Capability & Principles

TOGAF 9 Part 2

KNOWLEDGE CHEATSHEET

ESTABLISH THE PRACTICE

Mandate Sponsorship → **Capability** Roles and method → **Principles** Decision guidance → **Governance** Oversight

01 Architecture capability and principles

Establish the architecture capability

- **Preliminary Phase** establishes how enterprise architecture will operate: organizational scope, sponsorship, roles, governance, principles, method, content, tools and repository.
- **Tailor TOGAF** to the enterprise. Align the ADM with business planning, portfolio and project management, systems development and operations; define responsibilities at their interfaces.
- **Architecture Board** provides cross-organizational oversight and decision authority. Executive sponsorship, business participation and an agreed mandate make governance effective.
- **Architecture Skills Framework** defines roles, required skills and proficiency levels. Assess each team member against the tailored roles; close gaps through staffing, training and mentoring.
- **Maturity assessment** evaluates the architecture practice and its improvement needs. Individual skills assessment evaluates whether people can perform their assigned work.

Develop usable architecture principles

- **Architecture principles** express enduring guidance for decisions. Derive them from mission, values, business goals and drivers; develop them with the Architecture Board and relevant stakeholders.
- Record a principle's **name, statement, rationale and implications**. Implications explain the commitments, costs and behavioral changes needed to apply it.
- A sound set is **understandable, robust, complete, consistent and stable**. Resolve competing principles through governance and business priorities; gain senior management support.

Enterprise benefit and continuity

- **Maximize Benefit to the Enterprise** prioritizes the whole enterprise when local optimization conflicts with overall value. **Common-use Applications** favors shared capability over unnecessary duplication.
- **Business Continuity** preserves essential operations through disruption. Centralization decisions must consider remote-site connectivity, recovery, availability and operational dependencies.
- **Information Management is Everybody's Business** makes participation an enterprise responsibility. **IT Responsibility** commits IT to enable business needs through appropriate services.

Capability & Principles / Vision & Stakeholders

TOGAF 9 Part 2

KNOWLEDGE CHEATSHEET

TURN CONCERNS INTO DIRECTION

Stakeholders Concerns → **Scenarios** Requirements → **Views** Shared understanding → **Vision** Approved direction

Data, technology and change principles

- **Data is an Asset** recognizes business value. **Data Trustee** assigns accountability for quality. **Common Vocabulary and Data Definitions** enables consistent interpretation across units.
- **Data is Shared** supports legitimate reuse; **Data is Accessible** makes needed data available to authorized users. **Data Security** protects against unauthorized access and disclosure.
- **Technology Independence** limits coupling of applications to platforms. **Interoperability** supports exchange through standards; **Control Technical Diversity** reduces unnecessary technology variation.
- **Requirements-Based Change** ties change to business needs. **Responsive Change Management** delivers required changes promptly through controlled processes; **Service Orientation** organizes reusable business-aligned services.

02 Architecture Vision and stakeholder engagement

Frame and authorize the engagement

- **Phase A: Architecture Vision** establishes a shared high-level direction, value proposition and scope. Identify stakeholders, goals, drivers, constraints, capabilities, readiness and initial risks.
- **Request for Architecture Work** initiates an engagement. **Statement of Architecture Work** agrees the architecture work: scope, approach, deliverables, responsibilities, resources and schedule.
- **Architecture Vision** communicates the proposed future and benefits using high-level Baseline and Target descriptions. Define measurable success criteria and secure stakeholder approval to proceed.
- **Communications Plan** specifies audiences, messages, channels and timing. Engagement must build understanding and support throughout the work, including across acquired organizations.

From concerns to architecture views

- **Stakeholder map** identifies affected people and groups, their concerns, influence, interest and engagement needs. Include business users, sponsors, operations, legal, auditors and external partners as relevant.
- **Concern** is an issue important to a stakeholder. A **viewpoint** defines conventions for addressing concerns; a **view** applies those conventions to a particular architecture.

Vision & Stakeholders / Architecture Definition

TOGAF 9 Part 2

KNOWLEDGE CHEATSHEET

DEFINE THE ARCHITECTURE

- **Business** — Phase B
- **Data and applications** — Phase C
- **Technology** — Phase D
- **Gaps** — Roadmap components

- Select views for shared concerns, then build the necessary models. Legal staff may need compliance views, executives outcome views, and researchers collaboration and information-protection views.
- **Validate views with stakeholders** to confirm their concerns are addressed. A single fixed model set or reports only for powerful stakeholders can miss important requirements.

