Quality Management | DevOps & Automation

noesis
an Altia Company

SAP S/4HANA

Migration Testing Services

Embarking on a **SAP upgrade** or **migration**, especially to S/4HANA, is a pivotal moment for any organization. At Noesis, we enable this transformation with **advanced Quality Engineering practices powered by AI**, **Cognitive Quality Management**, **and Intelligent Automation**.

Our testing services are designed to ensure a seamless transition by validating data migration, system performance, application integrations, and functional stability.

Accelerate S/4HANA Success with AI-Powered Test Automation

We leverage parallel test execution and AI-powered testing strategies to conduct automated regression and End-to-end validation, safeguarding business continuity with minimal risk and maximum agility.

With Noesis' deep experience in SAP ecosystems and a portfolio of **intelligent accelerators**, organizations can confidently progress through their S/4HANA migration.

Our solutions are crafted to **rigorously test** and **prepare systems for production-readiness** without disrupting operations.

Business need

End of support deadlines: SAP will end support for ERP 6 EHP (0–5) by 2025, and for ERP 6 EHP (6–8) by the end of 2027. Customers must migrate to SAP HANA databases to ensure continued support.

Impact of database vendor eol dates: Database vendors like Microsoft and Oracle may have different EOL (end-of-life) dates for SAP-supported databases. Customers need to track these dates to avoid disruptions in their SAP environments.

Risks of transitioning: This migration presents challenges due to SAP data's crucial role in financials, HR, and supply chain. Risks include data inconsistencies, issues with bespoke functionalities supporting business processes, and the possibility of system downtimes affecting business operations.

This underscores the critical role of comprehensive testing in ensuring successful SAP HANA migration.

Assurance strategy

Our experts - SAP Testing Specialists - bring deep insights and best practices to SAP projects, delivering data migration, functional/integration testing, test automation and performance.

SPEED

DevOps

Automated CI/CD Pipelines:

- Automate transports using tools like **Jenkins**, **GitLab CI**, or **SAP Solution Manager**.
- Integrate with **ABAPGit** for version control and safe code deployment.

Infrastructure-as-Code (IaC):

- Automate provisioning of test/staging environments.

Environment Management:

- Versioned configurations and mock data refresh for consistency across dev/test/prod.

TIME TO MARKET

End-to-end business continuity

These are highly integrated and impact finance, compliance, and customer satisfaction:

Order to Cash:

- Sales order creation, delivery, billing, cash.

Procure to Pay:

- Purchase requisition, PO, GR, invoice, among others.

Asset Management:

- Asset capitalization, depreciation, disposal.

BUSINESS CONTINUITY

Hyperautomation

Hyperautomation combines RPA, BPM, and AI to automate across layers:

Intelligent Test Automation:

- From User Stories to Test Case AI Generated and Automated Execution.

Business Process and Regression Automation:

- Automate routine post-migration validations.
- 100+ common transaction codes are completely automated which leverage these re-usable T-Codes.

AI/ML Assurance Models:

- Identify high-risk business scenarios using historical test logs and production usage.
- AI/ML-based impact analysis to prioritize test cases after code/config changes.

QUALITY

Quality Assurance & Control

Test Types:

- Unit Testing.
- Integration Testing.
- Regression Testing.
- Performance Testing.
- UAT Testing.
- End-to-end Testing.

Purpose:

- Validate individual modules.
- Validate module interaction.
- Don't break old processes.
- System responsiveness.
- End users validation.
- Business continuity.

Data Validation

- Verify that data is transferred correctly and that the system operates as intended.
- Automate data quality checks, reconciliation, and exception handling using bots.

Data integrity approach

As companies transition from outdated platforms to SAP S/4HANA, it's crucial to verify that data is transferred correctly and that the system operates as intended. Inadequate testing can result in major inconsistencies in data, potential security risks, and operational malfunctions.

Our flawless data transition is capable of comparing millions of records using bespoke queries against target and source.

The data migration process can be a key process in a new SAP S/4HANA implementation for business continuity.

It needs to involve careful testing planning, solid domain expertise around data destinations, security, business rules validation, performance and reliability.

DISCOVERY

- Identify which data will be migrated and select migration objects.
- Testing Plan.
- Alignment with key milestones of application development plan.
- Identify testing profiles and specialised domain expertise required.

DATA ECOSSYSTEM

- **Source**
  Business rules and data rules by source system.
- **Staging**
  - Architecture and Tech Stack.
  - Data extract, clean and transform rules.
- **Destiny**
  Architecture and Tech Stack.

