

BEST-PRACTICE GUIDE · TRANSFORM

Phase 03 — Analyse

Understand legacy, master processes, sharpen requirements

The Analyse phase produces the complete functional and technical understanding of the starting position: for legacy systems, agentic reverse engineering reconstructs architecture, business logic and data models; in parallel, business analysis examines the as-is processes and requirements engineering specifies the requirements for the agentic target solution.

Goal of the phase

The phase delivers a consolidated, traceable knowledge base: reconstructed system documentation, analysed as-is processes with weak points, and a quality-assured, prioritized requirements model following the IREB standard.

Process model

- 01 System inventory & scoping**
Capture the affected systems, interfaces, data assets and process domains; define analysis depth and reconstruction goals per system based on the roadmap prioritization.
- 02 Reverse engineering (for legacy)**
Agentic reconstruction of architecture, module structure, business rules and data models from source code, databases and operational artifacts — methodically aligned with the Chikofsky & Cross taxonomy and the horseshoe model.
- 03 Business analysis of as-is processes**
Process capture and evaluation using process mining and BABOK techniques; identification of media discontinuities, automation potential and human-in-the-loop points.
- 04 Requirements engineering**
Elicitation, documentation, validation and negotiation of functional and non-functional requirements per IREB/ISO 29148; modelling with use cases, user stories and to-be BPMN processes.
- 05 Consolidation & gap analysis**
Merge system knowledge, process analysis and requirements into the knowledge base; gap analysis between as-is and the agentic to-be as direct input for the Design phase.

Methodology mix

METHOD	PURPOSE	REFERENCE
Reverse engineering taxonomy	Conceptual and procedural frame for design recovery and re-documentation of legacy systems; scientific basis of whitebox reverse engineering with SLIP.	Chikofsky & Cross (1990)
Horseshoe model (architecture reconstruction)	Three-level reconstruction from code via function to architecture view; structures the transformation from legacy to target architecture.	Kazman, Woods & Carrière (1998)

METHOD	PURPOSE	REFERENCE
Process mining	Data-driven reconstruction and conformance checking of real process flows from event logs; objectifies the as-is process analysis.	van der Aalst (2016)
BABOK v3 — business analysis techniques	Curated technique set (incl. stakeholder analysis, value stream analysis, root cause analysis) for the functional mastery of processes.	IIBA (2015)
IREB CPRE / requirements engineering	Systematics for eliciting, documenting, validating and managing requirements; ReqPOOL's binding quality standard.	Pohl (2010); IREB
ISO/IEC/IEEE 29148	International standard for requirements specifications; defines quality criteria such as verifiability and consistency.	ISO/IEC/IEEE 29148:2018

Platform support

ReqPOOL Suite: **SLIP** (Reverse engineering — whitebox) · **App2Spec** (Reverse engineering — blackbox) · **Requirements Manager** (Agentic requirements management) · **reqChecker** (Requirement quality)

SLIP — whitebox reverse engineering	Reads any code base (SAP/ABAP, COBOL/PL/I/JCL, IBM i, NATURAL/ADABAS, Java and more) into source-proven system documentation — every statement verifiable down to program and line in the source code.
SLIP — knowledge graph & AI assistant	Queryable graph of programs, data flows, interfaces, batches and data structures; the agentic assistant answers impact questions in seconds and delivers transformation recommendations per module.
App2Spec — blackbox observation	An AI agent operates the application like a user or observes real users; screens, business rules and end-to-end processes become an evidence-linked AS-IS specification with process diagrams.
Requirements Manager — specification engine	Workshop videos, protocols and ideation documents become structured specification documents; the result is the AI coding intent as a machine-readable implementation order.
reqChecker — requirement quality	Automatic quality checking of requirements with structured feedback and testable rewording proposals — target: 100% testable requirements before the baseline gate.

Best-practice checklist

	Combine whitebox (SLIP) and blackbox (App2Spec) and validate the code view against the usage view — deviations are analysis findings, not noise.
	Define reconstruction goals per system before the analysis run (depth, views, artifacts) — full analyses without a target picture create knowledge graveyards.
	Only adopt extracted business rules with source code or screenshot evidence; the business side confirms the functional meaning, never the engine alone.
	Manage requirements exclusively in the Requirements Manager — no parallel copies in office documents.
	Run reqChecker before every review meeting and clean up findings beforehand; reviews should assess content, not formalities.



Maintain traceability from day one: every requirement references a process, a system source or a stakeholder decision.

Artifacts & outcomes

- Reconstructed system documentation (architecture, business rules, data models)
- As-is process analysis with process mining evidence and weak point catalogue
- Quality-assured requirements model (functional & non-functional)
- Traceability matrix requirement ↔ process ↔ system
- Gap analysis as-is vs. agentic to-be

Quality gate criteria



System documentation accepted by architecture and business



Requirements checked against ISO 29148 criteria and prioritized



Critical business rules functionally confirmed and evidenced



Gap analysis released as design input by the engagement lead

Scientific deep dives

Chikofsky & Cross: Reverse Engineering and Design Recovery (IEEE Software 1990) — Foundational taxonomy of reverse engineering; the field's most cited reference.

<https://doi.org/10.1109/52.43044>

Kazman, Woods & Carrière: CORUM II / horseshoe model (WCRE 1998) — Connecting reengineering and architecture models; basis of architecture reconstruction.

<https://doi.org/10.1109/WCRE.1998.723185>

van der Aalst: Process Mining — Data Science in Action (Springer 2016) — Standard reference on process mining from discovery to conformance checking.

<https://doi.org/10.1007/978-3-662-49851-4>

Pohl: Requirements Engineering — Fundamentals, Principles, and Techniques — Comprehensive scientific reference on requirements engineering.

<https://link.springer.com/book/9783642125775>

IREB: CPRE syllabi & handbooks — Certification standard for requirements engineering; ReqPOOL's quality benchmark.

<https://www.ireb.org/en>

ISO/IEC/IEEE 29148:2018 — Requirements Engineering — Standard for processes and quality criteria of requirements specifications.

<https://www.iso.org/standard/72089.html>

IIBA: BABOK Guide v3 — Body of knowledge of business analysis with its technique catalogue.

<https://www.iiba.org/career-resources/a-business-analysis-professionals-foundation-for-success/babok/>