Business scenarios and requirements

- **Business scenario** describes a business problem in context: environment, desired objectives, human and computer actors, roles and interactions. Use interviews and workshops to expose requirements.
- Make objectives **SMART**: specific, measurable, actionable, realistic and time-bound. Connect requirements to business outcomes before evaluating vendor solutions.
- **Requirements Management** operates throughout the ADM. Maintain traceability, priorities and change impacts; feed revised requirements into the relevant phases and assess effects on existing decisions.

03 Architecture definition and ADM iteration

Develop the four architecture domains

- **Phase B: Business Architecture** describes capabilities, organization, services, functions, processes and business behavior needed to realize the vision.
- **Phase C: Information Systems Architectures** covers Data and Application Architectures. Coordinate their development around business information needs, application services and interactions.
- **Phase D: Technology Architecture** describes the platforms, infrastructure and technology services supporting the applications and data.
- For each domain, select reference models, viewpoints and tools; describe **Baseline and Target**, analyze gaps and cross-domain impacts, identify roadmap components, review with stakeholders and update the Architecture Definition Document.

Choose the focus of each iteration

- **ADM is iterative** within phases, between phases and across development cycles. Tailor scope, detail, sequence and completion criteria to the engagement.
- **Baseline first** helps when the current problem and environment need discovery. **Target first** can suit an agreed strategic direction and major replacement; still describe enough baseline to assess gaps and migration.

Architecture Definition / Artifacts & Metamodel

TOGAF 9 Part 2

KNOWLEDGE CHEATSHEET

CHOOSE USEFUL REPRESENTATIONS

- **Catalog** — Inventory
- **Matrix** — Relationships
- **Diagram** — Structure and behavior
- **Metamodel** — Consistent content

- A **COTS package** can require Business and Application Architectures to evolve together. Test process fit, interfaces, data needs and constraints; package adoption does not remove architecture work.
- **Context iterations** establish direction and scope; **definition iterations** refine architecture; **transition planning iterations** shape delivery; **governance iterations** oversee realization and change.

Architecture content and reuse

- **Deliverable** is a formally reviewed work product. An **artifact** describes an aspect of architecture as a catalog, matrix or diagram. A **building block** is a reusable capability component.
- **Architecture Building Block (ABB)** specifies required capability and characteristics. **Solution Building Block (SBB)** realizes that capability through implementation choices.
- **Architecture Definition Document** describes the architecture; **Architecture Requirements Specification** states the requirements it must satisfy. Keep both consistent as the architecture evolves.
- **Architecture Repository** holds reusable models, standards, architecture descriptions and governance evidence. Use relevant assets and reference models, adapting them to the enterprise rather than forcing a fit.

04 Artifacts and content metamodel

Describe business responsibility and behavior

- **Catalogs inventory entities**; **matrices expose relationships**; **diagrams communicate structure or behavior**. Choose artifacts by the question a stakeholder needs answered.
- **Organization/Actor catalog** identifies organizations and people. **Actor/Role matrix** maps actors to responsibilities. **Business Service/Function catalog** inventories business services and functions.
- **Business Interaction matrix** shows interactions among organizations. **Process/Event/Control/Product catalog** captures processes and associated events, controls and products.
- **Goal/Objective/Service diagram** traces business intent to services. **Product Lifecycle diagram** describes product evolution; **Data Lifecycle diagram** follows a data entity through its lifetime.

Expose application coverage and integration

- **Application Portfolio catalog** inventories applications; **Interface catalog** inventories interfaces. **Application/Organization matrix** identifies organizational use of applications.
- **Application/Function matrix** maps applications to business functions, exposing functions supported by no application, one application or overlapping applications.

Artifacts & Metamodel

TOGAF 9 Part 2

KNOWLEDGE CHEATSHEET

CHOOSE USEFUL REPRESENTATIONS

- **Catalog** — Inventory
- **Matrix** — Relationships
- **Diagram** — Structure and behavior
- **Metamodel** — Consistent content

- **Application Interaction matrix** records application relationships. **Application Communication diagram** shows communications and dependencies needed for integration.
- **Application and User Location diagram** relates applications and users to locations. **Application/Technology matrix** relates application components to supporting technology.