DESIGN

- Map data to be migrated.
- Data risk and scoring model.
- Data integrity check.
- Data extraction scenarios check and validate.
- Data validation rules aligned with client and development team.
- Testing scenarios, testing strategy and test case design.

Data Assurance Strategy

- **DevOps setup**
  Data CI/CD pipelines setup.
- **Intelligent testing automation**
  Map which data can be tested with automation.
- **Business continuity**
  Map critical business processes data.

TEST

- **Test Data Extraction:**
  Exceptions handling, logging.
- **Data Transformation Testing**
- **Test Plan execution:**
  Functional and non functional testing.
- **Defects Management**
- **Root / Cause Analysis:**
  Implement and train AI/ML models for preventive testing.

Data Migration Tracking

- **Migration Assurance Dashboard**
  Tracks KPIs like test coverage, defect density, automation rate, migration status.
- **Data Migratons Heatmaps**
  Visualizes which data are covered/tested/automated.

Tools

SAP Software Update Manager (SUM) with Database Migration Option (DMO).

SAP S/4HANA Migration Cockpit.

The **data migration process** for a new **SAP S/4HANA** implementation typically is done in **six stages**:

1 In **the first stage**, the migration objects are selected.

2 In **the second stage**, the required data is obtained from the source. This stage can involve data reading using either a file, staging table or a direct reading process.

3 Once the data has been extracted from stage two, **the third stage** involves data mapping and transformation, and may also include re-modelling to represent customer requirements.

4 **The fourth stage** called simulation allows the users to view the data posting on to a new system and find any discrepancies in the migration process.

5+6 **The last two stages** involve executing the actual migration of data depending on if migration is required to be on-premise or on the cloud.

Migration assurance framework

Our comprehensive framework for SAP ECC to S/4HANA migration that incorporates: Migration phases and steps, key activities, expected deliverables describing Embedded Testing, DevOps, AI/ML, and Hyperautomation.

PLAN

DISCOVERY

- Business Readiness & Planning.
- Tooling & Infra Setup.

Key activities

- Assess ECC landscape.
- Identify Migration scope and Development approach (greenfield, brownfield, selective).
- Define critical processes & KPIs.
- Select testing, DevOps, automation, and monitoring tools.
- Provision environments.
- DevOps pipelines setup.

Deliverables

- QA Migration Roadmap (aligned with Project and Delivery Roadmap).
- Dev/Test/Sandbox systems.
- Tooling inventory.

DESIGN

- Fit-Gap & Solution Design.
- Test Planning & Strategy.

Key activities

- Fit-gap vs. standard S/4HANA.
- Identify extensions and custom code, Data model changes, Data ETL approach.
- Process discovery for End-to-end view.
- Define test types, environments, entry/exit criteria.
- Setup AI-driven test prioritization.
- Test automation strategy.

Deliverables

- Solution design document.
- Risk-based testing plan.
- Test case design.

BUILD

EXECUTION

- Conversion & Build.
- DevOps & Automation.
- Test Execution.

Key activities

- Understand Custom code migration.
- Systems Integrator S/4HANA innovations implementation.
- Systems Integrator build enhancements & integrations.
- Automate transports.
- Configure IaC (Infra as Code).
- Execute test cycles (unit, integration, regression).
- Automate high-value test cases.
- Use AI for user stories and test case generation.

Deliverables

- Converted transports.
- Clean ABAP codebase - Release pipelines.
- Automation scripts.
- Infra deployment.
- CI/CD pipelines.
- Test logs.
- Defect logs.
- Automated test reports.

RUN

SIMULATION

- Final Preparation to Cutover.
- Hyperautomation Setup.

Key activities

- Develop RPA bots monitoring.
- Data migration validation.
- Run AI bots for anomaly detection.
- Perform business simulations (Day-in-the-life approach – End-to-end Business Process Testing).
- Automate post-go-live checks.
- Auto-monitoring for batch jobs & errors.

Deliverables

- Cutover plan.
- Data validation logs.
- E2E simulation results.
- Monitoring dashboards.
- RPA bot catalog.

GO-LIVE

- Hypercare & Stabilization.
- Transition to Operations.

Key activities

- Business validation support.
- Bot assisted monitoring.
- Feedback loops for continuous test improvement.
- Final KPI Measurement.
- Handover to operations.
- Close project.
- Knowledge transfer & SOPs.

Deliverables

- KPI dashboard.
- Lessons.
- SOPs.
- Closure report.
- Support plan.

