Integration of sustainability and business foresight
Level 4
Quantitatively Managed
•Performance is monitored using KPIs and quantitative metrics
•Quality, progress, and risks are systematically tracked
•Governance structures (review boards, escalation paths) are in place
•Requirements reuse is encouraged and measured
•Decision-making is data-driven and proactive
Level 3
Defined
• Business value analysis
• Process standardization (roles, templates, tools)
• Full traceability (vertical and horizontal)
• Formal training and documentation
• INVEST criteria fully implemented
• Quality-focused requirements (functional & non-functional)
• Knowledge capitalization
Level 2
Managed
•Practices are partially repeatable across projects
•Basic templates or methods exist but are used inconsistently
•Roles and responsibilities are defined at the team level
•Success relies on the maturity of individuals or teams
•Some documentation and traceability may exist, but not systematically
Level 1
Initial
• No formal process
• Requirements poorly defined
• No risk visibility
• No stakeholder alignment
• Success depends on individual initiative
• No traceability or quality control

2.5. Domain 1 – Elicitation

Elicitation is the discipline of discovering, capturing, and clarifying stakeholder needs and expectations. It includes structured and iterative interactions with stakeholders and subject matter experts to build a shared understanding of objectives, constraints, and value drivers.

This domain provides the foundation for requirement definition by engaging people, exploring sources of information, and contextualizing business and technical concerns. Each practice in this domain supports traceability, alignment, and quality throughout the lifecycle of requirements.

Glossary of Key Terms

- **Elicitation**: A set of activities aimed at identifying and understanding stakeholder needs through interviews, workshops, observations, and other methods.
- **Stakeholder**: Any individual or group with an interest in or influence over the system, including users, sponsors, regulators, developers, and testers.
- **Contextualization**: The process of framing requirements within the operational, business, and technical environment.
- **Expectation Alignment**: Ensuring that stakeholder views are reconciled and that a shared understanding is reached.
- **Knowledge Capture**: Collecting explicit and tacit information from stakeholders or systems for documentation and analysis.

Key Deliverables

Deliverable	Description	Typical Contents
Stakeholder Map	Identification and classification of stakeholders	Roles, influence, impact level, communication preferences
Elicitation Plan	Planning of activities and techniques for gathering information	Objectives, stakeholders involved, schedule, methods, risks
Raw Elicitation Notes	Initial capture of data from sessions	Transcripts, observations, photos, voice memos
Context Diagram / Domain Model	Representation of the system's ecosystem	External actors, flows, system boundaries, glossary
Candidate Requirements List	Consolidated list of all captured requirements (raw form)	ID, description, source, priority indication, validation status
Expectation Alignment Matrix	Cross-reference of stakeholder views and prioritization conflicts	Requirements vs. stakeholder agreement matrix

Practices in This Domain

1. Stakeholder Identification and Engagement
2. Requirements Sources and Information Gathering
3. Elicitation Planning and Management
4. Knowledge Capture and Contextualization
5. Stakeholder Feedback and Expectation Alignment

Reference Materials

- BABOK v3 – Chapters 4 and 5: Elicitation and Collaboration
- IREB CPRE Foundation & Elicitation Guide
- ISO/IEC/IEEE 29148:2018 – Requirements Engineering Standards
- INCOSE Guide for Writing Requirements
- SAFe and Scrum roles in agile contexts

Practice 1 - Stakeholder Identification and Engagement

Objective

Identify, categorize, and engage relevant stakeholders early and continuously in the requirements lifecycle, ensuring proper representation, communication, and commitment throughout the elicitation process.

Key concepts

- **Stakeholder Engagement**: refers to the process by which an organization involves people who may be affected by its decisions or can influence the implementation of its decisions. It focuses on building and maintaining relationships with these stakeholders: communication, relationship building, inclusitity and feedback mechanisms.
- **Stakeholder Involvement**: refers to the active participation of stakeholders in the activities and decision-making processes of an organization or project: participation, collaboration, empowerment and accountability.
- **Roles and Influence**: must be understood early to manage risk and ensure representative input.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Stakeholders are engaged reactively or informally. Roles and expectations are not documented.
2	Managed	Key stakeholders are identified at the start of the project. Engagement relies on individual initiative.
3	Defined	A stakeholder map and communication plan are used systematically. Roles and influence are documented.
4	Predictable	Engagement is monitored across the lifecycle. Feedback loops are in place. Conflicts are managed.
5	Optimizing	Stakeholder strategies evolve through lessons learned. Proactive engagement is tailored by context.

Related Deliverables

- Stakeholder Map

- Stakeholder Classification Matrix (e.g., power/interest grid)
- Engagement and Communication Plan
- Stakeholder Risk and Influence Analysis

Related Techniques or Tools

- RACI or Stakeholder Responsibility Charts
- Interviews, surveys, influence mapping
- Stakeholder empathy mapping or persona definition

Reference Materials

- BABOK v3 – Stakeholder Analysis (Chapter 4)
- IREB CPRE Foundation – Elicitation techniques
- PMI PMBOK – Stakeholder Management
- ISO/IEC/IEEE 29148 – Stakeholder requirement identification

Practice 2 - Requirements Sources and Information Gathering

Objective

Systematically identify and explore the sources of requirements, including stakeholders, documents, systems, regulations, and domain knowledge, and select appropriate techniques to capture reliable and relevant information.

Key Concepts

- **Source**: any origin of requirement information: stakeholders, documentation, systems, or regulations.
- **Information Gathering**: selecting and applying appropriate techniques for different types of sources.
- **Explicit vs. Tacit Knowledge**: explicit is documented; tacit resides in people's experience.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Information sources are undocumented or discovered reactively. Techniques vary and are inconsistent.
2	Managed	Requirements sources are identified based on past experience. Techniques are chosen by individual analysts.
3	Defined	A systematic list of sources is established. Techniques are selected based on context and documented criteria.
4	Predictable	Source reliability and technique effectiveness are measured. Reuse of sources and methods is promoted.
5	Optimizing	Sources and techniques evolve through feedback, innovation (e.g., AI tools), and lessons learned from projects.

Related Deliverables

- Requirements Source Inventory
- Technique Selection Matrix
- Source-to-Requirement Traceability Table
- Technique Justification Log
- Requirement Source Evaluation Matrix

Source	Updated	Adequacy	Relevance	Accessibility	Overall Score
User Manual	✔ recent	✔ well-structured	✔ directly related	✔ shared	High
Legacy Contract	✘ outdated	✘ complex legal terms	✔ partial relevance	✘ paper only	Low

Related Techniques or Tools

- Source typologies (human, documentary, regulatory)
- Elicitation technique catalog (e.g., interviews, workshops, ethnography)
- Decision grids for technique suitability
- AI-assisted knowledge extraction tools

Reference Materials

- BABOK v3 – Elicitation Techniques
- IREB CPRE Foundation – Chapters on information sources and methods
- ISO/IEC/IEEE 29148 – Source identification and traceability
- INCOSE Systems Engineering Handbook – Requirements sources taxonomy

Practice 3 - Elicitation Planning and Management

Objective

Define, plan, coordinate, and monitor all activities related to eliciting requirements, ensuring that timing, techniques, participants, and resources are aligned with project and stakeholder expectations.

Key Concepts

- **Elicitation Planning:** defines the scope, timing, resources, and methods.
- **Management:** tracking execution, resolving issues, and adapting based on results.
- **Dependencies:** stakeholder availability, regulatory milestones, and project phase.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Elicitation happens without preparation. Activities are ad hoc and undocumented.
2	Managed	A basic plan is drafted per project, often reused or based on prior experience.
3	Defined	Elicitation planning follows standard templates. Resource allocation, risks, and constraints are considered.
4	Predictable	Plans are monitored and adjusted using defined metrics. Deviations and lessons are logged.
5	Optimizing	Elicitation practices and plans are continuously improved using feedback, retrospectives, and stakeholder input.

Related Deliverables

- Elicitation Plan
- Stakeholder Availability Schedule
- Elicitation Risk Log
- Lessons Learned from Past Elicitation Campaigns

Related Techniques or Tools

- Planning templates and checklists
- Project calendars and scheduling tools
- Retrospective and feedback frameworks
- Risk-based elicitation prioritization grids

Reference Materials

- BABOK v3 – Elicitation Planning (Section 4.1)
- ISO/IEC/IEEE 29148 – Requirements engineering lifecycle coordination
- PMI PMBOK – Planning and monitoring processes

Practice 4 – Knowledge Capture and Contextualization

Objective

Capture both explicit and tacit knowledge from stakeholders and operational contexts, and structure this knowledge in a way that preserves meaning, supports interpretation, and facilitates accurate translation into requirements.

Key Concepts

- **Tacit Knowledge**: personal, context-specific, and often unspoken knowledge.
- **Contextualization**: connects the requirement to the operational and business environment.
- **Assumptions**: must be recorded to clarify the boundaries and underlying conditions.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Knowledge is captured informally and often lost. Contextual information is not recorded.
2	Managed	Basic capture mechanisms exist (e.g., interview notes), but structure and context documentation are limited.
3	Defined	Knowledge and context are captured using defined templates, with traceability to source and assumptions.
4	Predictable	Capture is systematic and linked to process milestones. Contextual gaps are flagged and reviewed.
5	Optimizing	Contextual models are reused across projects. Lessons learned and tacit knowledge are converted into formal assets.

Related Deliverables

- Knowledge Capture Log
- Contextual Assumption Register
- Operational Context Scenarios
- Glossary of Domain Concepts
- Visual Process or Business Diagrams

Related Techniques or Tools

- Observation (Shadowing, Contextual Inquiry)
- Storyboards, use cases, scenarios
- Mind maps, concept maps, and business process models (e.g., BPMN)
- Ontology and taxonomy definition tools

Reference Materials

- BABOK v3 – Contextual Inquiry and Knowledge Management
- IREB CPRE Advanced – Requirements Modeling and Knowledge Techniques
- ISO/IEC/IEEE 29148 – Context and rationale representation

Practice 5 – Stakeholder Feedback and Expectation Alignment

Objective

Ensure that stakeholders can review and validate the requirements elicited, provide feedback, and reach consensus through transparent alignment of expectations, preferences, and constraints.

Key Concepts

- **Feedback:** collecting and processing stakeholder responses to ensure requirements correctness.
- **Expectation Alignment**: resolving divergent views and surfacing hidden assumptions.
- **Validation**: confirming that requirements match stakeholder intent.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Stakeholder feedback is informal and inconsistently captured. Alignment issues are discovered late.
2	Managed	Feedback is requested at major milestones, typically through walkthroughs or email. Conflicts are noted manually.
3	Defined	Feedback cycles are planned. Tools and templates are used to capture agreements, issues, and decisions.
4	Predictable	Stakeholder satisfaction and alignment metrics are tracked. Escalation processes and alignment dashboards exist.
5	Optimizing	Feedback is continuously integrated through adaptive elicitation. AI or analytics support expectation reconciliation.

Related Deliverables

- Feedback Summary Log
- Issue and Resolution Tracker
- Expectation Alignment Matrix
- Validation Sign-Off Sheets

Related Techniques or Tools

- Structured validation workshops
- Requirements walkthroughs and inspections
- Feedback forms, polls, and review workflows
- Alignment heatmaps and satisfaction indicators

Reference Materials

- BABOK v3 – Requirements Validation and Collaboration
- IREB CPRE Foundation – Validation techniques
- ISO/IEC/IEEE 29148 – Requirements review and validation

2.6. Domain 2 – Documentation

Elicitation is the discipline of discovering, capturing, and clarifying stakeholder needs and expectations. It includes structured and iterative interactions with stakeholders and subject matter experts to build a shared understanding of objectives, constraints, and value drivers.

This domain provides the foundation for requirement definition by engaging people, exploring sources of information, and contextualizing business and technical concerns. Each practice in this domain supports traceability, alignment, and quality throughout the lifecycle of requirements.

Key Deliverables

Deliverable	Description	Typical Contents
Requirements Specification Document	Structured, validated documentation of all agreed requirements	Functional, non-functional requirements, priorities, rationale
Change History Log	Chronological tracking of modifications	ID, version, date, author, change description
Traceability Matrix	Links between requirements and upstream/downstream elements	Requirement ID, source, test case, design link
Glossary / Terminology Index	Common vocabulary and semantic alignment	Term, definition, context, synonyms
Quality Review Checklist	Criteria for requirement correctness, clarity, testability, consistency	Checklist items, verification result

Practices in This Domain

1. Requirements Structuring and Specification
2. Requirements Quality and Consistency Control
3. Requirements Versioning and Change History
4. Requirements Traceability Documentation
5. Glossary and Semantic Management

Reference Materials

- ISO/IEC/IEEE 29148 – Requirements documentation and attributes
- IREB CPRE Foundation – Documentation and modeling techniques
- BABOK v3 – Requirements documentation (Chapter 7)
- IEEE 830 (superseded by 29148) – Specification formats and qualities

Practice 1 - Requirements Structuring and Specification

Objective

Establish and apply standardized structures, templates, and conventions to articulate requirements in a clear, consistent, and verifiable manner.

Key Concepts

- **Requirement Statement**: a singular expression of a functional or non-functional need.
- **Specification Structure**: predefined format for organizing requirements (e.g., use cases, user stories, models).
- **Documentation Style**: ensures requirements are clear, unambiguous, and free of redundancies.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	**Basic**	Requirements are captured in free text. There is no guidance on format or structure. Documents are often inconsistent and redundant.
2	**Managed**	Basic templates exist but are inconsistently applied. Teams may adapt their own structure per project. Review of documentation is informal.
3	**Defined**	A standard specification format is defined, shared, and applied. Requirements are structured using consistent categories (e.g., functional, non-functional).
4	**Predictable**	Compliance with the format is measured. Document reviews are performed regularly using defined checklists. Ambiguity and redundancy are tracked.
5	**Optimizing**	Specification templates and rules evolve based on feedback and reuse. Metrics on readability, quality, and automation (e.g., parsing, AI structuring) are analyzed and acted upon. Structures evolve based on feedback, readability metrics, and reuse opportunities.

Related Deliverables

- Requirements Specification Document
- Requirements Templates and Style Guides
- Documented Models (e.g., Use Cases, User Stories, BPMN diagrams)

Related Techniques or Tools

- Use case templates
- Structured natural language patterns
- Requirements modeling tools (SysML, BPMN, UML)
- Controlled vocabularies

Reference Materials

- ISO/IEC/IEEE 29148 – Clause on requirement expression
- IEEE 830 (legacy reference)
- IREB CPRE Foundation – Specification format and syntax
- BABOK v3 – Requirements documentation (Chapter 7)

Practice 2 – Requirements Quality and Consistency Control

Objective

Ensure that all documented requirements are clear, complete, consistent, and testable, by applying defined quality criteria, validation rules, and peer review mechanisms.

Key Concepts

- **Quality Attributes**: include clarity, consistency, testability, atomicity, and feasibility.
- **Defect Typologies**: classify common issues such as ambiguity, contradiction, duplication, or missing rationale.
- **Consistency**: refers to internal coherence among requirements and alignment with project objectives.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Requirements quality is not assessed. Issues are discovered late or during testing.
2	Managed	Some quality checks are performed informally. Peer reviews are conducted occasionally.
3	Defined	Quality and consistency criteria are defined and applied using checklists. Defects are tracked.
4	Predictable	Quality reviews are planned, documented, and measured. Defect rates and resolution metrics are reported.
5	Optimizing	Continuous improvement cycles are applied to quality rules. AI or automated checks support early detection.

Related Deliverables

- Requirements Quality Checklist
- Review Reports and Issue Logs
- Consistency Matrices
- Defect Classification Reports

Related Techniques or Tools

- Peer reviews and inspections
- Requirement quality metrics (e.g., defect density, readability index)
- Static analysis tools for requirement syntax or grammar
- AI-assisted quality detection tools

Reference Materials

- ISO/IEC/IEEE 29148 – Requirement quality characteristics
- BABOK v3 – Requirement verification and quality assessment
- IREB CPRE Foundation – Quality criteria and patterns

Practice 3 – Requirements Versioning and Change History

Objective

Ensure that all modifications to requirements are recorded, tracked, and traceable through structured versioning and change control mechanisms.

Key Concepts

- **Versioning**: assigning a unique identifier to a requirement or document snapshot, allowing historic retrieval and comparison.
- **Change Control**: the process of evaluating, approving, implementing, and communicating requirement modifications.
- **Baseline**: a formally agreed set of requirements that can only be changed through defined procedures.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Requirements change without formal tracking. Versions are overwritten or lost.
2	Managed	Requirements changes are logged manually. Some teams apply version numbers to documents.
3	Defined	Version control is defined, and each change is documented with rationale, author, and timestamp.
4	Predictable	Changes are reviewed, approved, and communicated through a defined workflow. Historical traceability is ensured.
5	Optimizing	Versioning and change history are integrated with configuration management and impact analysis tools.

Related Deliverables

- Change History Log
- Version Control Register
- Change Request and Approval Records
- Requirements Baseline Snapshots

Reference Materials

- ISO/IEC/IEEE 29148:2018 – Requirements Engineering and Change Management lifecycle practices.
- IEEE Std 828-2012 Configuration Management Planning
- CMII-1000 – Change and Configuration Management Principles.
- ISO/IEC 20000 – IT Service Management System Standard.
- ITIL v4 – Change Enablement and Management Practices.
- IREB CPRE Advanced Level RM – Advanced Requirements Management, Change, and Version Control Practices.
- PMBOK Guide (7th Edition) – Integrated Change Control and Configuration Management Practices.

Practice 4 – Requirements Traceability Documentation

Objective

Document and maintain bidirectional traceability between requirements and related project artifacts such as stakeholder sources, design components, test cases, and risks.

Key Concepts

- **Traceability**: ability to track and document requirements throughout a product or project's entire development lifecycle, along with all their associated artifacts. This includes capturing the origin and rationale of each requirement, documenting any changes and decisions made, and maintaining clear links to related elements such as design models, analysis results, test cases, test procedures, test results, and documentation.
- **Horizontal Traceability:** linking requirements to all related artifacts at the same level of abstraction, including business goals, risks, constraints, stakeholder needs, design models, analysis results, and documentation that provide context and rationale for the requirements.
- **Vertical Traceability:** linking requirements across different levels of abstraction (from high-level business requirements down to detailed system requirements) and connecting them to all verification and validation artifacts such as test cases, test procedures, test results, and implementation components that demonstrate requirement fulfilment.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Traceability is not documented. There is no visibility of requirement origin or downstream impact.
2	Managed	Some trace links are maintained manually for critical requirements. Others are managed ad hoc or not at all.
3	Defined	A traceability matrix or tool is systematically used to track requirement relationships across lifecycle artifacts.
4	Predictable	Traceability is monitored and updated continuously. Gaps and inconsistencies are flagged and addressed.
5	Optimizing	Traceability models are reused across projects. AI or automation supports impact analysis and coverage validation.

Related Deliverables

- Requirements Traceability Matrix
- Traceability Coverage Reports
- Impact Analysis Reports
- Bidirectional Trace Logs

Related Techniques or Tools

- RM tools with integrated traceability (e.g., DOORS, Polarion)
- Coverage and consistency analysis
- SysML or UML requirement linking
- Automated trace audits and impact checkers

Reference Materials

- ISO/IEC/IEEE 29148 – Requirements traceability
- INCOSE Guide – Traceability in Systems Engineering
- IREB CPRE Advanced – Traceability Practices

Practice 5 – Glossary and Semantic Management

Objective

Ensure that all stakeholders share a consistent understanding of terminology used in requirements by defining, maintaining, and communicating a controlled vocabulary throughout the lifecycle of the project.