Describe data use, protection and movement

- **Data Entity/Data Component catalog** inventories business data entities and the components that hold them. **Data Entity/Business Function matrix** shows which functions use which data.
- **Application/Data matrix** relates applications to data entities; CRUD annotations can identify creation, reading, updating and deletion. It does not by itself assign business ownership.
- **Data Lifecycle diagram** shows creation, use, retention and disposal. **Data Dissemination diagram** shows how data is distributed through the architecture.
- **Data Security diagram** describes protection and access relationships. **Data Migration diagram** describes movement from existing to target data arrangements, including conversion and transition needs.

Describe technology and service operation

- **Technology Portfolio catalog** inventories technology products and standards. **Networked Computing/Hardware diagram** depicts hardware and deployed computing arrangements.
- **Communications Engineering diagram** describes communication infrastructure. **Software Distribution diagram** relates software to deployment locations and processing environments.
- **Enterprise Manageability diagram** addresses operational management. Select it when ownership, monitoring and management of services or systems are stakeholder concerns.

Tailor the metamodel to the concern

- **Content metamodel** defines entity types, attributes and relationships used to describe architecture consistently. Select needed extensions instead of adding every available modeling detail.
- **Process Modeling extension** adds detail for event-driven processes and their controls and products. **Infrastructure Consolidation extension** adds deployment and location detail for consolidation planning.

Artifacts & Metamodel / Transformation

TOGAF 9 Part 2

KNOWLEDGE CHEATSHEET

MAKE TRANSFORMATION ACHIEVABLE

- **Capability** — Business outcome
- **Readiness** — Ability to change
- **Risk** — Exposure and treatment
- **Security** — Across all domains

- **Governance extension** supports measures, service qualities and contracts for detailed service-level governance. **Motivation extension** structures drivers, goals and objectives and their links to services.
- **Services extension** models information-system services beyond business services. **Data extension** adds richer data modeling; use extensions for their modeling purpose rather than their names alone.

05 Capabilities, readiness, risk and security

Plan around business outcomes

- **Capability-Based Planning** coordinates the people, processes, information and technology needed for an outcome. It supports enterprise-wide initiatives crossing business-unit boundaries.
- **Capability increments** deliver usable improvements over time. Map a capability across all affected architecture domains and assign measurable outcomes to the increments.
- Horizontal goals such as lower energy use need **enterprise-level measures** and cooperation from contributing units. Business capability planning applies across industries and to outcomes with substantial technology content.

Separate readiness, risk and value

- **Business Transformation Readiness Assessment** begins in Phase A and is revisited as plans mature. Examine factors such as vision, sponsorship, willingness, resources, skills and ability to absorb change.
- Assess each factor's **readiness, urgency and difficulty**. Turn weak factors into improvement actions and migration constraints; technical feasibility alone does not establish organizational readiness.
- **Initial risk** exists before treatment; **residual risk** remains afterward. Assess likelihood and impact, define owners and responses, and seek appropriate acceptance of remaining exposure.
- **Business Value Assessment** compares benefits, costs, risks and strategic contribution. Use measurable outcomes to prioritize investment and monitor value realization throughout the transformation.

Integrate security across the ADM

- In the **Preliminary Phase**, identify security and regulatory obligations, establish policies and principles, communicate them, and agree the security architects' responsibilities and engagement.
- Address **security and privacy across Business, Data, Application and Technology Architectures**. Include sensitive information, actors, trust boundaries, access, continuity and supplier dependencies.

Transformation / Migration Planning

TOGAF 9 Part 2

KNOWLEDGE CHEATSHEET

PLAN CONTROLLED CHANGE

Gaps — Candidate solutions → **Packages** — Dependencies → **Transitions** — Capability increments → **Plan** — Coordinated delivery

- Carry security requirements into **work packages, contracts, acceptance criteria and compliance reviews**. Reassess threats and residual risks as implementation and operations change.
- Translate legal obligations into architecture constraints with the appropriate specialists. Data sharing, common applications and external access must preserve required protection and accountability.