Success stories

HOW SAP'S TRANSITION TO S/4HANA WITH END-TO-END TEST COVERAGE ACROSS CORE BUSINESS PROCESSES HELPED INCREASE BUSINESS ASSURANCE AND CONTINUITY

The client, a prominent player in the Oil and Gas industry, sought to partner with **Noesis** to Implemented a proactive testing framework to identify and resolve issues and defects/bugs faster.

Noesis standardized release schedules by coordinating with client IT areas, Introduced automated CI/CD pipelines to synchronize releases, ensured 100% release testing coverage for all SAP core business processes and core configuration, implemented End-to-end business process testing using Worksoft for automation. **Noesis** established streamlined testing

Achievements

- **70%** reduction in End-to-end test effort with automation.
- **95%+** reduction in critical issues.

LEVERAGING API INTEGRATION TESTING DURING AN ERP TRANSITION TO S/4HANA

The client, a prominent player in the Electronics industry, as part of the ERP transition to SAP S/4HANA, implemented a centralized API solution to integrate data from multiple sources. They collaborated with **Noesis** to enable a comprehensive testing framework in order to streamline integration management processes and increase efficiency with API testing automation.

Noesis delivered a specialised End-to-end team with extensive experience in S/4HANA Retail MM/SD and FI modules. A proven API Testing Framework was implemented to test API and event-based integrations, established in ODATA, IDOC, Proxy and RFC/BAPI.

Achievements

- **60%** reduction in test effort with automation
- **95%+** reduction in critical issues

TRANSITION TO SAP S/4HANA CLOUD – FAST, WITH MAXIMUM VALUE AND MINIMAL RISK

The client, a prominent player in the Energy and Utilities industry, embraced a transformation initiative with SAP S/4HANA Utilities migration from existing SAP ECC system. Core modernization was a priority for our client and a journey towards the cloud.

NOESIS established a dedicated testing and devops team, to enhance quality and operational testing efficiency to support SAP S/4HANA Utilities implementation, NOESIS implemented a proven Testing Framework model aligned with ITIL practices with an Agile DevSecOps approach, focusing on Data Verification and Data Validation approach, CI/CD pipelines deployment and testing automation. NOESIS future-proofed business continuity by establishing and End-to-end core business processes testing approach, assuring that critical issues were found and fixed before they get the SAP Production Systems.

Achievements

- **95%+** reduction in critical issues
- Foundation for rapid time to market project implementations
- Faster user adoption by error free functional business processes

HOW A MASTER DATA MANAGEMENT SOLUTION CAN HELP MIGRATE AND MAP ENTERPRISE DATA ELEMENTS ENSURING CONSISTENT AND ACCURATE DATA MODEL FOR SAP S/4HANA

The client, a prominent player in the global Retail services industry, recognizing the need for a single, unified view of master data. This involves de-duplication, standardization, and enrichment of data, ensuring consistency and accuracy.

Noesis delivered a comprehensive testing framework for testing master data within SAP environments, enabling our client to achieve greater data accuracy, consistency, and efficiency while supporting critical business processes and strategic initiatives.

Achievements

- **Streamlining Business Processes**
  By ensuring consistent and accurate master data, can streamline End-to-end business processes like order-to-cash, procure-to-pay, among others.
- **Improving Data Quality**
  Our testing framework helped to identify and merge matching records, remove duplicates, and enforce data governance policies to improve data quality.

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Why Noesis?

We collaborate on a tailored testing strategy, and meticulously plan, execute and manage all testing phases – from design and automation to defect management and reporting.

We continuously optimise for a seamless SDLC, allowing you to focus on core business growth.

Our experts begin work right from defining test strategy to test planning, test execution, test management, defect management, reporting and optimisation to make the entire SDLC process seamless and smooth.

STRONG POOL OF SCALABLE RPA RESOURCES

Multi-skilled resources with domain focus with over 80% certified in ISTQB.

GLOBAL PRESENCE

Near shore and Offshore Presence (Portugal, Spain, Ireland, Netherlands, Brazil, USA, Chile and UAE) to support global requirements.

ABILITY TO DELIVER

- End-to-end testing.
- Migration testing of legacy to modern applications.
- Service Optimization by offering API, Mobile, Performance, Security and Functional testing.
- We help set up and run a Testing Centre for a centralised testing process.

Strategic partners

UiPath
blueprism
Red Hat
opentext™ Information reimagined
outsystems
Power Automate
Microsoft
GitLab
IBM
Katalon
digital.ai
GitHub
JFrog
SauceLabs
VERACODE
SonarQube
AUTOMATION ANYWHERE
FLEXAGON