Key Concepts

- **Glossary**: a reference list of terms, definitions, and contexts agreed upon by stakeholders.
- **Semantic Alignment**: the process of ensuring consistent interpretation of requirement-related terms across teams and artifacts.
- **Terminology Governance**: rules for updating, approving, and distributing changes in shared definitions.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Definitions are informal or undocumented. Terminology varies between stakeholders and documents.
2	Managed	A glossary is created at the start of the project but may not be updated or widely referenced.
3	Defined	Glossary is maintained and versioned. Updates are governed by defined roles and validated by domain experts.
4	Predictable	Glossary use is enforced in documentation reviews. Semantic conflicts and term reuse are tracked.
5	Optimizing	Glossary is reused across projects and integrated with tools. Ontologies and taxonomies support advanced semantics.

Related Deliverables

- Project Glossary
- Controlled Vocabulary Register
- Semantic Review Reports
- Cross-reference Index with Models

Related Techniques or Tools

- Term classification grids
- Terminology management systems (TMS)
- Business ontology modeling tools (e.g., RDF, OWL)
- AI-based semantic analyzers

Reference Materials

- ISO/IEC/IEEE 24765 – Systems and Software Engineering Vocabulary
- IREB CPRE Advanced – Requirements Modeling and Terminology
- BABOK v3 – Business Glossaries and Concept Models

2.7. Domain 3 – Validation

Validation is the discipline of ensuring that requirements accurately reflect stakeholder needs, are complete, correct, and usable for guiding solution development. It confirms that what has been captured or documented during elicitation truly represents the intent and expectations of users, sponsors, and regulators.

The validation process typically includes structured reviews, feedback cycles, issue resolution, and formal approval (sign-off). It supports traceability and provides confidence that the requirements will lead to a solution that delivers value and compliance.

Validation is distinct from verification: verification focuses on whether a requirement has been accurately and completely specified, while validation ensures that the requirement itself is the appropriate one to address the intended needs.

This domain contributes to the overall quality and credibility of the requirements baseline. It relies on clear documentation, active stakeholder engagement, and a governance model that defines who participates, how issues are resolved, and when sign-off occurs.

Validation strengthens project alignment by confirming agreement and reducing ambiguity before implementation. It also supports auditability and regulatory compliance.

The practices in this domain guide the organization in preparing for, executing, and capitalizing on the results of requirements validation activities.

Glossary of Key Terms

- **Validation**: The process of evaluating requirements to ensure they reflect stakeholder needs and intended use.
- **Verification**: Checking that requirements are correctly specified and meet predefined criteria.
- **Stakeholder Review**: Structured activity where stakeholders evaluate requirements for accuracy, completeness, and agreement.
- **Sign-off**: Formal approval from authorized stakeholders confirming that requirements are acceptable.
- **Defect**: Any inconsistency, ambiguity, or error detected during review or validation.

Key Deliverables

Deliverable	Description	Typical Contents
Requirements Review Log	Summary of stakeholder and expert review feedback	Comments, issues, approvals
Validation Sign-off Sheet	Formal confirmation of requirement agreement	Names, dates, scope, version
Validation Report	Consolidated findings from validation sessions	Gaps, defects, resolutions
Review Agenda and Minutes	Meeting preparation and outcomes	Participants, decisions, action items
Review Checklist	Criteria used to evaluate requirements quality	Completeness, clarity, feasibility, consistency

Reference Materials

- **ISO/IEC/IEEE 29148** – Requirements validation and review
- **IREB CPRE Foundation** – Requirements validation practices
- **BABOK v3** – Requirements validation (Chapter 7)
- **IEEE 830** – Review and approval process

Practice 1 - Requirements Review and Validation Planning

Objective

Plan and organize the process for reviewing and validating requirements, ensuring that all relevant stakeholders are involved, and that reviews are comprehensive, focused, and aligned with project objectives.

Key Concepts

- **Review Planning**: Developing a strategy to systematically assess and validate the completeness, correctness, and clarity of requirements.
- **Stakeholder Involvement**: Engaging all necessary parties (e.g., business users, regulatory bodies, technical teams) to gather insights and validate requirements.
- **Validation Criteria**: Defining what constitutes an acceptable requirement, ensuring that it meets the needs of stakeholders and the project.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Validation is performed informally, typically after issues are detected late in the process. No documented criteria, roles, or repeatable planning. Stakeholders are consulted ad hoc.
2	Managed	Validation is explicitly scheduled for key deliverables. Some activities (e.g., peer review or walkthroughs) are conducted, though criteria and responsibilities are project-specific and loosely defined.
3	Defined	A validation plan is created in accordance with organizational standards. It includes scope, techniques (e.g., review, prototype, test), validation criteria (e.g., clarity, feasibility), stakeholder roles, and review timelines. Plans are documented, approved, and archived.
4	Predictable	Validation planning is based on performance indicators and lessons learned. Effectiveness of past validations (e.g., error detection rate, rework rate) is measured. Review coverage and stakeholder participation rates are monitored. Plans are adjusted proactively.
5	Optimizing	Validation planning practices are continuously improved using data analytics and stakeholder feedback. Dynamic planning is supported by real-time collaboration tools and adaptive validation strategies depending on risk, product type, or lifecycle phase. Lessons learned from previous validation campaigns are systematically reused. Validation strategies evolve based on historical performance, risk patterns, and stakeholder maturity. Continuous improvement is embedded.

Related Deliverables

- Review and Validation Plan
- Stakeholder Engagement Matrix
- Validation Criteria Checklist
- Issue Tracking Log

Related Techniques or Tools

- Meeting and review facilitation techniques
- Checklist and template tools for validation
- Feedback and issue tracking systems (e.g., JIRA, Confluence)

Reference Materials

- ISO/IEC/IEEE 29148 – Requirements validation and review
- IREB CPRE Foundation – Requirements review and validation techniques
- BABOK v3 – Requirements validation (Chapter 7)
- IEEE 830 – Review and approval process

Practice 2 - Requirements Review and Approval

Objective

Plan and organize the process for reviewing and approving requirements, ensuring that all relevant stakeholders are involved, and that reviews are comprehensive, focused, and aligned with project objectives.

Key Concepts

- **Review Planning**: Developing a strategy to systematically assess and validate the completeness, correctness, and clarity of requirements.
- **Stakeholder Involvement**: Engaging all necessary parties (e.g., business users, regulatory bodies, technical teams) to gather insights and validate requirements.
- **Approval Criteria**: Defining what constitutes an acceptable requirement, ensuring that it meets the needs of stakeholders and the project.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Reviews are informal or skipped. Approvals are implicit or verbal. There is no version control or documented feedback.
2	Managed	Basic review meetings are held at project milestones. Stakeholder input is captured manually. Sign-off may be done via email or meeting notes. No traceability.
3	Defined	Review and approval processes follow standard templates and roles (e.g., reviewer, approver). Feedback is documented, and versioned artifacts are signed off formally.
4	Predictable	Review effectiveness is tracked (e.g., number of defects raised, time to approval). Approval workflow is integrated into project tools with automated tracking.
5	Optimizing	Review and approval practices are continuously improved based on stakeholder feedback and metrics. Reuse of review feedback across similar requirements or projects is promoted. Advanced review techniques and AI-assisted suggestions may be applied.

Related Deliverables

- Review and Approval Plan
- Stakeholder Engagement Matrix
- Approval Criteria Checklist
- Issue Tracking Log

Related Techniques or Tools

- Meeting and review facilitation techniques
- Checklist and template tools for approval
- Feedback and issue tracking systems (e.g., JIRA, Confluence)

Reference Materials

- ISO/IEC/IEEE 29148 – Requirements validation and review
- IREB CPRE Foundation – Requirements review and approval techniques
- BABOK v3 – Requirements validation (Chapter 7)
- IEEE 830 – Review and approval process

Practice 3 - Review Execution and Stakeholder Participation

Objective

Execute the review process by involving stakeholders in the assessment and validation of requirements, ensuring that feedback is collected, conflicts are addressed, and consensus is achieved on the final requirements.

Key Concepts

- **Review Execution**: The process of conducting reviews according to the plan, facilitating discussions, and collecting feedback from stakeholders.
- **Stakeholder Participation**: Active engagement of stakeholders in reviewing requirements, providing feedback, and ensuring alignment with project goals.
- **Feedback Management**: The process of collecting, organizing, and addressing stakeholder feedback, ensuring that issues are tracked and resolved.

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Feedback is gathered informally, often during discussions. No documentation or structured follow-up is performed.
2	Managed	takeholder feedback is requested at predefined validation stages such as draft reviews or approval checkpoints. Feedback may be gathered via email, shared documents, or live discussions. Recording is done manually and inconsistently across projects. Follow-up actions depend on the individual initiative of team members and are not systematically tracked.
3	Defined	A formal stakeholder feedback process is implemented across all projects. Feedback is collected through structured means (e.g., review forms, workshops, interviews). Responses are documented, categorized, and linked to specific requirements. Assigned team members track actions taken and ensure follow-up resolution is recorded and communicated. Feedback history supports traceability and auditability.
4	Predictable	Feedback metrics (e.g., satisfaction rate, number of change requests) are monitored. Trends are analyzed across projects. Stakeholder groups are segmented by type and importance.
5	Optimizing	Stakeholder validation feedback is used to refine elicitation, documentation, and validation practices. Insights are shared organization-wide. Predictive indicators help anticipate feedback themes and reduce late-cycle corrections.

Related Deliverables

- Review Feedback Summary
- Issue Resolution Log
- Updated Requirements Document
- Meeting Minutes and Action Items

Related Techniques or Tools

- Review facilitation tools (e.g., online collaborative tools, meeting platforms)
- Feedback tracking systems (e.g., JIRA, Trello)
- Conflict resolution techniques
- Requirement change management tools

Reference Materials

- **ISO/IEC/IEEE 29148** – Review and validation process
- **IREB CPRE** Foundation – Review execution and feedback techniques
- **BABOK** v3 – Requirements validation (Chapter 7)
- **IEEE 830** – Review and approval process

Practice 4 - Feedback Consolidation and Defect Management

Objective

Collect, analyze, and prioritize feedback from stakeholders during the review process, ensuring that defects are properly managed, tracked, and resolved to improve the quality of the requirements.

Key Concepts

- **Feedback Consolidation**: The process of collecting all stakeholder feedback, categorizing it, and determining the necessary actions.
- **Defect Management**: Identifying, tracking, and resolving defects discovered during the review process, including issues such as ambiguity, inconsistency, or missing information.
- **Prioritization**: The process of determining the urgency and importance of feedback or defects based on project objectives and stakeholder impact.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Feedback is not systematically captured. Defects are resolved informally and often late in the process.
2	Managed	Feedback is collected, but defects may not be tracked or prioritized consistently. Issues may be resolved ad-hoc.
3	Defined	Feedback is consolidated, tracked, and prioritized systematically. A defect management process is documented and followed.
4	Predictable	Feedback is reviewed regularly, and defects are resolved within a defined timeframe. Prioritization is based on risk and stakeholder impact.
5	Optimizing	Feedback consolidation and defect management are continuously optimized. AI or automated tools help identify patterns and improve response times.

Related Deliverables

- Feedback Consolidation Report
- Defect Resolution Log
- Updated Requirements Document
- Issue Priority List

Related Techniques or Tools

- Feedback collection tools (e.g., surveys, feedback forms)
- Defect tracking systems (e.g., JIRA, Bugzilla)
- Prioritization matrices (e.g., MoSCoW, risk-based prioritization)
- Automated defect detection tools (e.g., static analysis tools)

Reference Materials

- ISO/IEC/IEEE 29148 – Defect management and feedback process
- IREB CPRE Foundation – Requirements validation and defect management techniques
- BABOK v3 – Requirements validation (Chapter 7)
- IEEE 830 – Defect resolution and feedback management

Practice 5 - Sign-off and Approval Management

Objective

Manage the process of obtaining formal approval and sign-off for requirements from relevant stakeholders, ensuring that all requirements are agreed upon and ready for implementation.

Key Concepts

- **Sign-off**: The formal process of obtaining approval from stakeholders that confirms the requirements are final and ready for implementation.
- **Approval Workflow**: The sequence of steps required to obtain approval, including review, feedback incorporation, and final confirmation.
- **Stakeholder Accountability**: Ensuring that the appropriate stakeholders are involved in the sign-off process, and their approval is documented.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Sign-off is informal, with no formal process or documentation. Stakeholders may not be engaged or held accountable.
2	Managed	A sign-off process is in place but may be inconsistent. Some stakeholders are involved, and approval is tracked manually.
3	Defined	A structured sign-off process is documented and followed. Stakeholders are clearly identified, and approvals are formally captured.
4	Predictable	The sign-off process is tracked and monitored. Issues are resolved, and stakeholders are held accountable for timely approvals.
5	Optimizing	The sign-off process is continuously improved based on feedback. Automation tools help manage the process and monitor approval timelines.

Related Deliverables

- Sign-off Confirmation Document
- Final Approved Requirements List
- Sign-off Log
- Stakeholder Approval Matrix

Related Techniques or Tools

- Document management and e-signature tools (e.g., DocuSign, Adobe Sign)
- Approval workflow management systems
- Email templates and approval tracking tools

Reference Materials

- ISO/IEC/IEEE 29148 – Requirements approval process
- IREB CPRE Foundation – Sign-off and approval techniques
- BABOK v3 – Requirements validation (Chapter 7)
- IEEE 830 – Review and approval process

2.8. Domain 4 – Management

The Management domain encompasses the planning, coordination, oversight, and control of all activities related to the lifecycle of requirements. It ensures that requirements are not only properly elicited, documented, validated, and implemented, but also aligned with strategic goals, monitored for progress, and governed through defined roles and processes.

This domain plays a transversal role by enabling visibility, accountability, and structured decision-making throughout the project. It bridges technical execution with organizational governance, and fosters alignment across stakeholders, sponsors, and delivery teams.

Effective requirements management ensures traceability, responsiveness to change, clarity of ownership, and risk mitigation. It integrates performance indicators and reporting mechanisms to support continuous monitoring and improvement.

The practices in this domain define how requirements governance is planned, roles are assigned, decisions are made, and information flows to maintain coherence across the project lifecycle.

Glossary of Key Terms

- **Requirements Lifecycle**: The full span from requirement identification to validation, implementation, and change management.
- **Governance**: The framework of rules, responsibilities, and decision rights used to guide and control requirements activities.
- **RACI**: A matrix that clarifies who is Responsible, Accountable, Consulted, and Informed for each task or deliverable.
- **Risk Management**: The structured identification, evaluation, and mitigation of potential issues affecting requirement quality or delivery.
- **KPI**: Key Performance Indicator – a metric that allows monitoring of requirement-related activities (e.g., review lead time, defect density).

Key Deliverables

Deliverable	Description	Typical Contents
Requirements Management Plan	Outlines governance, roles, tools, and control procedures	Lifecycle steps, tools, versioning, approval flow
RACI Matrix	Defines stakeholder responsibilities and accountabilities	Activities, stakeholders, R-A-C-I roles
Requirements Risk Log	Identifies and tracks risks impacting requirements quality or scope	Risk ID, impact, owner, mitigation
KPI Dashboard / Progress Report	Tracks progress and health of requirements activities	KPIs, status trends, deviation analysis

Communication and Escalation Plan	Describes communication rules and escalation procedures	Stakeholders, formats, frequency, thresholds

Practices in This Domain

1. Requirements Lifecycle Planning and Control
2. Roles, Responsibilities and RACI Management
3. Risk and Decision Management
4. Requirements Progress and KPI Monitoring
5. Communication, Reporting and Escalation
6. Change Control and Impact Analysis

Reference Materials

- **PMBOK Guide** – Project Integration and Communication Management
- **ISO/IEC/IEEE 29148** – Requirements management framework
- **IREB CPRE Advanced RM** – Requirements Management best practices
- **ISO/IEC 12207** – Systems and software lifecycle processes
- **RMMi Internal Method Guide**

Practice 1 – Requirements Planning and Control

Objective

Establish and maintain a plan for the lifecycle of requirements, covering their definition, validation, approval, implementation, and maintenance, while ensuring control over changes, dependencies, and governance milestones.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Requirements activities are performed reactively with no defined lifecycle. There is no planning, no roles, and no tracking. Documentation is scattered or non-existent.
2	Managed	Some planning exists but is created on a per-project basis. The process is manual and inconsistently applied. Governance checkpoints are unclear or improvised.
3	Defined	A documented lifecycle framework is available and applied across projects. Standard phases, roles, entry/exit criteria, and governance controls are defined.
4	Predictable	Requirements lifecycle activities are monitored using defined metrics (e.g., lead time, rework rate). Governance gates are applied consistently, and exceptions are analysed.
5	Optimizing	The lifecycle plan is continuously improved using feedback and performance data. The organization uses historical insights to adjust the lifecycle strategy and planning proactively.

Related Deliverables

- Requirements Management Plan
- Lifecycle Governance Calendar
- Requirements Phase Checklist
- Change Control Procedures

Related Techniques or Tools

- Gantt or Kanban planning tools (e.g., MS Project, Jira, Trello)
- Lifecycle modelling techniques (e.g., V-Model, Agile boards)
- Governance dashboards and control reviews
- Configuration and change management systems

Reference Materials

- PMBOK Guide – Project Integration and Communication Management
- ISO/IEC/IEEE 29148 – Requirements management framework
- IREB CPRE Advanced RM – Requirements Management best practices
- ISO/IEC 12207 – Systems and software lifecycle processes

Practice 2 - Roles, Responsibilities and RACI Management

Objective

Define, document, and manage the roles and responsibilities of all stakeholders involved in the requirements process through a RACI model or equivalent framework, to ensure clear ownership, accountability, and communication.

Key Concepts

- **RACI Matrix**: A responsibility assignment model identifying who is Responsible, Accountable, Consulted, and Informed for each requirement-related activity.
- **Governance Roles**: Includes Business Owner, Product Owner, Requirement Engineer, Architect, Tester, etc., depending on context.
- **Responsibility Clarity**: Avoiding gaps and overlaps by explicitly defining responsibilities for each phase of the requirements lifecycle.

Specialized roles for requirements governance:
To enhance the effectiveness of requirements engineering governance, organizations may appoint specialized roles such as:

- The **Quality Master (QM)**, responsible for overseeing the quality and maturity of requirements at the project or product level.
- The **Quality Train Engineer (QTE)**, in charge of cross-team requirements quality and maturity at the Agile Release Train or program level (e.g., in a SAFe® context).
  These roles help coordinate practices across teams, support continuous improvement initiatives, and facilitate maturity progression (see role profiles in the annex for more details).

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Roles are undefined or assumed. No formal documentation exists. Responsibility conflicts or gaps are frequent.
2	Managed	Roles are identified per project but may be ambiguous or inconsistently documented. RACI matrices may exist informally.
3	Defined	Roles and responsibilities are clearly documented and communicated. RACI matrices are established and used.
4	Predictable	Role definitions are maintained across projects. RACI coverage is complete. Gaps or overlaps are proactively identified and resolved.
5	Optimizing	Responsibility definitions are continuously refined based on feedback and performance. Lessons learned update RACI structures.