06 Opportunities, solutions and migration planning

Phase E: shape the implementation strategy

- **Opportunities and Solutions** connects domain architecture gaps to a feasible delivery approach. Confirm change attributes, constraints, requirements, interoperability, dependencies, readiness and risks.
- Consolidate **gap analyses from Phases B-D**. For each gap, identify candidate solutions through reuse, purchase or development; group related solutions into work packages.
- **Implementation Factor Assessment and Deduction Matrix** records factors, their implications and deductions for implementation. **Consolidated Gaps, Solutions and Dependencies Matrix** connects gaps to solutions and dependencies.
- Develop the **implementation and migration strategy**, major work packages, required Transition Architectures and draft roadmap. Revisit readiness risks before committing to the delivery approach.

Work packages, increments and transitions

- **Work package** groups actions to achieve an objective. Sequence packages using dependencies, business value, resource availability, risk and operational constraints.
- **Transition Architecture** describes an architecturally significant intermediate state between Baseline and Target. It enables controlled delivery while keeping the enterprise operational.
- Group packages into **capability increments** and schedule them into transitions. Regional rollout must account for local calendars, data migration, coexistence, training and continuity.
- **Architecture Definition Increments Table** organizes incremental architectural change. **Transition Architecture State Evolution Table** describes how architecture states evolve across transitions.

Phase F: finalize the delivery plan

- **Migration Planning** confirms management-framework interactions, assigns business value, estimates resources and timing, prioritizes projects and validates risk before finalizing the plan.
- Coordinate **business planning, portfolio/project management and operations management** with architecture planning. Validate priorities and trade-offs with the stakeholders responsible for delivery and benefits.

Migration Planning / Architecture Governance

TOGAF 9 Part 2

KNOWLEDGE CHEATSHEET

GOVERN AND SUSTAIN

Contract Commitments → **Review** Evidence → **Decision** Conformance or exception → **Change** Controlled evolution

- **Architecture Roadmap** presents the progression of change through work packages and transitions. **Implementation and Migration Plan** supplies the coordinated delivery schedule and required project detail.
- Finalize the roadmap, plan and supporting architecture deliverables, obtain agreement, and prepare the handover to implementation governance. Feed lessons learned into improvements through controlled review.

07 Implementation governance and architecture change

Phase G: govern architecture realization

- **Implementation Governance** provides architectural oversight while delivery teams build and deploy. Monitor Architecture Contracts, review conformance, manage issues and verify required outcomes.
- **Architecture Contract** records the agreement governing architecture delivery or implementation: scope, principles, requirements, deliverables, conformance obligations, measures, timing and joint work commitments.
- Include **objectives, effectiveness metrics, acceptance criteria and risk management**. Use an enforceable agreement for external suppliers; an appropriate internal agreement can govern internal delivery.
- Schedule **compliance reviews at key implementation points**. Check performance, security and other acceptance conditions against agreed requirements and retain the decisions and evidence.

Review objectively and govern exceptions

- **Compliance review** assesses the implementation against architecture and business objectives. Use tailored checklists, a clear scope, relevant expertise and evidence; investigate the reasons behind reported issues.
- Keep reviews **objective, fair and constructive**. Distinguish a verified architectural issue from a personal preference; focus recommendations on risks, conformance and business consequences.
- **Dispensation** is an explicitly governed exception. The Architecture Board reviews deviations and decides whether to allow them, with rationale, conditions, ownership and a review or expiry point.
- A functioning product is not automatically conformant. An exception does not silently redefine the architecture; proposed changes to standards, requirements or contracts follow the agreed governance process.

Architecture Governance

TOGAF 9 Part 2

KNOWLEDGE CHEATSHEET

GOVERN AND SUSTAIN

Contract Commitments → **Review** Evidence → **Decision** Conformance or exception → **Change** Controlled evolution

Recognize conformance terminology

- **Irrelevant** means no shared features with the specification. **Consistent** means shared features follow it, while some specified features are absent and additional features exist.
- **Compliant** means implemented features follow the specification and none lie outside it, although some specified features are missing. **Conformant** means all specified features are implemented, with additional features.
- **Fully conformant** means exact correspondence: all specified features are implemented correctly and no additional features exist. **Non-conformant** means a specified feature is implemented contrary to the specification.

Phase H: maintain a useful architecture

- **Architecture Change Management** monitors business and technology change, benefits and operational performance. Keep architecture assets under configuration control and assess requests for change.
- Determine whether a change is a **simplification, incremental change or re-architecting**. Its scope and impact determine the required governance and whether a new ADM cycle is needed.
- Update requirements, architecture descriptions and plans through approved changes. Maintain traceability from business goals through implementation and operation so the architecture stays relevant.