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Our Solution, Accelerating your
Future. Faster. Together.

LTIMindtree's RELY.AI Framework Powered by Tricentis

Gen AI-driven SAP S/4HANA Testing Transformation

Manufacturers today operate in a world where precision, speed, and adaptability are non-negotiable. In this fast-moving, digital landscape, intelligent testing isn't just a goal, it's the foundation for seamless transformation.

How can organizations navigate these challenges and unlock the full potential through Gen AI driven SAP S/4HANA based testing solutions?

Today's always-on business environment calls for smart, confident moves fueled by trustworthy insights. When every second counts, the real game-changer isn't just acting fast, but acting right, making informed decisions in real time to stay ahead, adapt quickly, and thrive without missing a beat.

As organizations modernize their IT infrastructure to drive innovation and scale operations, the shift to SAP S/4HANA based testing becomes imperative. However, the migration process and its testing are inherently complex. Business disruption, integration failures, and performance bottlenecks are common risks that can delay transformation and escalate costs.

Intelligent Testing Solutions play a critical role in mitigating these risks and ensuring the success of SAP S/4HANA programs.

> *It is necessary to enhance your SAP S/4HANA deployment efficiency and business continuity. In today's technological age, it is imperative for your organization to utilize AI-driven capability to achieve better test accuracy and faster defect identification, ensuring consistent performance and reliability in your enterprise applications.*

-Shashikant Walimbe
Vice President – SAP, LTIMindtree

Gen AI-Driven SAP S/4HANA Intelligent Testing

The key to future-ready transformation

The countdown to SAP ECC's end of support in 2027 is well underway, and the window for action is closing fast. Transitioning to SAP S/4HANA is more than a future plan, it's a critical step to keep pace with change, protect investments, and unlock new growth opportunities.

However, the complexity of migrating core business processes, data, and customizations poses significant risks, from business disruption to cost overruns and delayed releases. In this high-stakes environment, testing becomes the linchpin for success—ensuring that critical business functions are preserved and optimized during and after migration.

The rise of generative AI is transforming SAP S/4HANA testing from a reactive process to a strategic advantage. Enterprises face growing pressure to accelerate release cycles, minimize defects, and ensure seamless business continuity. Gen AI enables predictive test automation, adaptive coverage, and intelligent defect resolution—making AI-driven testing not just a competitive edge but a business necessity. Organizations that integrate Gen AI into their SAP S/4HANA testing strategy are better positioned to handle complexity, reduce costs, and drive faster time-to-market.

SAP S/4HANA transformations are inherently complex, involving extensive data migration, process redesign, and system integration. Traditional testing methods often fall short, leading to increased risks, delays, and costs. Generative AI transforms this process by enabling intelligent test case generation, self-healing automation scripts, and dynamic risk-based testing, allowing organizations to proactively identify issues, reduce redundant efforts, and ensure comprehensive coverage. This AI-driven approach simulates real-world scenarios, predicts potential failures, and automates regression testing, resulting in faster rollouts, enhanced system stability, and a more resilient business ecosystem, ultimately empowering enterprises to meet evolving market demands and drive continuous innovation.

When transformation becomes the mandate, not an option, Gen AI-led intelligent testing emerges as the true force multiplier for SAP S/4HANA success. It's the catalyst for speed, risk reduction, and building an enterprise that's ready for what's next.

Key Challenges in SAP S/4HANA Adoption for Testing

For C-Suite leaders and enterprise IT decision makers, SAP S/4HANA transformation is a high-stakes journey. It demands a sharp focus on protecting business continuity, delivering strong returns on investment, and navigating risks with precision at every step. Yet, this transition often brings a unique set of challenges that directly impact strategic goals and operational stability.

In today's hyperconnected world, even brief disruptions can ripple across revenue streams, customer relationships, and brand reputation. Enterprises must build the resilience to keep operations smooth, responsive, and ready for whatever comes next. The shift to SAP S/4HANA represents more than just an IT upgrade—it is a foundational business transformation that will shape how organizations operate, innovate, and compete.
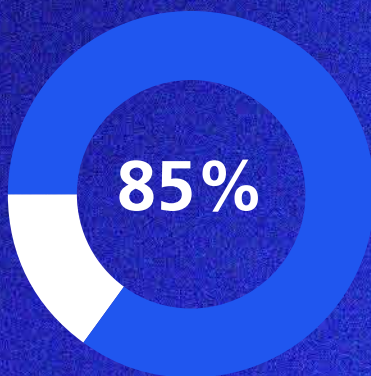
However, the path to SAP S/4HANA adoption is fraught with challenges:

01 **Migrating** critical systems without robust testing can result in system downtime, broken workflows, and financial loss.

02 **Delayed go-live:** Lack of efficient testing can lead to missed deadlines, increased costs, and stakeholder dissatisfaction.

03 **Data integrity risks:** Inadequate testing of data migration processes can lead to data loss, inconsistencies, and compliance issues.