Related Deliverables

- RACI Matrix
- Roles and Responsibilities Charter
- Governance Assignment Table
- Onboarding and Role Definition Guides

Related Techniques or Tools

- RACI, DACI, or RASCI matrix models
- Organization charts and stakeholder maps
- Governance workshops and responsibility mapping sessions
- Project management and workflow tools (e.g., MS Teams, Confluence)

Reference Materials

- **ISO/IEC/IEEE 29148** – Stakeholder and responsibility modeling
- **PMBOK Guide** – Role definition and stakeholder engagement
- **IREB CPRE Advanced RM** – Responsibility modeling techniques

Practice 3 – Risk and Decision Management

Objective

Identify, evaluate, prioritize, and mitigate risks that impact requirements throughout their lifecycle, and establish structured decision-making processes to resolve uncertainties and guide project alignment.

This practice involves continuous monitoring and reporting on requirement changes and their implications on planning and delivery. It closely aligns with the structured approach defined in Practice 4 – Change Management and Evolution Documentation.

Key Concepts

- **Requirements Risk**: Any uncertainty or potential problem that could impact the clarity, stability, feasibility, or alignment of a requirement.
- **Decision Governance**: A structured framework to escalate, evaluate, and resolve conflicting needs or unclear requirements.
- **Risk Register**: A continuously updated repository of identified risks, their impact, likelihood, owners, and mitigation strategies.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Risks and decisions are handled informally. No documentation, tracking, or structured evaluation exists. Conflicts are resolved ad hoc.
2	Managed	Risks are identified and discussed in meetings but tracking is inconsistent. Decisions are documented in meeting notes without formal accountability.
3	Defined	A structured process exists to capture risks and drive decisions. Risk logs and decision records are maintained. Mitigation and escalation rules are defined.
4	Predictable	Risks and decisions are regularly reviewed. Metrics such as open risks, decision cycle time, or blocked items are monitored and influence governance.
5	Optimizing	Risk and decision processes are optimized using lessons learned and predictive indicators. Data from past projects is reused to guide new initiatives.

Related Deliverables

- Requirements Risk Register
- Decision Log
- Risk Mitigation Plan
- Decision Governance Framework
- Escalation Matrix

Related Techniques or Tools

- Risk analysis techniques (SWOT, FMEA, Monte Carlo)
- Decision matrices (e.g., impact-effort, priority grids)
- Risk heatmaps and dashboards
- Collaborative decision frameworks (e.g., DACI, decision boards)
- Issue and risk tracking systems (e.g., JIRA, Confluence)

Reference Materials

- PMBOK Guide – Risk Management and Decision Processes
- ISO/IEC/IEEE 29148 – Requirements risk and conflict management
- IREB CPRE Advanced RM – Decision and risk modeling
- ISO 31000 – Risk Management Principles and Guidelines

Practice 4 - Requirements Progress and KPI Monitoring

Objective

Monitor the progress and quality of requirements engineering activities using defined performance indicators, enabling proactive control, visibility, and timely corrective actions.

Key Concepts

- **KPI (Key Performance Indicator)**: Quantitative metrics used to assess the health, efficiency, and quality of the requirements process.
- **Progress Tracking**: Continuous monitoring of status against the defined lifecycle plan.
- **Deviation Management**: Identification and response to gaps, delays, or process breakdowns based on KPI thresholds.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Requirements progress is not tracked. No KPIs are defined or monitored. Problems are only addressed reactively.
2	Managed	Some indicators (e.g., number of requirements approved) are tracked manually. Limited visibility into trends or deviations.
3	Defined	KPIs are clearly defined and monitored (Percentage of change requests formally documented, evaluated, and approved by the Change Approval Board (CAB), Average lead time from change request submission to CAB decision, Accuracy rate and completeness of change documentation and rationale records). Dashboards or reports show current progress. Thresholds and owners are documented.
4	Predictable	Monitoring is systematic and predictive. Deviations trigger corrective workflows. KPIs influence planning and resource allocation.
5	Optimizing	KPI monitoring is integrated with lifecycle management. Metrics are refined continuously. Performance insights are reused across projects.

Related Deliverables

- Requirements Progress Dashboard
- KPI Definition Sheet
- Weekly/Monthly KPI Reports
- Deviation Logs and Analysis Sheets

Related Techniques or Tools

- KPI monitoring platforms (e.g., Power BI, Tableau)
- Requirements coverage and review statistics
- Control charts and trend analysis
- Jira dashboards, burn-up/down charts

Reference Materials

- ISO/IEC/IEEE 29148 – Requirements management metrics
- PMBOK Guide – Monitoring and controlling techniques
- IREB CPRE Advanced RM – Requirements performance indicators
- ISO 15939 – Measurement Process Framework

Practice 5 – Communication, Reporting and Escalation

Objective

Establish structured communication, reporting, and escalation channels to ensure that requirement-related information is shared effectively, decisions are visible, and issues are elevated and resolved in a timely manner.

Key Concepts

- **Stakeholder Communication**: Ensures the right information reaches the right people at the right time, with adequate context and clarity.
- **Reporting Cadence**: Defines when and how reporting on requirements status and issues occurs.
- **Escalation Protocol**: Structured pathways to elevate unresolved conflicts or critical deviations to appropriate governance levels.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Communication is informal. Reporting and escalation are reactive or absent. Stakeholders lack visibility into requirements status.
2	Managed	Basic communication occurs via email or meetings. Some reports are shared manually. Escalations depend on individual initiative.
3	Defined	Communication and reporting are planned. Formats, channels, and frequencies are standardized. Escalation paths are documented.
4	Predictable	Communication metrics (e.g., reporting delays, unresolved issues) are monitored. Escalations follow structured, timely procedures.
5	Optimizing	Communication and escalation are continuously improved. Dashboards and feedback loops support transparency, engagement, and early warning.

Related Deliverables

- Requirements Communication Plan
- Reporting Templates and Calendars
- Escalation Matrix
- Communication Logs and Feedback Reports

Related Techniques or Tools

- Stakeholder maps and communication matrices
- Automated reporting tools (e.g., dashboards, email digests)
- Escalation workflows in project management systems
- Communication playbooks and notification frameworks

Reference Materials

- PMBOK Guide – Communications and stakeholder management
- ISO/IEC/IEEE 29148 – Communication and coordination in requirements
- ISO 21500 – Guidance on project management communication
- IREB CPRE Advanced RM – Stakeholder communication practices
- RMMi Internal Method Guide

2.9. Domain 5 – Quality

The Quality domain ensures that the requirements and their associated engineering processes meet the agreed standards, expectations, and constraints of stakeholders. It defines the conditions that characterize a requirement as usable, testable, unambiguous, and complete across all lifecycle phases.

This domain is tightly linked with validation, documentation, and risk management. It provides assurance that quality is built into the requirements process from the outset rather than being inspected post-delivery. It also considers sustainability dimensions, such as documentation maintenance, traceability integrity, and long-term reusability of requirements.

By applying systematic quality reviews, metrics, defect tracking, and improvement practices, this domain supports the reduction of rework, increases stakeholder confidence, and promotes the stability and clarity of requirement baselines.

Glossary of Key Terms

- **Quality Attribute**: A non-functional characteristic (e.g., usability, reliability) that defines the expected quality of a requirement.
- **Defect**: A deviation, inconsistency, or ambiguity in a requirement that may cause misunderstanding or implementation failure.
- **Review Checklist**: A predefined list of quality criteria used during requirement reviews.
- **Non-Conformance**: A failure to meet one or more predefined quality standards.
- **Quality Gate**: A milestone or control point at which quality assessments are formally conducted before proceeding to the next phase.

Key Deliverables

Deliverable	Description	Typical Contents
Requirements Quality Checklist	Tool used to systematically review requirement quality	Criteria: clarity, consistency, completeness
Defect Log	Tracks issues raised during reviews or testing phases	ID, type, severity, status, resolution
Requirements Quality Report	Summarizes findings from quality assurance activities	Metrics, anomalies, risks, improvement actions
Improvement Action Plan	Plan for addressing quality gaps or recurring defects	Root causes, actions, priorities, responsibilities
Quality Gate Evaluation Sheet	Scorecard used to authorize progression at defined control points	Compliance results, approval status

Practices in This Domain

1. Requirements Quality Criteria Definition
2. Requirements Quality Review and Non-Conformance Detection
3. Defect Lifecycle and Resolution Tracking
4. Requirements Quality Metrics and Trends Monitoring
5. Continuous Improvement and Process Quality Feedback

Reference Materials

- ISO/IEC/IEEE 29148 – Requirements quality characteristics
- ISO 25010 – Quality models and non-functional properties
- PMBOK Guide – Quality management processes
- IREB CPRE Advanced RM – Requirements quality and reviews
- RMMi Internal Method Guide

Practice 1 – Requirements Quality Criteria Definition

Objective

Define and maintain objective, measurable quality criteria for requirements to ensure consistency, clarity, testability, and alignment with stakeholder expectations throughout the lifecycle.

Key Concepts

- **Quality Criteria**: Explicit attributes that define what constitutes a high-quality requirement (e.g., unambiguous, complete, consistent, testable).
- **Acceptance Criteria**: Specific conditions that a requirement must meet to be approved.
- **Quality Baseline**: A reference set of standards or rules used to evaluate requirements during reviews or audits.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	No formal quality criteria exist. Quality is subjective and varies by project or reviewer.
2	Managed	Some criteria are defined informally. Different teams may use different standards inconsistently.
3	Defined	Organization-wide quality criteria are documented, communicated, and used systematically during requirement reviews.
4	Predictable	Criteria are reviewed and updated regularly. Metrics track compliance. Exceptions and deviations are analyzed and managed.
5	Optimizing	Quality criteria are continuously improved through feedback and trend analysis. Advanced tools (e.g., NLP, AI) assist in quality assessment.

Related Deliverables

- Requirements Quality Criteria Catalog
- Quality Acceptance Checklist
- Reviewer Guidelines
- Quality Baseline Definitions

Related Techniques or Tools

- Quality model frameworks (e.g., ISO/IEC 25010)
- Structured review checklists
- Requirements authoring standards
- NLP-based quality checkers (e.g., QDAcity, ReqInspector)

Reference Materials

- ISO/IEC/IEEE 29148 – Quality attributes of requirements
- ISO 25010 – Product quality models
- IREB CPRE Advanced RM – Requirements quality criteria
- IEEE 830 – Software Requirements Specification guidance
- RMMi Internal Method Guide

Practice 2 – Requirements Quality Assessment and Scoring

Objective

Conduct structured assessments of requirements using defined scoring models and quality indicators to quantify compliance with quality criteria, detect non-conformances, and support decision-making at quality gates.

Key Concepts

- **Scoring Model**: A numerical system used to evaluate each requirement or group of requirements against predefined criteria.
- **Weighted Criteria**: Quality attributes may carry different importance based on context, influencing their contribution to the final score.
- **Quality Thresholds**: Minimum score or compliance level required for a requirement to pass a review or enter a baseline.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Requirements are reviewed subjectively. No criteria or scoring models are applied. Quality issues are discovered late, and decisions are made based on intuition or seniority.
2	Managed	Teams begin applying basic scoring practices based on informal or legacy checklists. Quality reviews occur but are inconsistent across projects. Results are rarely reused or analyzed collectively.
3	Defined	A formal scoring model is used across teams with defined criteria and weightings. All reviews are documented. Scoring is used to support go/no-go decisions at key project milestones.
4	Predictable	Scoring is embedded in standard quality reviews. Thresholds are tracked quantitatively across releases or projects. Deviations are logged, linked to defects or change requests, and systematically addressed.
5	Optimizing	Scoring data feeds into continuous improvement. AI or automation helps highlight weak areas. Historical scores are benchmarked and guide training, standards refinement, and tooling enhancements.

Related Deliverables

- Requirements Scoring Sheet
- Quality Assessment Summary Report
- Review Traceability Matrix
- Quality Gate Scorecards

Related Techniques or Tools

- Weighted scoring models (e.g., scorecards, ranking matrices)
- AI-enhanced quality analyzers (e.g., QDAcity, Qualicen)
- Review automation platforms
- Traceability and scoring integration in RM tools

Reference Materials

- ISO/IEC/IEEE 29148 – Requirements quality characteristics and evaluation
- ISO 25010 – Evaluation models and attributes
- PMBOK Guide – Quality evaluation and scoring
- IREB CPRE Advanced RM – Assessment methods and quality scoring
- RMMi Internal Method Guide

Practice 3 – Defect Lifecycle and Resolution Tracking

Objective

Establish a structured process for identifying, recording, classifying, tracking, and resolving defects related to requirements quality, from discovery to closure.

Key Concepts

- **Defect**: Any issue affecting requirement correctness, clarity, feasibility, or traceability.
- **Defect Lifecycle**: The stages a defect follows, typically from detection, analysis, classification, assignment, resolution, validation, and closure.
- **Resolution Tracking**: The monitoring of actions taken to correct a defect, including verification and documentation.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Defects are handled informally and inconsistently. No centralized tracking or documentation.
2	Managed	Defects are logged manually. Resolution is tracked inconsistently. Classification and metrics are minimal or informal.
3	Defined	A standard defect management process exists. Status, severity, cause, and resolution are recorded. Defects are linked to requirements.
4	Predictable	Defect data is analyzed to identify patterns. KPIs such as resolution time and re-open rate are tracked. Preventive actions are implemented.
5	Optimizing	Defect trends guide continuous improvement. Automation supports triage and traceability. Insights are reused across projects and release cycles.

Related Deliverables

- Defect Log
- Defect Classification Guide
- Root Cause Analysis Reports
- Resolution Traceability Records
- Defect Metrics Dashboards

Related Techniques or Tools

- Defect tracking systems (e.g., Jira, ALM tools)
- Root cause analysis (RCA)
- Statistical defect analysis
- Traceability tools
- Automated defect detection and reporting

Reference Materials

- ISO/IEC/IEEE 29148 – Requirements defect classification and resolution
- PMBOK Guide – Quality control and corrective actions
- IREB CPRE Advanced RM – Defect identification and resolution
- IEEE 1044 – Software anomaly classification
- RMMi Internal Method Guide

Practice 4 – Requirements Quality Metrics and Trends Monitoring

Objective

Track, analyze, and interpret metrics related to requirements quality to support decision-making, detect patterns, and guide continuous improvement of engineering practices.

Key Concepts

- **Quality Metrics**: Quantitative indicators (e.g., defect density, review coverage, rework rate) used to evaluate requirement health and process performance.
- **Trend Analysis**: The identification of patterns or variations in quality metrics over time to predict issues and optimize practices.
- **Thresholds and Alerts**: Predefined limits for quality indicators that trigger investigations or corrective actions.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	No metrics are tracked. Quality trends are unknown. Issues are detected reactively.
2	Managed	Some metrics are recorded manually. Trend analysis is occasional and limited to major issues.
3	Defined	A metrics program is established. Data is collected systematically. Dashboards show current and historical quality status.
4	Predictable	Quality indicators are monitored with thresholds. Trends are analyzed across releases. Metrics support process control and risk anticipation.
5	Optimizing	Metrics are used proactively. Predictive analytics and AI identify early warning signals. Continuous improvement is guided by historical insights.

Related Deliverables

- Quality Metrics Dashboard
- Requirements Quality Score Reports
- Quality KPIs Repository
- Trend Analysis Logs

Related Techniques or Tools

- Requirements analytics dashboards (e.g., Power BI, Tableau)
- Statistical process control tools
- Data visualization and anomaly detection algorithms
- AI-based prediction models for defect or change risks

Reference Materials

- ISO/IEC/IEEE 29148 – Metrics and measurement for requirements engineering
- ISO 15939 – Software measurement process
- PMBOK Guide – Performance reporting and quality metrics
- IREB CPRE Advanced RM – Quality indicators and continuous analysis
- RMMi Internal Method Guide

Practice 5 – Continuous Improvement and Process Quality Feedback

Objective

Establish feedback workflows and continuous improvement mechanisms that integrate lessons learned, stakeholder input, and quality metrics to refine requirements processes, tools, and standards.

Key Concepts

- **Process Feedback**: Collection of input from teams and stakeholders regarding the effectiveness and usability of the requirements process.
- **Lessons Learned**: Documentation and reuse of insights, successes, and failures from past projects to enhance future performance.
- **Quality Retrospective**: A structured review focused on identifying quality improvements in processes, practices, and deliverables.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	No structured feedback mechanisms exist. Improvements are reactive or individual-driven.
2	Managed	Feedback is gathered occasionally via informal discussions. Some improvements are documented but rarely reused.
3	Defined	Formal feedback and retrospective processes are conducted at project milestones. Improvement actions are documented and assigned.
4	Predictable	Feedback is tracked systematically. Process changes are prioritized and monitored for effectiveness. Recurring issues are flagged and addressed.
5	Optimizing	Improvement is continuous and data-driven. Feedback loops are integrated with quality metrics and automation. Knowledge is shared across teams.

Related Deliverables

- Lessons Learned Register
- Improvement Action Plan
- Quality Retrospective Report
- Stakeholder Satisfaction Surveys

Related Techniques or Tools

- Retrospective facilitation methods (e.g., 5 Whys, Start-Stop-Continue)
- Continuous improvement frameworks (e.g., Kaizen, PDCA)
- Feedback capture tools (e.g., Microsoft Forms, Google Surveys)
- Process change tracking systems

Reference Materials

- ISO/IEC/IEEE 29148 – Requirements process improvement
- PMBOK Guide – Continuous improvement and lessons learned
- ISO 9001 – Quality management and improvement
- IREB CPRE Advanced RM – Quality and process feedback
- RMMi Internal Method Guide

2.10. Domain 6 – Strategy and Governance

The Strategy and Governance domain ensures that requirements engineering practices are aligned with enterprise objectives, organizational values, compliance obligations, and long-term sustainability. It connects operational practices to strategic intent and supports coordinated decision-making across business units and delivery teams.

This domain also supports transversal governance of maturity across all other domains. It defines strategic priorities and institutional roles to coordinate RE performance, ownership, and value contribution.

It establishes frameworks for responsibility (e.g., RACI), strategic prioritization, change governance, and knowledge capitalization. It also addresses external factors such as regulations, cybersecurity, sustainability, and the integration of innovation (e.g., AI governance).

Governance activities ensure that requirement change management practices, as defined in Practice 4, align with overall enterprise strategies and compliance objectives. It is conducted responsibly, transparently, and accountably — and that decisions are made with full visibility into their impact on value, risk, and compliance.

Glossary of Key Terms

- **Strategic Alignment**: Ensuring that requirements activities support and reflect the organization's business goals.
- **Governance Model**: A structure of roles, policies, and mechanisms to direct and oversee the requirements engineering lifecycle.
- **Compliance**: Adherence to applicable law and industry standards, and contractual requirements (e.g., GDPR, ISO 27001).
- **Sustainability**: The practice of engineering long-lasting, energy-conscious, and reusable requirements assets.
- **Enterprise Risk Management**: A coordinated approach to identifying and managing risks affecting strategic goals.

Key Deliverables

Deliverable	Description	Typical Contents
RE Strategic Roadmap	Long-term vision and alignment plan for requirements practices	Objectives, roadmap, KPIs, expected benefits
Governance Framework	Definition of roles, controls, and processes for RE governance	Policies, committees, audit checkpoints, RACI models
Compliance and Risk Register	Identification and tracking of legal, technical, and business risks	Source, owner, impact, controls, status

Sustainability Impact Report	Evaluation of digital sobriety, reusability, and obsolescence risks	Storage metrics, retention policy, reuse opportunities
Stakeholder Value Map	Visual map showing stakeholder interests and their alignment with RE strategy	Needs, influence, value contribution

Practices in This Domain

1. Requirements Strategy and Enterprise Alignment
2. Requirements Governance Model Definition
3. Compliance and Regulatory Integration
4. Sustainability and Digital Responsibility in RE
5. Innovation and Disruption Readiness

Reference Materials

- ISO/IEC/IEEE 29148 – Organizational context and stakeholder alignment
- PMBOK Guide – Strategic planning and enterprise environmental factors
- ISO 38500 – Governance of IT for the organization
- ISO 27001 / 27701 – Information security and privacy management
- IREB CPRE Advanced RM – Strategy and stakeholder management
- RMMi Internal Method Guide

Practice 1 – Requirements Strategy and Enterprise Alignment

Objective

Define and maintain a requirements strategy that ensures alignment with the organization's enterprise objectives, digital vision, risk profile, and value delivery priorities. This strategy guides all requirements-related decisions, investments, and process improvements.

Key Concepts

- **Enterprise Alignment**: Linking requirements activities directly to organizational goals, OKRs (Objectives & Key Results), and program strategies.
- **Strategic Prioritization**: Weighing requirements value, urgency, and feasibility based on strategic drivers.
- **Organizational Context Mapping**: Identifying environmental factors (e.g., regulatory, technological, market) that shape the requirements approach.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	No formal strategy exists. Requirements are gathered and managed locally or reactively without enterprise-level coordination or visibility.
2	Managed	Some alignment is documented at the program level. Strategic goals are known but rarely influence requirements decisions or trade-offs.
3	Defined	A documented requirements strategy exists and is regularly updated. Requirements activities are reviewed against strategic goals at milestones.
4	Predictable	Strategic objectives systematically guide prioritization, planning, and evaluation. Misalignments trigger reassessment. KPIs support traceability.
5	Optimizing	Strategy is continuously reviewed and refined. Scenario modeling and foresight tools are used. Data from strategy-performance gaps feeds into RE updates.

Related Deliverables

- Requirements Strategy Statement
- Alignment Traceability Matrix
- Strategic Prioritization Framework
- Enterprise Context Map
- Strategic Fit Assessment Report

Related Techniques or Tools

- OKR-based alignment models
- Business capability mapping
- Strategy scorecards (e.g., Balanced Scorecard)
- Traceability from strategy to backlog
- Value-based prioritization techniques (e.g., WSJF, MoSCoW)

Reference Materials

- PMBOK Guide – Strategic alignment and enterprise environmental factors
- ISO/IEC/IEEE 29148 – Organizational context and alignment with stakeholder needs
- ISO 38500 – Corporate IT governance
- IREB CPRE Advanced RM – Requirements strategy and stakeholder alignment
- RMMi Internal Method Guide

Practice 2 – Requirements Governance Model Definition

Objective

Define and institutionalize a governance framework for requirements engineering that clarifies roles, responsibilities, control mechanisms, escalation paths, and oversight structures across the lifecycle.

Key Concepts

- **Governance Framework**: A formal structure of policies, processes, and actors that ensures accountability, consistency, and compliance in RE.
- **Decision Rights**: Allocation of who is authorized to validate, approve, or escalate requirement-related decisions.
- **RACI and Role Modeling**: Models defining the Responsible, Accountable, Consulted, and Informed stakeholders for each major RE activity.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Requirements decisions are made inconsistently. Roles are unclear. Escalations are ad hoc. Governance is reactive or absent.
2	Managed	Roles and responsibilities are defined at project level. Some governance rules exist but are not enforced consistently across programs or units.
3	Defined	A documented RE governance model is in place. RACI charts and control gates are applied systematically. Stakeholder responsibilities are formalized.
4	Predictable	Governance is embedded in project and portfolio oversight. Compliance with decision processes is tracked. Governance deviations are escalated.
5	Optimizing	Governance is continuously improved based on audit results, feedback, and strategic evolution. Adaptive models are used in agile and hybrid contexts.

Related Deliverables

- Requirements Governance Charter
- RACI Matrix and Role Definitions
- Governance Process Model
- Decision Escalation Paths
- RE Control Gate Calendar

Related Techniques or Tools

- RACI and role-modeling templates
- Approval workflow systems
- Governance dashboards and control boards
- Stakeholder maps and authorization matrices
- Audit and compliance checklists

Reference Materials

- ISO/IEC/IEEE 29148 – Governance structures in RE
- PMBOK Guide – Governance, decision-making, and stakeholder roles
- ISO 38500 – IT governance principles
- IREB CPRE Advanced RM – Governance and responsibility modeling
- RMMi Internal Method Guide

Practice 3 – Compliance and Regulatory Integration

Objective

Integrate applicable regulatory, contractual, and legal requirements into the requirements engineering process, ensuring traceability, auditability, and risk mitigation throughout the lifecycle.

Key Concepts

- **Compliance Mapping**: Identification and documentation of applicable laws, regulations, standards, or policies.
- **Regulatory Requirements**: Constraints or rules that influence or dictate functional and non-functional requirements.
- **Audit Trail**: Documented evidence showing how regulatory or contractual obligations are translated and verified through the RE process.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Compliance requirements are not identified or managed. Legal and contractual risks emerge late or post-deployment.
2	Managed	Some regulatory or contractual constraints are captured but not traced. Compliance depends on individual awareness.
3	Defined	A compliance process is established. Regulatory needs are analyzed, documented, and linked to relevant requirements.
4	Predictable	Compliance coverage is verified systematically. Audit readiness and impact assessments are conducted regularly.
5	Optimizing	Compliance and RE are fully integrated. Regulatory changes are monitored continuously. Digital tools support traceability and auditability.

Related Deliverables

- Regulatory Requirements Register
- Compliance Traceability Matrix
- Audit Preparation Pack
- Compliance Risk Assessment Report
- Legal Review Sign-off Records

Related Techniques or Tools

- Legal requirement mapping tools
- Contract and regulation management systems
- Traceability matrices linking clauses to requirements
- Compliance reporting tools

Reference Materials

- ISO/IEC/IEEE 29148 – Legal and contractual requirements in RE
- ISO 27001 / ISO 27701 – Security and privacy compliance
- PMBOK Guide – Compliance management processes
- GDPR / HIPAA / SOX – Regulatory examples and domains
- RMMi Internal Method Guide

Practice 4 – Sustainability and Digital Responsibility in RE

Objective

Incorporate sustainability, digital sobriety, and long-term reusability into the requirements engineering process by managing obsolescence, optimizing storage, and reducing unnecessary requirements volatility.

Key Concepts

- **Sustainability in RE**: Practices that reduce resource consumption, increase longevity, and favor reuse of existing requirements assets.
- **Obsolescence Risk**: The possibility that requirements become outdated due to technology shifts, regulation changes, or business evolution.
- **Digital Responsibility**: Accountability in managing the digital footprint (storage, processing, archiving) of RE artifacts, including environmental and legal implications.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	No sustainability practices are considered. Requirements are archived indefinitely or lost. Environmental impact is not assessed.
2	Managed	Archiving rules exist but are inconsistently applied. Some attention to reuse. Energy and storage costs are tracked per project.
3	Defined	Policies for retention, reuse, and digital footprint are documented. Obsolescence and redundancy are evaluated periodically.
4	Predictable	Digital responsibility metrics are monitored. Retention is enforced by policy. Obsolescence risks are managed proactively.
5	Optimizing	Practices are continuously improved. Impact of storage, transfer, and AI processing is measured and optimized. External benchmarks guide decisions.

Related Deliverables

- Requirements Retention Policy
- Obsolescence and Reuse Audit Logs
- Sustainability Impact Assessment
- Storage and Archiving Plans
- Energy Usage Reports for RE Tools

Related Techniques or Tools

- Requirements reuse catalogs
- Archiving automation systems
- Storage analytics dashboards
- Green IT compliance tools
- Digital sustainability KPIs

Reference Materials

- ISO/IEC/IEEE 29148 – Requirements reuse and traceability
- ISO 14001 – Environmental management
- Digital Responsibility Charter – Organizational sustainability principles
- IREB CPRE Advanced RM – Sustainability in requirements practices
- RMMi Internal Method Guide

Practice 5 – Innovation and Disruption Readiness

Objective

Enable the requirements engineering process to anticipate, absorb, and integrate technological disruptions (e.g., AI, blockchain, IoT) and innovation cycles, ensuring requirements remain relevant, adaptive, and future-ready.

Key Concepts

- **Technology Scouting**: Identifying and monitoring emerging technologies with potential RE impact.
- **Disruption Readiness**: Capability to quickly assess and adapt requirements practices to new digital enablers or threats.
- **Innovation Integration**: Structuring RE to support experimentation, iterative discovery, and product innovation.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	The RE process is static. Innovation and disruption are not considered. Requirements become outdated or mismatched over time.
2	Managed	Innovation is acknowledged but addressed reactively. Some projects explore emerging trends without formal impact analysis.
3	Defined	An innovation assessment process is in place. Emerging technologies are reviewed regularly. Requirements flexibility is supported.
4	Predictable	Technology trend analysis and disruption readiness are embedded in RE planning. Innovation metrics and risk models are maintained.
5	Optimizing	RE continuously integrates innovation. AI tools support requirement discovery and evolution. Lessons from tech disruptions shape future practices.

Related Deliverables

- Technology Watch Reports
- Innovation Readiness Assessment
- Emerging Technology Impact Matrix
- RE Adaptation Guidelines for Disruptive Trends
- Continuous Innovation Integration Plan

Related Techniques or Tools

- Horizon scanning and trend mapping
- Innovation KPIs and agility metrics
- RE-AI collaboration platforms (e.g., co-pilot tools, NLP analyzers)
- Emerging tech playbooks
- Innovation backlog and experimentation pipelines

Reference Materials

- ISO/IEC/IEEE 29148 – Emerging technology handling in RE
- Gartner Hype Cycle – Disruption maturity modelling
- IREB CPRE Advanced RM – Innovation integration practices
- PMBOK Guide – Innovation planning and risk
- RMMi Internal Method Guide

2.11. Domain 7 – Tools, Automation & AI Enablement

The Tools, Automation & AI Enablement domain ensures that the requirements engineering process is equipped with the right tools, automated processes, and AI-driven support to enhance productivity, quality, and consistency. It aims to integrate advanced technologies into the RE lifecycle to streamline operations, reduce manual work, and support innovation.

This domain is critical for leveraging cutting-edge technologies such as Artificial Intelligence (AI), Machine Learning (ML), and Robotic Process Automation (RPA) to improve the accuracy and efficiency of requirement management, traceability, and analysis. By automating repetitive tasks and providing AI-powered insights, this domain ensures that organizations can keep pace with digital transformation and future-proof their requirements practices.

Glossary of Key Terms

- **Artificial Intelligence (AI)**: Technology that simulates human intelligence processes, enabling systems to learn, reason, and adapt.
- **Robotic Process Automation (RPA)**: The use of software robots or "bots" to automate repetitive tasks across applications and systems.
- **Machine Learning (ML)**: A subset of AI that enables systems to learn from data and improve over time without being explicitly programmed.
- **Automation Tools**: Software and systems used to automate processes within the requirements engineering lifecycle, such as test automation, traceability management, and reporting.

Key Deliverables

Deliverable	Description	Typical Contents
Automation Strategy Plan	A detailed roadmap for implementing automation in the RE process	Roadmap, KPIs, timeline, tools to be used
AI Implementation Report	A report evaluating the adoption and impact of AI technologies on RE	Metrics, AI models, outcomes, analysis
Automated Process Templates	Predefined templates for automated processes within RE	Process diagrams, step-by-step instructions, best practices
Tool Integration Report	Analysis of how different tools and automation systems integrate into the RE lifecycle	Tool configurations, integration plans, performance metrics
AI-powered Insights Report	Report summarizing AI-generated insights, trends, and predictions	Predictive analytics, recommendations, KPIs

Practices in This Domain

1. Automation Tools and Process Integration
2. AI and Machine Learning in Requirements Engineering
3. Robotic Process Automation for Requirements Management
4. Tool and Automation Performance Monitoring
5. Continuous Improvement in Tools and Automation

Reference Materials

- ISO/IEC/IEEE 29148 – Requirements engineering tools and techniques
- PMBOK Guide – Automation and digital tools in project management
- ISO/IEC 27001 – Information security management in automated systems
- IREB CPRE Advanced RM – Tool usage and automation strategies
- RMMi Internal Method Guide

Practice 1 – Automation Tools and Process Integration

Objective

Define and implement the tools and automated processes required to streamline the requirements engineering lifecycle, improve consistency, reduce manual tasks, and support ongoing improvement. The practice aims to ensure that automation is fully integrated within the RE processes for better efficiency, less human error, and enabling greater focus on strategic, high-value tasks.

Key Concepts

- **Automation Tools**: Software and systems designed to automate specific tasks within the RE lifecycle, such as test automation, workflow management, traceability management, reporting, and defect tracking.
- **Process Integration**: The integration of automation tools within the existing requirements engineering processes to ensure smooth and efficient operation across the lifecycle stages.
- **Continuous Improvement**: A cyclical process of assessing the effectiveness of the automation tools, gathering feedback, optimizing processes, and refining tool configurations to achieve higher productivity and better quality over time.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Minimal or no automation tools are used. Most tasks are manually performed. Ad-hoc automation may be applied in isolated areas.
2	Managed	Some automation tools are in place, but they are used in isolated or departmentalized areas. The integration between tools is inconsistent.
3	Defined	A suite of automation tools is defined and integrated across multiple stages of the RE lifecycle. Tools are standardized but may not yet be fully optimized.
4	Predictable	Automation tools are fully integrated into the RE processes. Tools' performance is monitored and improvements are made based on real-time feedback.
5	Optimizing	Automation is continuously evolving with the integration of AI and machine learning. Tools are adapted based on performance data, and best practices are regularly reviewed and applied.

Related Deliverables

- Automation Tools Implementation Plan
- Process Integration Workflow Diagram
- Optimization and Continuous Improvement Reports
- Automation System Configuration Logs
- Performance Metrics and Analytics Dashboard

Related Techniques or Tools

- Test Automation Frameworks (e.g., Selenium, Cucumber)
- Workflow and Process Management Tools (e.g., Jira, Trello, Monday.com)
- Integration Platforms (e.g., Zapier, Microsoft Power Automate)
- AI-powered tools for requirements management (e.g., NLP-based tools)
- Robotic Process Automation (RPA) solutions

Reference Materials

- ISO/IEC/IEEE 29148 – Requirements engineering tools and techniques
- PMBOK Guide – Automation and digital tools in project management
- ISO/IEC 27001 – Information security management in automated systems
- IREB CPRE Advanced RM – Tools usage and automation strategies
- RMMi Internal Method Guide

Practice 2 – AI and Machine Learning in Requirements Engineering

Objective

Utilize Artificial Intelligence (AI) and Machine Learning (ML) technologies to optimize requirements engineering processes. The aim is to automate complex tasks, uncover hidden patterns in requirements data, and predict potential risks or changes in requirements. This practice helps improve decision-making by providing data-driven insights and automating repetitive tasks, thereby enhancing the efficiency and effectiveness of the requirements lifecycle.

Key Concepts

- **Artificial Intelligence (AI)**: Technology that enables machines to simulate human intelligence, learn from data, and make autonomous decisions based on insights.
- **Machine Learning (ML)**: A subset of AI, ML enables systems to learn from historical data and improve performance over time without explicit programming.
- **Predictive Analytics**: The use of AI/ML to analyze historical data patterns, detect trends, and predict potential future outcomes, such as risk areas, scope changes, or requirements volatility.
- **Natural Language Processing (NLP)**: A branch of AI that focuses on the interaction between computers and human language, used to analyze and interpret textual requirements data.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	No use of AI or ML. Requirements are manually managed and analyzed. There is no use of predictive or automated capabilities.
2	Managed	Basic AI/ML tools are applied for limited tasks, such as basic classification or categorization of requirements. Predictive analytics are explored but not integrated into day-to-day processes.
3	Defined	AI/ML tools are fully implemented for automating key tasks, such as requirement classification, risk detection, and anomaly identification. Predictive analytics are routinely used for decision-making and forecasting.
4	Predictable	AI/ML is systematically integrated across the RE process. Data patterns are consistently analyzed, and predictive models are used to optimize processes and manage risks.
5	Optimizing	AI and ML tools evolve continuously, based on real-time feedback and new data. Advanced analytics, deep learning, and AI-driven decision tools optimize the entire requirements lifecycle, from discovery through to closure.

Related Deliverables

- AI/ML Implementation Strategy
- Predictive Analytics Reports and Dashboards
- Machine Learning Models and Training Data Sets
- Automated Requirements Classification Logs
- Anomaly Detection and Risk Forecasting Reports

Related Techniques or Tools

- AI-powered tools for requirement analysis (e.g., QDAcity, NLP-based tools)
- Machine Learning platforms (e.g., TensorFlow, Azure ML, IBM Watson)
- Predictive analytics tools for RE (e.g., Power BI, Tableau, Python libraries)
- Data modeling and pattern recognition algorithms
- NLP-based tools for requirement text analysis

Reference Materials

- ISO/IEC/IEEE 29148 – Requirements engineering and AI integration
- PMBOK Guide – Digital tools and AI capabilities in project management
- IEEE 1012 – Software testing and AI-based automation
- IREB CPRE Advanced RM – AI/ML applications in requirements engineering
- RMMi Internal Method Guide

Practice 3 – Robotic Process Automation for Requirements Management

Objective

Leverage Robotic Process Automation (RPA) to automate repetitive, rule-based tasks within the requirements management lifecycle. This practice aims to reduce the burden of manual data entry, improve consistency, and free up resources for more strategic, value-added activities. By implementing RPA, organizations can enhance their efficiency, ensure higher accuracy, and minimize human error in routine processes such as requirement traceability, documentation, and reporting.

Key Concepts

- **Robotic Process Automation (RPA)**: Technology that uses software robots (bots) to automate structured, repetitive tasks that are traditionally performed by humans, without requiring intervention or decision-making capabilities.
- **Automated Workflow**: A process where RPA tools are integrated into existing workflows to perform tasks like data collection, input, traceability, and validation, ensuring smooth operation across different tools or systems.
- **Task Optimization**: The identification and automation of the most repetitive and time-consuming tasks in requirements management to maximize efficiency and minimize the chance for human errors.

Maturity Level Descriptions

Level	Label	Description of Expected Behavior and Artifacts
1	Basic	No use of RPA. All tasks in requirements management are performed manually. Automation is absent, leading to time-consuming processes and potential inconsistencies.
2	Managed	Basic RPA tools are used for isolated tasks (e.g., data entry, requirement traceability updates). No central RPA strategy, but automation is beginning to be applied.
3	Defined	RPA tools are systematically integrated into requirements management workflows. Key tasks such as reporting and updates are automated across the lifecycle.
4	Predictable	RPA is fully integrated into workflows, with performance metrics in place to monitor and optimize efficiency. Feedback loops for improvement are established.
5	Optimizing	RPA continuously evolves, with AI and machine learning enhancing its capabilities. Bots are capable of handling complex tasks and adapt to new requirements dynamically.