04 **Performance bottlenecks:** Insufficient performance testing can result in slow response time and scalability issues post-migration.
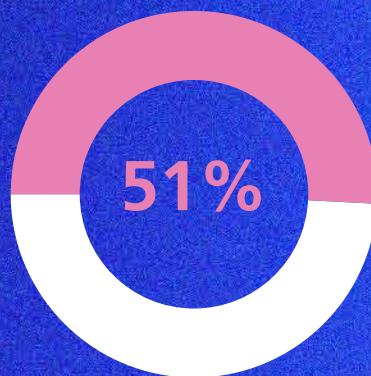
Key challenges in S/4HANA transformations:

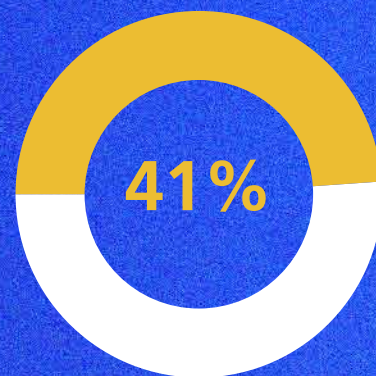The top challenges in SAP transformation and projects are as follows:

85%

Speed
Delayed release

51%

Risk
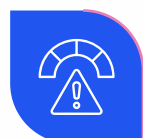Business disruption

41%

Cost
Exceed budget

Traditional testing models are not equipped to address these complexities. Enterprises need an intelligent testing solution that integrates AI-driven insights, predictive risk assessment, and automated testing to ensure a seamless SAP S/4HANA transition.

The absence of comprehensive testing can cause major risks in S/4HANA programs:

85% of production incidents arise due to inadequate testing coverage

$2.08 trillion in production bug-related losses tied to data or integration issues

60% of system performance issues impact business KPIs

Defects identified in production cost up to **300%** more in efforts and remediation

SAP S/4HANA transformation is more than a technology shift — it's a mission-critical business evolution. Without intelligent, AI-powered testing at its core, enterprises risk delays, disruptions, and missed opportunities. It's time to reimagine testing not as a checkbox, but as a strategic enabler of resilience, performance, and value.

![LTIMindtree logo] **LTIMindtree**

Navigating SAP S/4HANA Complexity – Why Testing Can't Be an Afterthought

For C-level executives and enterprise IT leaders, the move to SAP S/4HANA goes beyond a routine IT upgrade. It's a strategic shift that must create tangible business value while maintaining operational continuity, regulatory compliance, and cost efficiency.

There's also growing urgency to fast-track digital transformation. Yet, ensuring stability across complex SAP environments—like finance, supply chain, manufacturing, and customer engagement—requires a smarter, more proactive approach to testing. **Key business needs driving the shift toward intelligent testing include:**

Business continuity

Ensuring uninterrupted business operations during and after migration.

Faster time-to-value

Reducing testing cycles to accelerate SAP deployment timelines.

Risk mitigation

Identifying potential business disruptions before they impact operations.

Cost optimization

Minimizing effort and resources spent on repetitive, manual testing tasks.

Compliance and governance

Ensuring adherence to industry regulations and internal controls.

Every SAP S/4HANA transformation hinges on trust, trust that what's changing won't break what already works. Intelligent, Gen AI-led testing turns that trust into action, guiding transformation with confidence, speed, and control across every phase of the journey.

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Common Pain Points in SAP S/4HANA Testing

Inefficiencies in SAP S/4HANA Testing Cycle

Manual Testing
Slower execution and increased risk of human error.

Targeted Testing Unavailability
Lack of focused validation leads to gaps.

Inadequate Coverage
Missed business scenarios and functional gaps.

Defect Leakage
Increased post-release issues and rework.

Manual and fragmented testing in SAP S/4HANA transformations is a recipe for risk. To truly de-risk modernization, enterprises need intelligent, automated, and end-to-end test coverage that eliminates blind spots and accelerates outcomes.

What Our Clients Need?

In today's fast-paced business environment, enterprises face increasing pressure to ensure seamless and risk-free SAP transformations. **However, achieving this goal is often hindered by several key challenges:**

01

Risk unavailability of targeted testing

Clients struggle with identifying and executing targeted tests, leading to gaps in risk coverage and increased exposure to defects in production.

02

Lack of insights into test coverage

Without a clear view of test coverage, businesses face the risk of missing critical defects and operational inefficiencies, impacting overall performance.

03

Test scope optimization

Reducing the volume of regression testing without compromising quality remains a significant challenge, driving up testing costs and extending project timelines.

We understand these complexities and provide tailored solutions to address them—delivering enhanced test coverage, reduced testing effort, and minimized business risk.

Our clients don't just need testing they need precision, insight, and efficiency. At LTIMindtree, we bring Gen AI-powered intelligence to ensure targeted testing, optimized scope, and clear coverage, minimizing risk while maximizing value from SAP S/4HANA transformations.