Related Deliverables

- RPA Implementation Roadmap
- Automated Workflow Diagrams
- Performance and Efficiency Reports
- Continuous Improvement Tracker for Automation
- RPA Configuration and Integration Logs

Related Techniques or Tools

- RPA Tools (e.g., UiPath, Automation Anywhere, Blue Prism)
- Workflow Automation Platforms (e.g., Jira, ServiceNow, Trello)
- Data Integration and Reporting Tools (e.g., Microsoft Power Automate, Zapier)
- AI-Powered RPA (e.g., combining RPA with NLP and machine learning algorithms)
- Business Process Modeling Tools

Reference Materials

- ISO/IEC/IEEE 29148 – Requirements engineering tools and techniques
- PMBOK Guide – Automation and digital tools in project management
- ISO/IEC 27001 – Information security management in automated systems
- IREB CPRE Advanced RM – Tool usage and automation strategies
- RMMi Internal Method Guide

Practice 4 – Tool and Automation Performance Monitoring

Objective

Establish a structured performance monitoring system to assess the effectiveness of tools and automation systems used within the requirements engineering lifecycle. The goal is to track key performance indicators (KPIs), identify bottlenecks, optimize performance, and ensure tools and automation systems continuously meet the evolving needs of the organization, improving efficiency, accuracy, and cost-effectiveness.

By monitoring these KPIs and performance metrics, organizations can gain a comprehensive understanding of the health and efficiency of their tools and automation systems, enabling them to make informed decisions and improvements.

Key Concepts

- **Performance Metrics**: Quantitative measures used to evaluate the success of tools and automation systems, such as throughput, error rates, success rates, latency, availability, scalability, resource consumption, cost-efficiency and user satisfaction.
- **Optimization**: The ongoing process of improving the performance of tools and automation systems by analysing data, resolving inefficiencies, and adapting to new requirements or conditions.
- **Feedback Loop**: The process of collecting performance data, analysing it, and using the insights to drive improvements in automation tools and processes, creating a cycle of continuous enhancement.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	No formal performance monitoring system in place. Tools are used in an ad-hoc manner with little to no performance tracking or analysis.
2	Managed	Basic performance metrics are tracked intermittently. Some tools may be optimized, but no central strategy exists for monitoring or improvement.
3	Defined	A comprehensive performance monitoring framework is established. Key performance metrics are tracked regularly, and optimization strategies are in place.
4	Predictable	Performance monitoring is fully integrated into the workflow. Continuous optimization is a priority, with feedback loops and improvement actions documented.
5	Optimizing	Real-time performance analytics are used to dynamically optimize tools and processes. Proactive monitoring and data-driven decisions ensure continuous improvement and optimal performance.

Related Deliverables

- Tool Performance Dashboards
- Optimization and Improvement Plans
- Performance Metrics Reports
- Automated Tools Performance Review Logs
- Continuous Monitoring and Feedback Reports

Related Techniques or Tools

- Performance monitoring platforms (e.g., Nagios, Grafana)
- Data visualization and analytics tools (e.g., Power BI, Tableau)
- Automation system performance testing and benchmarking tools
- Continuous integration/continuous deployment (CI/CD) tools
- Real-time performance feedback systems

Reference Materials

- ISO/IEC/IEEE 29148 – Requirements engineering tools and techniques
- PMBOK Guide – Performance management in automation and digital tools
- ISO/IEC 27001 – Information security management in automated systems
- IREB CPRE Advanced RM – Tool usage and optimization strategies
- RMMi Internal Method Guide

Practice 5 – Continuous Improvement in Tools and Automation

Objective

Establish a structured framework for the continuous improvement of tools and automation systems used throughout the requirements engineering lifecycle. The aim is to ensure that automation tools evolve over time, incorporating feedback from performance data, user experiences, and industry best practices. This approach focuses on optimizing automation efficiency, improving quality, and ensuring tools remain aligned with changing business needs.

Key Concepts

- **Continuous Improvement**: The process of incrementally improving tools and systems through periodic assessments, user feedback, and performance data analysis.
- **Feedback Loops**: The process of collecting and utilizing feedback from users, performance metrics, and system logs to guide improvements.
- **Agile Methodology**: Applying iterative development principles to continuously refine tools and automation practices, with frequent revisions based on evolving requirements.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	No formal process for continuous improvement. Tools are static and only updated reactively when issues arise.
2	Managed	Feedback is occasionally collected, and some improvements are made. Automation tools may be updated periodically but without a structured improvement plan.
3	Defined	A formal continuous improvement process is established. Regular feedback is collected, and performance data is used to identify opportunities for enhancement.
4	Predictable	Continuous improvement is embedded within the RE lifecycle. Automation tools are updated regularly based on performance reviews, with defined processes for optimization.
5	Optimizing	Tools and automation systems evolve continuously. Improvements are driven by real-time feedback and advanced analytics, ensuring tools are adaptable and always optimized.

Related Deliverables

- Continuous Improvement Strategy
- Feedback and Performance Data Logs
- Process Improvement Action Plans
- Updated Automation Tools Specifications
- Ongoing Optimization Reports

Related Techniques or Tools

- Feedback gathering platforms (e.g., surveys, user experience reviews)
- Process improvement frameworks (e.g., Lean, Kaizen, PDCA)
- Data analysis tools (e.g., Power BI, Tableau)
- Agile or Scrum-based iterative methods
- Automation system benchmarking and performance evaluation tools

Reference Materials

- ISO/IEC/IEEE 29148 – Requirements engineering tools and continuous improvement practices
- PMBOK Guide – Performance management and process improvement strategies
- ISO/IEC 27001 – Information security management in automated systems
- IREB CPRE Advanced RM – Continuous improvement practices in requirements engineering
- RMMi Internal Method Guide

2.12. Domain 8 – People, roles and Skills Development

The People, Roles & Skills Development domain ensures that individuals involved in requirements engineering (RE) possess the appropriate competencies, operate within clearly defined roles, and receive continuous development to adapt to evolving practices and technologies. This domain enables organizations to align their human capital with RE goals by establishing role clarity, skill development frameworks, and a culture of learning and collaboration.

With the acceleration of digital transformation and the integration of tools such as AI, automation, and hybrid methodologies, RE teams must continually adapt. This domain supports that adaptation through the professionalization of RE roles, the development of soft and technical skills, and the promotion of leadership and knowledge sharing across teams and functions.

It contributes directly to RE maturity by ensuring that the right people are in the right roles, with the right capabilities, at the right time.

Glossary of Key Terms

- **Role Definition**
  A structured description of a single role, including its responsibilities, required competencies, authority level, expected outcomes, and interactions with other roles. It serves as the basis for staffing, training, and evaluation.
- **Role Taxonomy**
  A hierarchical or categorical classification of all roles within the requirements engineering (RE) discipline. It enables standardization, comparison across roles, and consistency in workforce planning.
- **Competency Framework**
  A comprehensive structure outlining all skills, knowledge, and behaviors required across roles within the RE lifecycle. It includes proficiency levels, categories (technical, soft, business), and learning objectives.
- **Competency Model**
  A focused representation of the specific competencies, behaviors, and performance indicators expected for a particular role. It is used for job design, performance reviews, and individual development plans.
- **Skill Gap Analysis**
  A diagnostic tool used to compare existing competencies of individuals or teams with the target competencies defined in the model or framework, identifying areas that require development or training.
- **Continuous Learning**
  The sustained development of professional capabilities through formal training, informal learning, mentoring, or experiential activities to maintain relevance and effectiveness.
- **Leadership Development**
  A set of activities, programs, and coaching efforts aimed at enhancing leadership capabilities, such as strategic thinking, communication, conflict management, and people development within RE teams.

- **Agile Mindset**
  A behavioral and cultural orientation favoring adaptability, cross-functional collaboration, incremental delivery, and responsiveness to change — essential for modern RE practices.
- **Knowledge Sharing**
  The process of exchanging explicit and tacit knowledge among team members to improve collective capability, avoid duplication of effort, and retain institutional knowledge.

Key Deliverables

Key Deliverables

Deliverable	Description	Typical Contents
RE Role Catalog	Repository of clearly defined RE roles and their expectations	Role names, responsibilities, authority, required skills
Competency Framework	Matrix of technical, soft, and business skills required for each RE role	Skill categories, proficiency levels, learning objectives
Training and Development Plan	Structured roadmap for upskilling and career development	Courses, formats, timelines, objectives
Career Path & Growth Model	Progression model showing advancement opportunities within RE roles	Levels, transitions, promotion criteria
Collaboration & Knowledge Plan	Strategy for cross-role communication and peer learning	Tools, communities of practice, review systems
Leadership Development Plan	Program to identify and prepare future RE leaders	Coaching, delegation, decision-making training

Practices in This Domain

1. Role Definition and Competency Mapping
2. Training and Development for Requirements Engineers
3. Fostering Team Collaboration and Knowledge Sharing
4. Leadership Development in Requirements Engineering
5. Continuous Learning and Skills Enhancement

Practice 1 – Role Definition and Competency Mapping

Objective

Define and maintain clear roles across the RE lifecycle and map them to a structured set of competencies. This ensures that responsibilities are allocated appropriately and that individuals have the skills needed for their assigned responsibilities.

Key Concepts

- Role Definition
- Role Taxonomy
- Competency Framework
- Competency Model
- Skill Gap Analysis

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	No documented roles or competencies. Roles evolve ad hoc, with unclear expectations and overlapping responsibilities.
2	Managed	Key roles are described informally. Some competencies are known but not systematically assessed. Role allocation is reactive and informal.
3	Defined	A role taxonomy and competency framework are defined. Each RE role is mapped to required skills. Role descriptions are available and used in staffing.
4	Predictable	Roles and competencies are regularly reviewed and updated. Competency assessments are conducted, and results are used for team allocation and training plans.
5	Optimizing	Roles and competencies evolve dynamically with changes in technology and methods. Skill gaps are proactively addressed. Development is aligned with strategic goals.

Related Deliverables

- RE Role Catalog
- Competency Matrix
- Skill Gap Reports
- Role Description Templates
- Process-Role Mapping Sheets

Related Techniques or Tools

- RACI Matrices
- LMS or HRIS platforms for competency tracking
- Skill mapping and self-assessment tools
- Professional standards (e.g., IREB, PMI, BABOK)

Reference Materials

- ISO/IEC/IEEE 29148
- IREB CPRE Advanced RM
- PMBOK Guide
- ISO 10015
- RMMi Internal Method Guide

Practice 2 – Training and Development for Requirements Engineers

Objective

Design and implement structured training and development programs that equip requirements engineering (RE) practitioners with the technical, analytical, communication, and domain-specific skills required to perform effectively. The goal is to support onboarding, upskilling, certification, and career growth through continuous, targeted learning.

Key Concepts

- **Training Plan**: A defined schedule and set of learning objectives aligned with role-specific and organizational needs.
- **Blended Learning**: A training method combining e-learning, in-person workshops, mentoring, and practical assignments.
- **Learning Path**: A sequenced journey tailored to individual roles and career goals, often linked to certification or skill levels.
- **Capability Building**: Activities focused on developing long-term expertise through applied practice and experiential learning.
- **Certification**: Formal recognition of proficiency (e.g., IREB CPRE, ISTQB, PMI-BA) used for benchmarking professional development.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	No formal training exists. Individuals rely on experience or informal coaching. New hires receive no structured onboarding.
2	Managed	Some training resources and sessions are available. Onboarding varies across teams. Training is reactive and often generic.
3	Defined	A structured training program is in place for all RE roles. Learning objectives are documented, and individual development plans exist.
4	Predictable	Learning paths are tailored to roles and career levels. Development is tracked. Certification and assessments are used for planning and review.
5	Optimizing	Training programs evolve continuously based on project feedback, innovation, and performance data. Learning is embedded in the team culture.

Indicators

- % of RE staff having completed formal training programs
- % of role profiles aligned with organizational RE competency frameworks

Related Deliverables

- Role-based Training Plan
- Onboarding Program Materials
- Learning Paths and Certification Maps
- Skills Assessment Reports
- Annual Training Needs Analysis

Related Techniques or Tools

- Learning Management Systems (LMS)
- Microlearning platforms (e.g., Coursera, LinkedIn Learning)
- Workshops and role-play simulation sessions
- Certification preparation programs (e.g., IREB, PMI, ISTQB)
- Coaching and mentoring frameworks

Reference Materials

- IREB CPRE Syllabi and Study Materials
- PMBOK Guide – Resource and competency development
- *ISO 10015: Quality management — Guidelines for competence management and people development*. Genève: ISO.
- ISO/IEC/IEEE 29148 – Skills and education in RE practices
- RMMi Internal Method Guide

Practice 3 – Fostering Team Collaboration and Knowledge Sharing

Objective

Promote effective collaboration and the exchange of knowledge across individuals, roles, and teams involved in requirements engineering (RE). This practice supports cross-functional alignment, avoids knowledge silos, and enhances collective learning, especially in distributed and hybrid environments.

Key Concepts

- **Knowledge Sharing**: The structured and informal transfer of both explicit and tacit knowledge among RE practitioners to improve team performance.
- **Collaboration Culture**: A working environment that encourages open communication, psychological safety, peer feedback, and cooperative problem-solving.
- **Communities of Practice (CoP)**: Voluntary groups where practitioners share knowledge, practices, and lessons learned within or across teams.
- **Distributed Collaboration**: Methods and tools to support seamless teamwork across locations, time zones, or cultural contexts.
- **Documentation Reuse**: Leveraging validated artifacts and prior experiences to increase efficiency and reduce redundancy in RE efforts.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Communication is unstructured and informal. Information is often lost or kept within individuals or teams. Documentation is rarely reused.
2	Managed	Some collaboration occurs through meetings or messaging tools. Knowledge sharing depends on individual initiative. Few formal structures exist.
3	Defined	Collaboration processes and platforms are established. Teams use shared repositories, regular exchanges, and post-project debriefings.
4	Predictable	Knowledge is captured and shared systematically across roles and projects. Communities of practice and learning sessions are scheduled and tracked.
5	Optimizing	Collaboration and knowledge sharing are integral to the RE culture. Feedback loops are institutionalized, and reusable knowledge is actively curated.

Related Deliverables

- Team Collaboration Guidelines
- Knowledge Base / Shared Repository
- Community of Practice Charter
- Knowledge Transfer Logs
- Post-Mortem and Retrospective Reports

Related Techniques or Tools

- Collaboration platforms (e.g., Confluence, Miro, Microsoft Teams)
- Document versioning and traceability systems
- Retrospective and peer learning formats
- Wikis, FAQs, shared glossaries
- Knowledge reuse and tagging systems

Reference Materials

- ISO 30401 – Knowledge management systems
- ISO/IEC/IEEE 29148 – Documentation and knowledge practices
- IREB CPRE Advanced RE – Collaboration and shared understanding in RE
- PMBOK Guide – Project team collaboration practices
- RMMi Internal Method Guide

Practice 4 – Leadership Development in Requirements Engineering

Objective

Develop leadership capabilities within requirements engineering (RE) roles to support strategic alignment, team performance, and decision-making. This practice focuses on preparing RE practitioners—whether analysts, architects, or coordinators—for greater responsibility, stakeholder engagement, and cross-functional influence.

Fostering leadership at multiple levels, organizations can ensure that requirements engineering contributes proactively to business objectives, facilitates informed decisions, and promotes a culture of accountability and continuous improvement.

Key Concepts

- **Leadership Development**: A structured approach to identifying, nurturing, and evaluating leadership skills relevant to RE roles.
- **Soft Skills Maturity**: Development of communication, conflict resolution, negotiation, and facilitation abilities that are essential in RE leadership.
- **Emerging Leaders**: RE professionals with strong technical skills who are coached and mentored to transition into leadership positions.
- **Situational Leadership**: The ability to adapt leadership style depending on team maturity, task complexity, and stakeholder needs.
- **Influence Without Authority**: Skills required to lead initiatives, negotiate priorities, and gain stakeholder buy-in without formal hierarchical power.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Leadership is informal and dependent on individual initiative. No specific efforts are made to develop RE leadership capabilities.
2	Managed	Some leadership behaviors are encouraged. RE team leads are chosen based on availability or seniority. Few tools or support structures exist.
3	Defined	A structured leadership development program is available for RE professionals. Role models, training, and mentoring are offered.
4	Predictable	Leadership competencies are assessed and tracked. Programs for coaching, delegation, and influence are part of RE career paths.
5	Optimizing	Leadership development is strategic. New leaders are proactively identified, trained, and evaluated. Leaders shape RE direction and drive innovation.

Related Deliverables

- Leadership Development Framework
- RE Role Progression Path
- Leadership Assessment Reports
- Mentoring Program Guidelines
- Leadership Workshop Materials

Related Techniques or Tools

- 360° feedback and leadership self-assessment tools
- Mentoring and coaching systems
- Influence mapping and stakeholder alignment models
- Leadership competency profiles
- Scenario-based training (e.g., facilitation, conflict resolution)

Reference Materials

- PMBOK Guide – Leadership and team management in project environments
- ISO 10015 – Training and competency development
- IREB CPRE Advanced RM – Leadership in stakeholder communication and facilitation
- RMMi Internal Method Guide
- Korn Ferry Leadership Architect (optional external benchmark)

Practice 5 – Continuous Learning and Professional Growth in Requirements Engineering

Objective

Establish a culture and structure that promote continuous learning and the long-term evolution of competencies in the RE team. This practice aims to maintain the relevance, adaptability, and technical depth of RE professionals as methodologies, tools, and business environments evolve.

Key Concepts

- **Continuous Learning**: Ongoing acquisition of knowledge and skills through formal and informal channels.
- **Learning Culture**: An environment that values curiosity, reflection, experimentation, and feedback.
- **Capability Evolution**: Progressive enhancement of individual and collective RE competencies in response to strategic goals and technological trends.
- **Adaptive Workforce**: RE professionals who can acquire new skills and pivot roles as project or organizational needs shift.
- **Feedback-Driven Learning**: Learning mechanisms based on project outcomes, retrospectives, and team feedback loops.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Learning is optional and informal. No tracking or alignment with role expectations. Professionals rely on experience rather than structured growth.
2	Managed	Learning resources exist but are underused. Training is mostly reactive or mandatory. Capability development is not tied to performance.
3	Defined	Learning plans are aligned with RE roles and regularly reviewed. Continuous development is expected and supported with formal programs.
4	Predictable	Skills and competencies are evaluated periodically. Feedback and learning are integrated into retrospectives, performance reviews, and planning.
5	Optimizing	Learning is embedded in the team's routine. Capabilities evolve dynamically based on trends, innovation, and feedback. Learning analytics guide strategic planning.

Related Deliverables

- Individual Development Plans (IDPs)
- RE Learning Roadmap
- Capability Review Reports
- Feedback-Driven Training Updates
- Annual Skills Evolution Report

Related Techniques or Tools

- Learning Management Systems (LMS) with personalized paths
- Communities of practice and peer-learning circles
- Self-assessment tools and growth journals
- Innovation sprints, learning retrospectives
- AI-powered skill tracking platforms

Reference Materials

- ISO 10015 – Training and education systems
- PMBOK Guide – Continuous improvement and competency management
- IREB CPRE Advanced RM – Adaptivity and innovation in RE roles
- RMMi Internal Method Guide
- World Economic Forum – Future of Jobs (trends on evolving capabilities)

2.13. Domain 9 – Collaboration and Communication

The **Collaboration and Communication** domain focuses on establishing effective interaction mechanisms among all stakeholders involved in requirements engineering (RE). It covers interpersonal, cross-functional, and organizational communication to ensure shared understanding, reduce ambiguity, and align expectations throughout the RE lifecycle.

This domain supports seamless cooperation between business and technical stakeholders, regardless of team structure (e.g., co-located, distributed, or cross-organizational). It also addresses the importance of soft skills, communication planning, remote collaboration, and tools that facilitate synchronous and asynchronous exchange.

Strong collaboration and communication practices are foundational for successful RE. They help build trust, resolve conflicts early, and ensure that information flows continuously and accurately between all parties.

Domain 9 focuses on how requirements engineers, stakeholders, and cross-functional teams communicate and collaborate in a structured, repeatable, and scalable way. It addresses organizational enablers of communication, not individual training or skills.

Glossary of Key Terms – Collaboration and Communication

- **Shared Understanding**
  A state where all stakeholders have a common interpretation of requirements, objectives, and constraints.
- **Stakeholder Alignment**
  The process of ensuring that all involved parties agree on goals, priorities, and expectations throughout the project lifecycle.
- **Communication Plan**
  A structured document describing who communicates what, how often, through which channels, and with what level of formality.
- **Collaborative Tools**
  Software systems and platforms that support real-time or asynchronous communication, task coordination, and documentation.
- **Feedback Loops**
  Processes and checkpoints designed to gather, evaluate, and integrate input from stakeholders to improve quality and relevance of requirements.
- **Conflict Resolution**
  Techniques used to identify and address misunderstandings, misalignments, or disagreements that may arise between stakeholders.
- **Cultural Awareness**
  The ability to understand and respect communication styles, behaviors, and expectations across different cultural contexts, especially in distributed teams.

Key Deliverables

Deliverable	Description	Typical Contents
RE Communication Plan	Defines channels, audiences, frequencies, and responsibilities	Stakeholder map, channels matrix, formal/informal flows
Meeting Framework & Facilitation Guide	Sets standards for how RE meetings are organized and documented	Roles in meetings, minutes templates, facilitation techniques
Stakeholder Feedback Reports	Collected feedback from interviews, reviews, or validation sessions	Themes, insights, follow-ups, decisions
Collaboration Guidelines	Rules and best practices for effective team and cross-role collaboration	Working agreements, behavioral expectations, tool usage
Remote Collaboration Strategy	Defines communication and engagement rules for hybrid or fully remote teams	Time zone coordination, asynchronous updates, documentation accessibility

Practices in This Domain

1. Communication Planning and Stakeholder Alignment
2. Facilitating Collaborative Requirements Activities
3. Remote and Distributed Team Communication
4. Feedback Management and Conflict Resolution
5. Continuous Communication Improvement

Practice 1 – Communication Planning and Stakeholder Alignment

Objective

Develop and maintain a structured communication plan to ensure that all stakeholders are informed, engaged, and aligned throughout the requirements engineering (RE) lifecycle. This includes identifying stakeholders, defining communication responsibilities, and creating conditions for shared understanding and commitment to project goals.

Key Concepts

- **Stakeholder Identification**: The process of determining who is involved, who is impacted, and who holds influence or decision rights in RE activities.
- **Communication Planning**: Establishing what information is communicated, to whom, how, when, and by whom.
- **Alignment Mechanisms**: Structures or checkpoints that ensure stakeholders maintain a common understanding of the scope, objectives, and constraints.
- **Formal vs. Informal Channels**: Balancing structured updates (e.g., meetings, reports) with informal interactions (e.g., chats, calls) to maintain transparency and trust.
- **RACI Matrix**: A tool to clarify stakeholder roles in communication (Responsible, Accountable, Consulted, Informed).

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Communication is ad hoc. Stakeholders are identified informally. Alignment relies on personal initiative and informal updates.
2	Managed	Stakeholders are partially mapped, and some structured communication exists. Plans may be documented but not consistently followed.
3	Defined	A formal RE communication plan is defined and maintained. Stakeholders are mapped, and communication roles and frequencies are clearly documented.
4	Predictable	Communication is proactive and tracked. Plans are reviewed regularly. Alignment checkpoints are embedded in the RE lifecycle.
5	Optimizing	Communication strategies are adapted dynamically. Stakeholder alignment is continuously measured and improved. Real-time feedback informs plans.

Related Deliverables

- Stakeholder Map
- RE Communication Plan
- Meeting and Notification Calendar
- Alignment Logs and Decision Records
- RACI Matrix for Communication

Related Techniques or Tools

- Stakeholder analysis grids (power/interest matrix)
- Communication planning templates (e.g., from PMBOK)
- Collaboration and messaging platforms (e.g., MS Teams, Slack)
- Project dashboards with stakeholder visibility (e.g., Jira, Trello)
- Alignment workshops and pre-kickoff sessions

Reference Materials

- ISO/IEC/IEEE 29148 – Stakeholder identification and communication practices
- PMBOK Guide – Communication planning, stakeholder engagement
- BABOK Guide – Stakeholder collaboration and communication techniques
- RMMi Internal Method Guide
- ISO 10006 – Guidelines for quality in project management (includes stakeholder satisfaction)

Practice 2 – Facilitating Collaborative Requirements Activities

Objective

Promote structured collaboration during requirements engineering (RE) activities by designing and facilitating sessions that engage stakeholders effectively. The goal is to ensure joint understanding, co-construction, and collective ownership of requirements through proven facilitation methods.

Key Concepts

- **Facilitation**: The act of guiding discussions to ensure inclusive participation, focused outcomes, and productive decision-making.
- **Co-construction**: Collaborative creation of requirements with stakeholders rather than passive validation.
- **Group Dynamics**: Managing interpersonal interactions, power balances, and cognitive biases during collaborative work.
- **Workshop Design**: Structuring sessions (e.g., brainstorming, prioritization, review) with clear objectives, tools, and timing.
- **Visual Collaboration**: Use of models, canvases, and digital whiteboards to aid shared understanding.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Collaboration is informal. Meetings lack structure. Participation is uneven and sessions are often dominated by a few voices.
2	Managed	Some structured collaboration occurs (e.g., predefined agendas). Techniques vary by facilitator experience. Stakeholder involvement is partial.
3	Defined	RE activities include planned workshops with defined formats. Facilitators are trained. Collaboration is inclusive, and outcomes are documented.
4	Predictable	Collaborative practices are standardized and measured. Facilitation tools and techniques are selected based on context. Participation is consistent.
5	Optimizing	Collaboration formats are continuously adapted and improved. Feedback is used to refine facilitation. Sessions support innovation and ownership.

Indicators

- % of RE projects with an explicit RACI matrix covering communication roles
- % of stakeholder groups with clearly defined communication protocols

Related Deliverables

- Workshop Agendas and Facilitation Guides
- Collaborative Session Notes / Outputs
- Facilitation Technique Playbook
- Participation Metrics and Feedback Reports
- Co-created Requirement Artifacts (e.g., models, diagrams)

Related Techniques or Tools

- Facilitation frameworks (e.g., Liberating Structures, Gamestorming)
- Digital whiteboards (e.g., Miro, Mural, FigJam)
- Brainstorming and decision-making methods (e.g., dot voting, MoSCoW, affinity mapping)
- Session planning and time-boxing templates
- Stakeholder engagement models (e.g., SPIDR, DACI)

Reference Materials

- IREB CPRE Advanced RM – Group facilitation and stakeholder involvement
- PMBOK Guide – Meeting and facilitation techniques
- ISO/IEC/IEEE 29148 – Stakeholder engagement in RE
- Design Thinking Toolkits – Co-creation and user-centric ideation
- RMMi Internal Method Guide

Practice 3 – Remote and Distributed Team Communication

Objective

Enable effective and inclusive communication in requirements engineering (RE) across remote, hybrid, and geographically distributed teams. This practice ensures that all contributors—regardless of location—can participate fully, access shared knowledge, and collaborate asynchronously and synchronously using appropriate tools and norms.

Key Concepts

- **Distributed Collaboration**: Coordination among team members who work in different locations, time zones, or organizational entities.
- **Synchronous vs. Asynchronous Communication**: Real-time (e.g., video calls) vs. time-shifted (e.g., shared docs, recorded updates) collaboration.
- **Collaboration Equity**: Ensuring equal access to information, visibility, and participation opportunities for all team members.
- **Digital Etiquette**: Agreed-upon norms for virtual communication, including responsiveness, clarity, and respect for time zones.
- **Documentation-Centric Culture**: Emphasizing shared written records to maintain alignment without relying on real-time meetings.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Communication across locations is ad hoc and unreliable. Tools are underused or fragmented. Remote members are excluded from key discussions.
2	Managed	Some remote practices are in place (e.g., video calls, shared docs). Information sharing is inconsistent. Participation varies by time zone.
3	Defined	A remote communication strategy is formalized. Collaboration tools and shared repositories are standardized. Sessions are planned inclusively.
4	Predictable	Remote collaboration is measured and optimized. Asynchronous practices (e.g., recordings, forums) support flexible and inclusive communication.
5	Optimizing	Remote and hybrid communication is embedded in RE practices. New technologies and norms are tested continuously to improve distributed efficiency.

Related Deliverables

- Remote Collaboration Strategy
- Distributed Team Communication Charter
- Time Zone-Friendly Scheduling Matrix
- Participation Analytics Reports
- Meeting Accessibility and Recording Policies

Related Techniques or Tools

- Virtual meeting platforms (e.g., Zoom, MS Teams)
- Asynchronous platforms (e.g., Loom, Notion, Slack threads)
- Time zone coordination tools (e.g., World Time Buddy, Google Calendar features)
- Shared documentation hubs (e.g., Confluence, Google Workspace)
- Team check-in and engagement pulse tools (e.g., Officevibe, Geekbot)

Reference Materials

- ISO 27501 – Human-centred design for organizational governance (including distributed teams)
- PMBOK Guide – Managing remote project environments
- IREB CPRE Advanced RM – Virtual team communication in RE
- RMMi Internal Method Guide
- Remote Work Playbooks (e.g., GitLab, Atlassian, Doist)

Practice 4 – Feedback Management and Conflict Resolution

Objective

Establish structured mechanisms for collecting, analyzing, and integrating stakeholder feedback throughout the RE lifecycle, and address conflicts constructively when they arise. This practice enhances mutual understanding, trust, and decision-making by turning disagreement into a productive driver of quality.

Key Concepts

- **Feedback workflows**: A cycle in which stakeholder input is actively solicited, reviewed, acted upon, and reflected in RE outputs.
- **Constructive Conflict**: A disagreement or tension that, when managed properly, leads to better solutions, clarity, or innovation.
- **Mediation and Escalation Paths**: Defined approaches to handle disputes, including neutral facilitation, compromise, or formal escalation.
- **Traceability of Feedback**: The ability to link feedback to changes in artifacts, showing transparency and responsiveness.
- **Decision Records**: Documentation that captures how conflicts or feedback were resolved, and the rationale behind outcomes.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Feedback is informal and untracked. Conflicts are either ignored or handled inconsistently. Resolution depends on interpersonal dynamics.
2	Managed	Feedback is collected in some activities (e.g., reviews), but not centralized or followed up. Conflicts are addressed when escalated.
3	Defined	Feedback mechanisms are integrated across RE phases. Conflict resolution steps are documented. Inputs are analyzed and responses are traceable.
4	Predictable	Feedback quality and resolution effectiveness are measured. Recurrent issues are tracked. Conflict mediation is facilitated by neutral actors.
5	Optimizing	Feedback and conflict data are used to continuously improve RE processes. Resolution models are refined. Trust and openness are part of the team culture.

Related Deliverables

- Feedback Logs and Action Trackers
- Conflict Resolution Procedures
- Mediation and Escalation Paths
- Feedback-to-Artifact Traceability Matrix
- Post-Resolution Debriefing Notes

Related Techniques or Tools

- Stakeholder satisfaction surveys
- Issue-tracking systems (e.g., Jira, GitHub Issues)
- Decision-making and conflict resolution frameworks (e.g., Thomas-Kilmann model)
- Real-time feedback tools (e.g., Menti, Poll Everywhere)
- Facilitation guides for disagreement handling

Reference Materials

- ISO/IEC/IEEE 29148 – Stakeholder communication and feedback cycles
- PMBOK Guide – Conflict management and stakeholder satisfaction
- IREB CPRE Advanced RM – Review sessions and resolution patterns
- RMMi Internal Method Guide
- ISO 10006 – Project quality management (feedback and resolution mechanisms)

Practice 5 – Continuous Communication Improvement

Objective

Continuously evaluate and improve communication practices, channels, and behaviors in the context of requirements engineering (RE). The goal is to ensure that communication remains effective, adaptive to change, and aligned with stakeholder expectations across project lifecycles and organizational transformations.

Key Concepts

- **Communication Retrospective**: A structured review of what worked, what didn't, and what could be improved in past communication activities.
- **Behavioral Feedback**: Observations and reflections used to improve how individuals and teams communicate.
- **Communication Metrics**: Indicators used to assess frequency, clarity, coverage, latency, and satisfaction related to RE interactions.
- **Change Triggers**: Events such as team expansion, remote shifts, or stakeholder turnover that require a review of communication strategies.
- **Organizational Learning**: The process of capturing and embedding communication lessons into RE methods and culture.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Communication practices are rarely reviewed. Inefficiencies are tolerated or unnoticed. Lessons are not documented or shared.
2	Managed	Communication issues are addressed reactively. Some improvements are discussed informally post-project.
3	Defined	Retrospectives and reviews are scheduled. Metrics and lessons learned are documented. Updates to practices are periodically introduced.
4	Predictable	Communication KPIs are monitored and used for improvement planning. Feedback is analyzed across projects. Good practices are promoted and scaled.
5	Optimizing	Continuous improvement is embedded in the RE culture. Real-time analytics, behavioral insights, and adaptive learning loops guide evolution.

Related Deliverables

- Communication Retrospective Reports
- Communication KPIs and Dashboards
- Improvement Action Plans
- Lessons Learned Logs
- Updated Communication Standards

Related Techniques or Tools

- Communication satisfaction surveys
- Communication pattern analysis tools (e.g., digital exhaust analysis)
- Retrospective formats (e.g., Start-Stop-Continue, 4Ls)
- Continuous feedback mechanisms (e.g., pulse checks)
- Behavioral coaching and team maturity assessments

Reference Materials

- PMBOK Guide – Communication monitoring and process improvement
- ISO 9004 – Quality management for sustainable success
- IREB CPRE Advanced RM – Communication practices and stakeholder dynamics
- RMMi Internal Method Guide
- Team Performance Models (e.g., Tuckman, Lencioni) for collaboration behaviors

2.14. Domain 10 – Sustainability, Ethics and Social Responsibility in RE

The Sustainability and Maintenance domain of RMMi includes practices that address the long-term impact, ecological footprint, and ethical lifecycle of requirement assets. This domain is inspired by the principles outlined in ISO 26000, which promotes social responsibility through environmental stewardship, sustainability-driven decision-making, and inclusive stakeholder engagement.

In line with this approach, RMMi recommends that sustainability-related expectations be formalized as non-functional requirements (NFRs). Examples include constraints on data retention, energy consumption, ethical AI usage, or obligations to support reuse and accessibility. These NFRs reflect ISO 26000 principles by embedding long-term, inclusive, and responsible goals directly into the requirements baseline.

This domain applies to any organization or project aiming to:

- Reduce its digital carbon footprint,
- Maintain traceable and reusable requirements over time,
- Implement ethical archiving, deprecation, and reuse practices,
- Monitor and improve sustainability-related KPIs in RE activities.

It is particularly relevant for regulated sectors (e.g., energy, finance, healthcare) and organizations targeting ISO 26000 compliance or green IT certifications.

Glossary of Key Terms

- **Digital Preservation**: Long-term maintenance of digital requirement artifacts ensuring readability, accessibility, and format resilience.
- **Sustainability Criteria**: Environmental or social considerations integrated into requirement evaluation or lifecycle control.
- **Change Traceability**: The ability to follow requirement evolution over time, including drivers, impacts, and auditability.
- **Reuse Catalog**: Structured collection of validated and reusable requirement assets.
- **Obsolescence Strategy**: Rules and governance to identify and manage outdated, invalid, or replaced requirements.
- **Requirements Sustainability**
  The capacity for requirements to remain valid, traceable, and usable across system evolutions and over long periods of time.
- **Digital Archiving**
  A systematic approach to storing, organizing, and preserving RE information to ensure accessibility, compliance, and integrity over time.
- **Obsolescence Management**
  The identification, deprecation, or revision of outdated, conflicting, or unused requirements.

- **Requirements Reuse**
  The deliberate selection, adaptation, and integration of previously defined requirements in new projects or system evolutions.
- **Information Decay**
  The gradual loss of accuracy, relevance, or usability of stored information if not maintained or refreshed.
- **Sustainable Engineering**
  Applying environmentally and economically responsible practices to systems engineering, including the management of RE documentation.

Key Deliverables

Deliverable	Description	Typical Contents
Requirements Archiving Policy	Guidelines for long-term retention, indexing, and lifecycle of requirements	Retention rules, archival metadata, format standards
Obsolescence Register	Document listing deprecated, replaced, or obsolete requirements	Requirement ID, reason for obsolescence, date of removal
Requirements Reuse Catalog	Centralized reference of validated reusable requirements or modules	Reuse criteria, source context, validation history
Traceability and Evolution Map	Mapping of how requirements change across versions or systems	Change logs, version links, justification trails
Sustainability Impact Statement	Assessment of storage cost, energy impact, and reuse potential	Storage metrics, data volume, lifecycle impact indicators

Practices in This Domain

- Requirement Archiving and Digital Preservation
- Requirements Lifecycle and Reusability
- Obsolescence and Long-term Maintenance Planning
- Change Traceability and Evolution Documentation
- Sustainability and Social Responsibility in Requirements Engineering

Practice 1 – Requirements Archiving and Digital Preservation

Objective

Ensure that requirements and their associated documentation are retained in a secure, accessible, and durable format over time. This practice guarantees legal, operational, and knowledge continuity while mitigating risks of data loss, obsolescence, or inaccessibility due to format or tool changes.

Key Concepts

- **Archiving Strategy**: A policy defining what to archive, how long, in what format, and with what level of access or version control.
- **Preservation Format**: Use of durable, non-proprietary or standardized formats to ensure readability over time (e.g., PDF/A, XML, ReqIF).
- **Indexing and Metadata**: Use of tags, attributes, and references to enable future retrieval, understanding, and contextualization.
- **Access Governance**: Roles and permissions to define who can retrieve, modify, or view archived requirements.
- **Auditability**: Ensuring archives meet legal or regulatory standards for traceability, integrity, and proof of compliance.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Requirements are stored in inconsistent locations or formats. Retrieval is difficult or impossible after project closure.
2	Managed	Some archiving exists (e.g., final versions in SharePoint). Formats vary. Long-term access is not guaranteed or governed.
3	Defined	An archiving strategy is documented. Durable formats are used. Indexing and metadata support retrieval. Retention periods are specified.
4	Predictable	Archiving is integrated into the RE process. Requirements are automatically preserved. Access is role-based. Audits are performed.
5	Optimizing	Archiving is aligned with sustainability, legal, and reuse goals. Storage and retrieval are optimized. Preservation is monitored proactively.

Related Deliverables

- Requirements Archiving Policy
- Preservation Format Guidelines
- Metadata and Indexing Templates
- Retention and Access Log
- Legal and Regulatory Compliance Audit Report

Related Techniques or Tools

- Archiving standards (e.g., PDF/A, XML, ReqIF)
- Digital preservation systems (e.g., DuraCloud, Archivematica)
- Document management systems (DMS) with long-term storage (e.g., Alfresco, OpenText)
- Retention policies (GDPR, ISO 15489)
- File integrity checkers and checksum validation tools

Reference Materials

- ISO 15489 – Records management
- ISO/IEC/IEEE 29148 – Documentation and traceability in RE
- MoReq (Model Requirements for Records Management)
- EU GDPR & Archiving Guidelines – Data retention and access rights
- RMMi Internal Method Guide

Practice 2 – Requirements Lifecycle and Reusability

Objective

Ensure that requirements are managed as durable and reusable assets throughout their lifecycle, from initial definition to eventual retirement or evolution. This practice promotes long-term value creation, knowledge capitalization, and reduced rework through structured reuse strategies, requirement patterns, and lifecycle-aware governance.

Key Concepts

- **Requirements Lifecycle:** The complete set of phases a requirement goes through: elicitation, documentation, validation, implementation, monitoring, change, and retirement.
- **Reusable Requirement:** A requirement that can be adapted and applied across multiple projects, products, or system versions, without loss of meaning or quality.
- **Lifecycle Governance:** The policies and mechanisms in place to ensure requirements remain valid, traceable, and aligned over time.
- **Knowledge Capitalization:** The structured collection and reuse of validated, high-quality requirements and their rationale. Requirements
- **Capitalization**: The structured collection and curation of reusable requirements or specification patterns.
- **Modular Requirements**: Self-contained, context-independent requirements that can be reused with minimal adaptation.
- **Reuse Criteria**: Defined rules for selecting which requirements are suitable for reuse (e.g., stability, generality, prior validation).
- **Template Libraries**: Repositories of standardized requirement types (e.g., interface, performance, usability) available for reuse.
- **Reuse Governance**: Policies ensuring that reused requirements are reviewed, updated, and adapted to fit the new project context.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Requirements are treated as one-shot deliverables. No lifecycle consideration or reuse effort.
2	Managed	Some requirements are reused informally across similar projects. Lifecycle decisions are ad hoc.
3	Defined	A standard lifecycle model is applied. Reuse is encouraged via templates, libraries, or repositories.

4	Predictable	Requirement status, aging, and applicability are monitored. Reuse patterns and ownership are documented.
5	Optimizing	Reuse is optimized through automation, AI, and lifecycle metrics. Lessons learned are systematically integrated.

Related Deliverables

- % of requirements assessed with sustainability criteria
- % of requirements reviewed for ethical, legal, or regulatory impact

Related Deliverables

- Requirements Lifecycle Map: Diagram showing requirement states (e.g., draft, validated, deprecated) and transitions.
- Reusable Requirements Library: Curated repository of high-quality, validated requirements categorized by type, domain, or system layer.
- Requirement Pattern Catalog : Templates and examples of reusable requirement formulations (e.g., quality attributes, interface specs).
- Lifecycle Governance Plan: Governance model detailing lifecycle entry/exit criteria, update policies, and archival rules. Requirements Reuse Library
- Reuse Guidelines and Classification Taxonomy
- Adaptation Logs and Validation Checklists
- Reuse Effectiveness Metrics
- Shared Specification Templates

Related Techniques or Tools

- Requirements patterns and catalogs (e.g., Volere, INCOSE templates)
- Requirements modeling frameworks (e.g., SysML blocks, BPMN, UML, component-based design)
- Requirements management tools with Lifecycle states (e.g., Confluence, Squash, Polarion, DOORS, …)
- Ontologies and semantic tagging for reuse searchability (e.g., “Reusable,” “Project-specific,” “Legacy”)
- Traceability and delta analysis tools
- AI-based similarity detection for requirement reuse suggestions

Reference Materials

- ISO/IEC/IEEE 29148 – Reuse and specification models
- ISO/IEC 12207 – System/software lifecycle processes
- ISO 26000:2010 – Guidance on social responsibility and sustainable practices
- IREB CPRE Advanced RM – Requirements reuse and patterns
- IEEE 830 – Specification reuse and versioning practices
- SEBoK – Knowledge management and reuse in systems engineering
- Volere Requirements Template – Standardized reusable content
- INCOSE Handbook – Systems engineering patterns and reuse
- PMBOK Guide – Knowledge management and reuse processes
- RMMi Internal Method Guide

Practice 3 – Obsolescence and Long-term Maintenance Planning

Objective

Identify, assess, and manage outdated, irrelevant, or conflicting requirements to ensure that the RE baseline remains accurate, current, and efficient. This practice supports system evolution, prevents inconsistencies, and minimizes maintenance costs due to outdated artifacts.

Key Concepts

- **Requirements Obsolescence**: A condition where a requirement is no longer valid due to changes in context, technology, regulation, or business strategy.
- **Deprecation Process**: The controlled marking of requirements as obsolete, including justification, stakeholder validation, and update of traceability links.
- **Baseline Integrity**: Ensuring that the active set of requirements reflects only applicable, current, and approved content.
- **Obsolescence Register**: A traceable repository of all retired, replaced, or removed requirements with contextual explanations.
- **Impact Isolation**: The process of ensuring that deprecated requirements do not impact active features, tests, or documentation.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Obsolete requirements accumulate with no control. They continue to affect documentation and decisions unintentionally.
2	Managed	Some outdated requirements are removed informally. Rationale is not always documented. No systematic review is performed.
3	Defined	Obsolescence management is formalized. Criteria and processes exist for identifying and retiring obsolete requirements.
4	Predictable	Obsolescence reviews are scheduled and impact is analyzed before removal. Traceability and documentation are updated accordingly.
5	Optimizing	Obsolescence is tracked continuously. Lessons learned are integrated. Obsolete content feeds reuse analysis and strategic planning.

Related Deliverables

- Obsolescence Register
- Deprecation Decision Logs
- Impact Assessment Reports
- Updated Baseline Documentation
- Traceability Gap Reports

Related Techniques or Tools

- Requirements status tagging (e.g., active, deprecated, superseded)
- Change and impact analysis tools (e.g., ReqView, IBM DOORS Next)
- Traceability management platforms (e.g., Jama Connect)
- Archiving and retention integration for obsolete content
- Stakeholder validation workflows for requirement removal

Reference Materials

- ISO/IEC/IEEE 29148 – Requirements change and lifecycle management
- ISO 10303-239 (PLCS) – Lifecycle support for technical data
- PMBOK Guide – Configuration and change control
- RMMi Internal Method Guide
- IEEE Std 828-2012 Configuration Management Planning

Practice 4 – Change Management and Evolution Documentation

Objective

To implement a structured, transparent, and efficient approach for managing, documenting, approving, and communicating changes to requirements throughout their lifecycle, ensuring controlled evolution aligned with organizational strategy and stakeholder needs.

Key Concepts

- **Change Request (CR):** Formalized submission for initiating a change.
- **Impact Analysis:** Examination of the potential impacts of the proposed changes.
- **Change Approval Board (CAB):** Formal entity responsible for reviewing, validating, and approving changes.
- **Change Log and Evolution Documentation:** Comprehensive records tracking changes, their rationale, implementation status, and decision history.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Changes are handled informally with minimal documentation. Evolution of requirements is often undocumented or inconsistently tracked.
2	Managed	Basic mechanisms to document significant changes exist, but processes are inconsistent. Limited formal approval and traceability are in place.
3	Defined	A standardized process for managing and documenting changes is formally defined. Roles and responsibilities for approving and documenting changes are clearly assigned.
4	Predictable	Changes are systematically assessed using defined metrics and impact analyses. Predictive capabilities help anticipate the effects of proposed changes.
5	Optimizing	Change management practices are continuously refined based on feedback and innovation. Advanced analytics and proactive strategies are used to anticipate and manage future changes effectively.

Related Deliverables

- **Change Request Forms:** Standardized documents capturing proposed modifications, rationale, impacts, and urgency.
- **Impact Analysis Reports:** Detailed assessment reports evaluating the effects of proposed changes on requirements, schedule, costs, and quality.
- **Change Approval Records:** Minutes and decisions from CAB meetings, providing transparency and accountability.
- **Evolution Documentation:** Historical documentation tracking requirement versions, approved changes, decision rationales, and implementation statuses.

Related Techniques or Tools

- **Traceability Matrices:** Linking changes directly to impacted requirements, stakeholders, and project deliverables.
- **Requirement Management Tools (e.g., JIRA, Confluence, DOORS):** Facilitate documentation, approval workflows, and change tracking.
- **Impact Analysis Frameworks:** Structured methods such as FMEA (Failure Mode and Effects Analysis) to evaluate risks and impacts systematically (Requirements-to-Test, Requirements-to-Code).
- **Dashboards and Reporting Tools:** Provide real-time visibility into change statuses and metrics for informed decision-making.

Reference Materials

- PMBOK Guide – Integrated change control and audit trails
- IEEE 29148-2018 – Systems and Software Engineering – Life Cycle Processes – Requirements Engineering.
- IREB CPRE Advanced Level – Requirements Management.
- ITIL v4 – Change Enablement Practices.
- ISO/IEC 20000 – IT Service Management System Standard.
- RMMi Internal Method Guide

Practice 5 – Sustainability and Social Responsibility in Requirements Engineering

Objective

To systematically integrate environmental, social, ethical, and intergenerational considerations into requirements engineering (RE) activities, in alignment with the principles of **ISO 26000**. This practice ensures that RE contributes to sustainable development by identifying, evaluating, and documenting the impacts and responsibilities associated with requirements decisions.

Key Concepts

- **Social Responsibility**: The organization's responsibility to operate in an ethical and transparent way that contributes to sustainable development, including health and welfare of society.
- **Sustainable Requirement**: A functional or non-functional requirement designed to minimize negative environmental or social impacts, or to maximize positive societal value.
- **Societal Stakeholder**: Any individual or group affected by RE outcomes beyond the immediate project, including NGOs, regulators, citizens, and vulnerable users.
- **Digital Footprint**: The environmental impact of data, code, infrastructure, and energy consumption associated with requirements and their implementation.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	RE activities generate large volumes of documents and data with no effort to optimize or reduce waste. Environmental aspects are not considered.
2	Managed	Some awareness exists. Storage is occasionally cleaned up. Sustainability is addressed reactively or when mandated.
3	Defined	Guidelines exist to limit redundant data and promote lightweight, reusable formats. Environmental considerations are part of tool selection.
4	Predictable	RE energy and storage usage is measured. Data is classified for deletion or archiving. Sustainability is built into RE lifecycle decisions.
5	Optimizing	RE sustainability is proactive and strategic. Digital impact is monitored and minimized. RE contributes to corporate ESG or CSR objectives.

Key indicators

- % of requirements approved with formal evidence (signature, approval log, etc.)
- % of process improvement actions linked to past feedback from validation/sign-off

Related Deliverables

- Sustainability Impact Matrix: A structured grid assessing each requirement's environmental, social, and ethical impact.
- Stakeholder Inclusivity Log: A log of societal stakeholder inputs and how their feedback influenced requirements.
- Ethical Risk Register: A log of risks related to ethical, accessibility, or societal impact of specific requirements.
- Digital Sobriety Checklist: A checklist evaluating the energy footprint, data volume, and processing efficiency of requirements.

Related Techniques or Tools

- Lifecycle assessment (LCA) for software and data-intensive features
- Socio-ethical impact mapping and prioritization frameworks
- Carbon footprint measurement tools (e.g., Cloud Carbon Footprint, GreenFrame)
- Participatory design sessions with NGOs or marginalized user groups
- ISO 26000-based scoring models for RE decision-making

Reference Materials

- ISO 26000:2010 – Guidance on social responsibility
- ISO/IEC/IEEE 29148:2018 – Requirements Engineering and external constraints
- ISO 14001 / ISO 50001 – Environmental and energy management
- Digital Sustainability Guidelines – e.g., GreenIT.fr, RGESN, RGAA
- BABOK v3 – Sustainability and stakeholder ethics
- IREB CPRE Advanced RE – Sustainability in RE

2.15. Domain 11 – Transversal Governance of Maturity

The **Transversal Governance of Maturity** domain defines the institutional structures, roles, and mechanisms necessary to **coordinate and monitor the evolution of RE practices across all domains**. It provides the strategic backbone to ensure consistency, accountability, continuous improvement, and alignment with organizational goals.

This domain governs **how maturity is measured, improved, and sustained** over time. It connects practices across technical, human, and organizational domains and ensures their integration into enterprise-level decision-making. It also promotes **cross-domain learning**, **centralized oversight**, and **ownership clarity**, especially in organizations with distributed RE responsibilities.

It is within this domain that tools such as the **RACI matrix**, **governance frameworks**, **audit mechanisms**, and **RE strategic steering committees** are defined and applied.

Glossary of Key Terms

- **Governance Model**
  A structured set of processes, roles, and responsibilities to guide, oversee, and support RE practices and their maturity across an organization.
- **RE Steering Committee**
  A cross-functional body that oversees RE objectives, priorities, compliance, and maturity initiatives.
- **RACI Matrix**
  A responsibility assignment chart that clarifies **who is Responsible, Accountable, Consulted, and Informed** for each RE activity or deliverable.
- **Maturity Monitoring**
  The process of periodically measuring the level of RE capability using a defined model (e.g., RMMi), with KPIs and feedback loops.
- **Institutional Ownership**
  The designation of roles or entities within the organization that are responsible for sustaining and improving RE practices over time.

Key Deliverables

Deliverable	Description	Typical Contents
RE Governance Framework	Defines how RE practices are managed, overseen, and improved	Roles, processes, maturity vision, decision rights
RE Maturity Assessment Plan	Describes how maturity is measured and how results are used	Indicators, frequency, scoring scales, action planning process
RE RACI Matrix	Clarifies responsibilities across RE activities and governance roles	Activities vs. roles chart, R/A/C/I responsibilities
RE Steering Committee Charter	Defines the scope, structure, and frequency of the RE governance board	Membership, decision types, operating rhythm
RE Improvement Roadmap	A plan for closing maturity gaps and reaching strategic targets	Initiatives, timelines, owners, KPIs

Practices in This Domain

1. RE Governance and Institutional Ownership
2. RACI and Responsibility Clarification
3. Maturity Assessment and Monitoring
4. RE Steering Committee and Decision Making
5. Cross-Domain Alignment and Continuous Improvement

Practice 1 – RE Governance and Institutional Ownership

Objective

Establish a formal governance system and assign institutional ownership to requirements engineering (RE) practices, in alignment with the organization's **Strategic Execution Framework (SEF)**. This ensures that RE supports enterprise strategy, is executed consistently across domains and teams, and benefits from ongoing leadership and oversight.

Key Concepts

- **RE Governance**
  The organizational structure, roles, and decision processes that ensure alignment of RE with strategic, regulatory, and quality objectives.
- **Institutional Ownership**
  Assigning responsibility for sustaining, evolving, and enforcing RE practices to durable roles, teams, or governance bodies — not individuals.
- **Strategic Execution Framework (SEF)**
  A model that links enterprise strategy to operational execution through structured alignment of initiatives, governance, measurement, and roles. In RE, SEF ensures that business goals are traceably translated into RE priorities and monitored via governance structures.
- **Governance Layering**
  A tiered structure of oversight (e.g., project, program, portfolio) ensuring RE decisions scale appropriately with organizational complexity.
- **Sustainability of Ownership**
  Ensuring RE leadership and accountability are embedded institutionally, not dependent on ad hoc champions or project-level momentum.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	RE efforts are disconnected from strategic initiatives. Governance is informal. There are no clear owners for methods or tools.
2	Managed	Some RE roles and coordinators are in place. Projects attempt alignment with business goals but lack formalized RE governance.
3	Defined	Governance bodies and roles are established. Institutional ownership is defined. RE is aligned to the SEF at project and domain levels.
4	Predictable	Governance processes are integrated with the SEF. Strategic goals are traceably linked to RE practices. Owners drive compliance and improvements.

5	Optimizing	Governance and RE maturity co-evolve. RE performance and alignment are monitored through SEF metrics. Strategic shifts are translated into RE adaptations.

Related Deliverables

- RE Governance Charter
- Institutional Role Assignment Grid
- RE Contribution Map to Strategic Initiatives (via SEF linkage)
- Policy and Escalation Framework
- RE Performance Governance Dashboard (linked to SEF KPIs)

Related Techniques or Tools

- Strategic Execution Framework (SEF) mapping tools
- Governance operating model design (e.g., RACI layering, decision rights matrix)
- Policy and process lifecycle platforms (e.g., ServiceNow, Signavio)
- Balanced Scorecard or OKR frameworks for RE alignment
- Stakeholder forums and RE steering committees

Reference Materials

- ISO/IEC/IEEE 29148 – RE policy guidance and quality control
- ISO 38500 – Governance of IT and strategic control
- PMBOK Guide – Governance planning and performance alignment
- COBIT Framework – Strategic IT governance reference
- RMMi Internal Method Guide
- Strategic Execution Framework (SEF) – Organizational model for translating strategy into execution and governance

Practice 2 – RACI and Responsibility Clarification

Objective

Define and maintain a clear matrix of responsibilities across all roles involved in requirements engineering (RE), using a structured method such as RACI. This ensures transparency, accountability, and efficient collaboration, especially in complex, cross-functional, or distributed RE environments.

Key Concepts

- **RACI Matrix**
  A framework that maps activities to stakeholders by identifying who is **Responsible**, **Accountable**, **Consulted**, and **Informed** for each task or deliverable.
- **Responsibility Clarification**
  A systematic process for resolving overlaps, gaps, or ambiguities in RE roles and expectations.
- **Role-to-Activity Mapping**
  A crosswalk that links defined RE roles (e.g., elicitor, analyst, validator) to activities such as review, documentation, validation, traceability.
- **Governance Integration**
  Ensuring that the RACI matrix is maintained as part of the RE governance model and synchronized with process changes, organizational shifts, or tool evolution.
- **Scalability**
  Applying RACI at multiple layers (e.g., project, product, portfolio) and aligning with the Strategic Execution Framework (SEF) where applicable.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	RE responsibilities are assumed or delegated informally. Conflicts or omissions in roles frequently cause friction.
2	Managed	Responsibility definitions exist for key roles but are not consistently applied. Accountability varies by project or manager.
3	Defined	A formal RACI matrix exists for RE processes. Roles are mapped to all key activities. The matrix is referenced in planning and team onboarding.
4	Predictable	RACI matrices are maintained and reviewed regularly. They are aligned with the governance model and embedded in the SEF and project charters.
5	Optimizing	RACI data is used to analyze team performance, identify role friction points, and optimize collaboration. Cross-project roles are harmonized.

Related Deliverables

- RE RACI Matrix
- Role-to-Activity Mapping Table
- Responsibility Clarification Log
- Onboarding Role Guide
- Escalation Path Documentation

Related Techniques or Tools

- RACI/RASCI/CAIRO matrix templates
- Role management tools (e.g., HRIS, OrgVue)
- Collaborative diagramming tools (e.g., Lucidchart, Miro)
- SEF-aligned accountability mapping
- Conflict resolution checklists

Reference Materials

- ISO/IEC/IEEE 29148 – RE responsibilities and role management
- PMBOK Guide – Responsibility assignment and project organization
- ISO 38500 – Role accountability in IT governance
- COBIT RACI Models – Examples for governance-intensive domains
- RMMi Internal Method Guide
- Strategic Execution Framework (SEF) – Role alignment for strategic initiatives

Practice 3 – Maturity Assessment and Monitoring

Objective

Establish a structured approach to assess, monitor, and improve the maturity of requirements engineering (RE) practices across domains and teams. This practice enables organizations to make informed decisions based on capability baselines, track progress over time, and align RE performance with strategic goals through KPIs and continuous evaluation mechanisms.

By conducting regular maturity assessments, organizations can accurately identify gaps and prioritize targeted actions to maintain or advance maturity levels in line with their objectives.

Key Concepts

- **RE Maturity Model**
  A structured framework (e.g., RMMi) defining levels of capability across RE domains and practices.
- **Assessment Criteria**
  The defined indicators and evidence types used to evaluate process performance, coverage, quality, and organizational adoption.
- **Performance Monitoring**
  The ongoing measurement of RE maturity and practice execution, often aligned with dashboards or quality KPIs.
- **Self-Assessment vs. Independent Review**
  Comparison between internal reviews performed by teams versus formal evaluations by external or centralized assessment bodies.
- **Feedback Loops**
  Mechanisms by which maturity data feeds continuous improvement initiatives and strategy adjustment via the Strategic Execution Framework (SEF).

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	RE performance is not measured. There is no common reference for improvement. Change is reactive or driven by isolated initiatives.
2	Managed	Some assessment activities exist (e.g., reviews, audits), but results are inconsistently tracked. Lessons learned may not lead to improvements.
3	Defined	A formal maturity assessment approach is applied. The organization uses a common model (e.g., RMMi). Reports and improvement plans are created.
4	Predictable	Maturity results are integrated with KPIs and governance dashboards. Assessments are scheduled, repeatable, and compared longitudinally.

5	Optimizing	Assessments feed innovation and transformation. Improvement priorities are dynamically adjusted to align with strategic changes in the SEF.

Related Deliverables

- RE Maturity Assessment Reports
- Capability Heatmaps (by domain, team, or project)
- Assessment Plan and Schedule
- RE KPI Dashboard
- Action Plan and Continuous Improvement Backlog

Related Techniques or Tools

- RMMi or CMMI-based assessment templates
- Survey and evaluation platforms (e.g., Typeform, Qualtrics)
- Maturity dashboards (e.g., Power BI, Tableau, Jira Scorecards)
- Process mining and audit trail analysis
- Benchmarking libraries and capability baselines

Reference Materials

- RMMi Reference Framework – Core assessment methodology
- ISO/IEC 33001 – Process assessment fundamentals
- PMBOK Guide – Performance measurement and reporting
- ISO 9004 – Quality management and maturity modeling
- Strategic Execution Framework (SEF) – Linking RE maturity with enterprise strategy

Practice 4 – RE Steering Committee and Decision Making

Objective

Establish a cross-functional **RE Steering Committee** that provides oversight, guidance, and decision-making authority over the development, deployment, and evolution of requirements engineering (RE) practices. This committee ensures alignment with enterprise strategy, coordinates domain-wide initiatives, and governs maturity progression.

Key Concepts

- **RE Steering Committee**
  A governance body composed of RE leaders, business representatives, IT stakeholders, and quality/compliance officers that steers RE-related decisions.
- **Decision-Making Scope**
  The clear definition of what types of decisions the committee oversees (e.g., methodology evolution, tooling, roles, maturity roadmap, quality thresholds).
- **Representation Balance**
  Ensuring that members reflect a cross-section of business, technical, and compliance perspectives to avoid siloed decisions.
- **Governance Rhythm**
  Regular meetings with clear agendas, reporting lines, escalation paths, and links to the Strategic Execution Framework (SEF).
- **Transparency and Traceability**
  Recording decisions and rationale and making them visible to stakeholders across RE teams and domains.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	No RE coordination structure exists. Decisions are made independently by each team or project.
2	Managed	A central RE group may exist, but decision-making is ad hoc or informal. No meeting cadence or shared roadmap.
3	Defined	An RE Steering Committee is chartered with formal roles and responsibilities. It coordinates maturity goals, tooling, and practices.
4	Predictable	Committee decisions are integrated into the SEF and tracked via dashboards. Escalations, approvals, and strategic input are part of its mandate.
5	Optimizing	The committee proactively drives innovation, maturity evolution, and RE alignment with corporate strategy. Decisions are based on metrics and trends.

Related Deliverables

- Steering Committee Charter
- RE Decision Log
- Governance Meeting Schedule and Agendas
- Maturity Review Summary Reports
- Escalation and Approval Workflows

Related Techniques or Tools

- Decision-making frameworks (e.g., DACI, RAPID, RACI)
- Governance board collaboration tools (e.g., Confluence, Microsoft Teams, MURAL)
- KPI dashboards for RE oversight
- Governance workflow automation (e.g., ServiceNow, Smartsheet)
- Risk and issue escalation tracking templates

Reference Materials

- ISO 38500 – Governance principles and roles
- PMBOK Guide – Governance board structures and escalation
- COBIT – Enterprise governance integration
- RMMi Internal Method Guide
- Strategic Execution Framework (SEF) – Committee as governance anchor for strategy-requirements alignment

Practice 5 – Cross-Domain Alignment and Continuous Improvement

Objective

Ensure that all requirements engineering (RE) domains evolve in a **coordinated and continuously improving** manner, guided by common principles, feedback loops, and strategic objectives. This practice facilitates **knowledge transfer**, **harmonization**, and **enterprise-wide learning**, breaking down silos and fostering maturity progression across the organization.

Key Concepts

- **Cross-Domain Consistency**
  Ensuring that different domains or departments within an organization work cohesively towards common strategic objectives. It involves breaking down silos and fostering collaboration: collaborative planning, integrated roadmaps and communication channels
- **Horizontal Alignment**
  Transversal governance involves managing and overseeing the maturity of processes and capabilities across different domains or departments within an organization. It ensures that all parts of the organization are aligned and progressing towards strategic objectives: alignment with strategic goals, governance structure and performance metrics.
- **Continuous Improvement**
  Involves the ongoing effort to enhance processes, products, or services. It is a cyclical process of planning, executing, reviewing, and improving: feedback loops, review cycles and improvement initiatives.
- **Knowledge Capitalization**
  Systematic capture and reuse of lessons learned, patterns, metrics, and reusable assets to accelerate maturity.
- **Integration with SEF**
  Ensuring that strategic goals are effectively met through coordinated efforts across various domains and continuous enhancement of processes.

Maturity Level Descriptions

LEVEL	LABEL	DESCRIPTION OF EXPECTED BEHAVIOR AND ARTIFACTS
1	Basic	Practices are isolated by domain or team. Improvements are ad hoc. There is no structured learning or standardization.
2	Managed	Some initiatives align domains or promote common tools/templates. Feedback is gathered occasionally but not systematically reused.
3	Defined	Domains follow shared governance principles. Common formats, learning cycles, and metrics exist. Improvements are proposed collaboratively.

4	Predictable	Alignment and improvement are embedded in RE governance. KPIs and retrospectives guide synchronization. Changes are coordinated across domains.
5	Optimizing	Continuous improvement is data-driven and strategic. Cross-domain maturity evolves via enterprise feedback and innovation, tied to SEF execution.

Related Deliverables

- RE Improvement Backlog (cross-domain)
- Common Practice Standards and Templates
- Enterprise Retrospective Reports
- Continuous Improvement Dashboard
- Lessons Learned Repository

Related Techniques or Tools

- Agile retrospectives at RE domain level
- Lean continuous improvement boards (e.g., Kanban for improvement themes)
- Process harmonization workshops
- Capability heatmaps across RE domains
- Feedback-driven release planning (for RE tools/methods)

Reference Materials

- ISO 9004 – Quality management and sustained success
- ISO/IEC 33014 – Process improvement guidelines
- PMBOK Guide – Continuous improvement frameworks
- COBIT – Cross-domain alignment principles
- SEF - Kaplan, R. S., & Norton, D. P. (1996). The Balanced Scorecard: Translating Strategy into Action. Harvard Business Press.
- RMMi Internal Method Guide

3. CONCLUSION

Version 1.0 of the RMMi model marks the culmination of a structured effort, field validation, and consolidation of **11 key domains in requirements engineering**.

It is designed to be applied in the following contexts:

- **RE maturity assessment** at project or organizational level
- **Training programs and skill-building** pathways
- Continuous improvement and **quality audit initiatives**

Associated tools (Excel grids, deliverable templates, domain sheets) support easy deployment.

The model is compatible with Agile, Waterfall, or hybrid environments, and incorporates modern concerns of traceability, sustainability, automation, and governance.

It is evolutionary and open to contributions from the RE community.

4. ANNEXES

a. Annex – Glossary of Terms and Acronyms

- **Acceptance Criteria**
  Objective conditions a requirement must fulfil to be accepted as complete and testable.
  (Source: Agile Alliance Glossary)
- **Agile**
  Family of iterative software development methods emphasizing collaboration and responsiveness.
  (Source: Agile Manifesto)
- **AI in RE**
  Application of Artificial Intelligence for analysis, classification, or validation of requirements.
  (Source: QDAcity / Qualicen Research)
- **Assumption**
  Statement accepted as true for planning purposes, pending validation.
  (Source: BABOK v3)
- **Automation**
  Use of scripts or tools to perform requirement-related tasks with minimal human intervention.
  (Source: ISO/IEC/IEEE 29148:2018)
- **Baseline**
  A formally agreed version of requirements used for further development.
  (Source: PMBOK Guide)
- **Benefit Realization**
  Execution and verification that expected benefits from RE activities are achieved.
  (Source: PMBOK Guide)
- **Business Case**
  Justification linking a requirement to expected strategic or operational benefits.
  (Source: PMBOK Guide)
- **Business Value**
  Tangible or intangible benefit resulting from fulfilling a requirement.
  (Source: BABOK v3)
- **Change Approval Board (CAB):**
  A formally established committee responsible for validating and approving proposed changes by evaluating their relevance, impacts, and alignment with strategic objectives.
- **Change Control**
  Formal process to evaluate, approve, and apply requirement modifications.
  (Source: ISO/IEC/IEEE 29148:2018)

- **Change History**
  Record of successive modifications to a requirement, with rationale.
  (Source: ISO/IEC/IEEE 29148:2018)

- **Change Management:**
  A structured process for managing, evaluating, documenting, approving, and communicating changes to requirements throughout their lifecycle, to control impacts and ensure optimal integration into projects.

- **Constraint**
  Limitation imposed on requirement implementation (technical, regulatory, budgetary).
  (Source: ISO/IEC/IEEE 29148:2018)

- **DevOps**
  Practices combining development and IT operations to enable continuous delivery.
  (Source: DevOps Institute)

- **Digital Sustainability**
  The practice of designing RE activities to support long-term reusability, minimal environmental impact, and lifecycle longevity.
  (Source: RMMi)

- **Elicitation**
  Structured process of discovering and capturing stakeholder needs.
  (Source: BABOK v3)

- **Facilitation**
  Method to guide collaborative requirement sessions and ensure shared understanding.
  (Source: BABOK v3)

- **Governance**
  Set of structures and processes used to ensure requirements are aligned, controlled, and improved.
  (Source: ISO/IEC 38500:2015)

- **INVEST**
  Acronym describing quality attributes of user stories: Independent, Negotiable, Valuable, Estimable, Small, Testable.
  (Source: Bill Wake, 2003)

- **KPI (Key Performance Indicator)**
  Metric used to evaluate performance of RE processes or deliverables.
  (Source: ISO/IEC 15939)

- **Maturity Level (RE)**
  A discrete level representing a stage of capability maturity in RE, ranging from ad hoc to optimized.
  (Source: RMMi)

- **Non-Functional Requirement (NFR)**
  A requirement that defines quality attributes such as performance, usability, or sustainability

of the system. RMMi explicitly integrates sustainability and digital responsibility into NFRs.
(Source: RMMi)

- **Observation**
  Technique involving user activity monitoring to discover unspoken needs.
  (Source: BABOK v3)

- **Portfolio Management**
  Coordination of projects and requirements to align with enterprise strategy.
  (Source: PMBOK Guide)

- **Requirement (Exigence)**
  A condition or capability needed by a user to solve a problem or achieve an objective (user need); a condition or capability that must be met or possessed by a system to satisfy a contract, standard, or specification (system obligation); a documented representation of such a condition or capability.
  (Source: IEEE Std 610.12-1990)

- **Requirements Engineering (RE)**
  The discipline of identifying, documenting, validating, and maintaining software or system requirements throughout the lifecycle.
  (Source: INCOSE Systems Engineering Handbook)

- **Requirements Management Tool**
  Software supporting the lifecycle management of requirements.
  (Source: INCOSE Systems Engineering Handbook)

- **Requirement Quality**
  The degree to which a requirement is clear, unambiguous, complete, and testable.
  (Source: ISO/IEC/IEEE 29148:2018)

- **Review**
  Evaluation of requirements to ensure completeness, clarity, and correctness.
  (Source: IEEE Std 1028-2008)

- **Reuse**
  Leveraging existing requirement elements or templates to ensure efficiency and consistency.
  (Source: ISO/IEC/IEEE 29148:2018)

- **Risk**
  Potential event that may negatively affect requirements quality or delivery.
  (Source: ISO 31000:2018)

- **Scoring Model**
  Quantitative assessment of requirement quality based on weighted criteria.
  (Source: IREB CPRE Advanced RM)

- **Specification**
  A structured and traceable description of requirements that guide design and implementation.
  (Source: ISO/IEC/IEEE 29148:2018)

- **Stakeholder**
  Any individual, group, or organization with interest or influence in the system.
  (Source: BABOK v3)

- **Strategic Alignment**
  Coherence between requirements and enterprise objectives.
  (Source: PMBOK Guide)

- **Traceability**
  The ability to link requirements to their origin and track them throughout the lifecycle.
  (Source: ISO/IEC/IEEE 29148:2018)

- **Validation**
  Confirmation that documented requirements reflect stakeholder needs and intended use.
  (Source: ISO/IEC/IEEE 29148:2018)

- **Versioning**
  Managing changes to requirement documents via structured identifiers and history.
  (Source: IEEE Std 828-2012 Configuration Management Planning)

b. Annex – Bibliography

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c. Annex – ISO 26000 Sustainability

This annex aims to build a structured bridge between RMMi practices and the core principles and **subject areas of ISO 26000** (International Organization for Standardization. (2010). ISO 26000:2010, Guidance on social responsibility. Geneva: ISO).

It provides a reference framework to:

- Anchor requirements engineering (RE) activities within a **social responsibility perspective**
- Support **governance, auditing, and sustainability-driven project management**
- Encourage the **integration of CSR criteria into both functional and non-functional requirements**

The 7 Core Subjects of ISO 26000

No.	*ISO 26000 Subject Area*	*Focus*
1	**Organizational Governance**	Ethical, transparent and responsible governance processes
2	**Human Rights**	Inclusion, accessibility, equity, freedom of expression
3	**Labour Practices**	Working conditions, well-being, skill development
4	**The Environment**	Eco-design, resource preservation, footprint reduction
5	**Fair Operating Practices**	Integrity, supplier ethics, compliance
6	**Consumer Issues**	User safety, quality, transparency, accessibility
7	**Community Involvement and Development**	Local engagement, inclusion, social innovation

Mapping to RMMi Domains

RMMi Domain	Related ISO 26000 Subjects	Relevant Practice Themes
Domain 3 – Stakeholder Engagement	2, 3, 6, 7	Inclusion, accessibility, diversity of perspectives
Domain 6 – Documentation Quality	5, 6	Clarity, transparency, accessibility
Domain 8 – Validation & Acceptance	1, 6	Participatory decision-making, traceability
Domain 9 – Traceability and Risk	1, 5	Governance, auditability, compliance

Domain 10 – Sustainability & Social Responsibility	1–7	Digital sobriety, lifecycle thinking, value chain accountability

Recommendations for ISO 26000 Integration in RE Governance

- **CSR indicators in project governance**: % of sustainable requirements, environmental impact metrics, accessibility coverage.
- **RE audit vs ISO 26000**: Use this annex to evaluate the alignment of practices with the 7 core subjects.
- **Team training**: Raise awareness around writing responsible, inclusive and sustainable requirements.
- **RSE Impact Matrix**: For each requirement, evaluate potential environmental, social and ethical impacts.

d. Annex - Role Profile – Quality Master (QM)

Mission

Promote the maturity and quality of requirements engineering practices at the project or team level. Facilitate adoption of best practices, ensure continuous improvement of requirements documentation and validation.

Positioning

- Operates at the project, team, or product level.
- Works closely with Business Analysts, Product Owners, Requirements Engineers, Testers, and Developers.
- Reports operationally to the Project Manager, Product Owner, or Quality Manager.

Main Responsibilities

- Facilitate requirements elicitation, structuring, and validation activities.
- Support the application of requirements quality criteria (e.g., INVEST, SMART).
- Conduct maturity assessments based on the RMMi framework.
- Organize and lead requirements quality reviews.
- Contribute to continuous improvement initiatives for requirements processes.

Key Skills

- Knowledge of requirements engineering (IREB CPRE, ISO/IEC 29148).
- Understanding of project management and Agile methodologies.
- Facilitation and coaching skills.
- Quality assurance and continuous improvement practices.

Success Indicators

- Percentage of requirements passing first-time quality reviews.
- Reduction in requirement-related defects during development and testing.
- Improvement in traceability and requirements coverage rates.
- Maturity progression in RMMi targeted domains.

e. Annex - Role Profile – Quality Train Engineer (QTE)

Mission

Promote and coordinate the maturity of quality engineering practices across all teams within an Agile Release Train (ART). Ensure consistency of requirements quality, testing strategies, and DevOps integration at program level.

Positioning

- Operates at the program or train (ART) level.
- Works closely with Release Train Engineers (RTEs), System Architects, Product Management, Scrum Masters, and Quality Leaders.
- Member of the ART leadership team.

Main Responsibilities

- Define and maintain a shared quality framework across the ART.
- Facilitate the integration of quality objectives and NFRs into PI planning.
- Support the adoption of agile engineering practices (TDD, BDD, ATDD).
- Drive test automation strategy and DevOps quality integration.
- Collect, monitor, and report quality metrics at train level.
- Promote ethical and responsible AI practices where applicable.

Key Skills

- Knowledge of requirements engineering and agile quality practices.
- Experience in agile at scale (SAFe®), DevOps, and CI/CD environments.
- Facilitation, coaching, and leadership skills across multiple teams.
- Understanding of AI/ML quality challenges (optional for AI-driven products).

Success Indicators

- Increase in test coverage and reduction of critical defects across the ART.
- Improvement in non-functional requirements compliance rates.
- Enhanced visibility of quality metrics at program level.
- Maturity progression across multiple teams in RMMi targeted domains.