Transform SAP Quality Assurance with LTIMindtree's RELY.AI

A Gen AI-powered Framework Co-Engineered with Tricentis

Transitioning to SAP S/4HANA demands more than just migration—it requires precision, continuity, and user-centric assurance. LTIMindtree's intelligent automation approach brings together persona-driven testing, impact-based coverage, and GenAI-powered test case creation to simplify complex SAP landscapes.

Automated regression, integration, and performance testing reduce manual effort and shorten release cycles. Tools like the test data generator simulate real-world scenarios with secure, real-time data, enabling faster, accurate validations. Role-based access, Fiori UI validation, and customized reporting enhance user experience while maintaining control and compliance.

AI-driven risk mitigation continuously adapts test processes to evolving system changes, improving resilience and reducing business disruption. Capabilities like self-healing automation and real-time monitoring ensure business-critical workflows are always protected—before, during, and after migration.

This structured, three-phase approach—from pre-migration diagnostics to post-go-live assurance—empowers enterprises to migrate with confidence and speed, minimizing risk while maximizing operational value. Explore LTIMindtree's RELY.AI's full offerings, such as TestAcademia, TestGenius, DataFabric and ART, *here*.

> *With LTIMindtree's RELY.AI—co-engineered with Tricentis, we're redefining SAP S/4HANA quality assurance. Our Gen AI-powered platform combines persona-driven testing, intelligent automation, and adaptive risk analysis to deliver faster releases, higher coverage, and resilient operations—all while reducing testing effort and minimizing production defects.*

Empowering SAP Transformation with Intelligent Testing

Accelerating SAP transformation requires more than just automated testing—it calls for an intelligent, scalable, and integrated approach that aligns with evolving business needs. LTIMindtree's AI-driven testing framework offers just that. Built with deep domain expertise and advanced automation capabilities, it helps organizations streamline testing efforts, ensure broader coverage, and reduce deployment risks.

What you can expect:

01 **End-to-end business process assurance**
Validates critical business processes thoroughly, reducing operational risks and enhancing stability.

02 **Integrated tooling strategy**
Works seamlessly across SAP and non-SAP systems to support a unified testing environment.

03 **~50% reduction in test script creation effort**
AI-assisted test case builders automate complex test creation, cutting down manual effort.

04 **>95% test coverage**
Comprehensive scenario validation improves test depth and reduces exposure to defects.

05 **Test less, cover more**
Impact-based testing identifies what truly needs to be tested, eliminating redundancy and saving time.

06 **50% shorter test execution cycles**
Automated runs accelerate delivery timelines and enable quicker go-lives.

07 **Near zero defect leakage to production**
Predictive analytics and self-healing tests help catch issues early, maintaining continuity post-deployment.

These are the capabilities at the core of LTIMindtree's RELY.AI Framework - designed to support organizations at every stage of their SAP journey while delivering speed, accuracy, and peace of mind.

Empowering SAP transformation means more than automation; it demands intelligence, precision, and scalability. With RELY.AI, co-engineered with Tricentis, LTIMindtree delivers AI-driven testing that accelerates go-lives, ensures end-to-end business assurance, and significantly reduces risk. It's how we help enterprises transform smarter, test faster, and operate with confidence.

Tailored Solutions for Our Clients

Here's how we've helped leading enterprises accelerate SAP transformation through intelligent automation—delivering measurable efficiency, faster testing cycles, and dependable business outcomes.

Case Study 1

Robust Test Automation for a Global Consumer Goods Leader

A multinational consumer goods giant, with 65+ household brands, operates across 70 countries and serves billions globally. With over USD 80 billion in revenue, the company prioritizes innovation, sustainability, and operational excellence.

Market dynamics

SAP S/4HANA transformation was key to supporting global scale and evolving business models. Speed and reliability became top priorities. To meet growing demands, the client needed faster QA cycles, better defect detection, and seamless multi-region coverage.

However, achieving these goals wasn't without hurdles.
The client struggled with building a reliable automation framework that could cover diverse SAP use cases. Testing was slowed down due to limited access to accurate test data, resulting in heavy reliance on SMEs. Additionally, frequent role and authorization mismatches led to test failures, causing bottlenecks and delaying project timelines.

Solution

LTIMindtree partnered with Tricentis to build on a trusted 18-year collaboration with the client. This long-term relationship positioned us to support their S/4HANA migration confidently. We designed a scalable automation framework with over 650 reusable end-to-end scripts across SAP and Fiori Web systems. Automated test data generation reduced SME dependence. Role-based access testing ensured configurations were validated early, minimizing failures.

We aligned testing with weekly and monthly releases, keeping scripts current with changing business needs. The framework scaled smoothly across regions, supporting continuous improvements and faster releases.

Key outcomes

01
70% test automation coverage

02
30% shorter testing cycles

03
30% earlier defect identification

04
Reliable lights-out testing with enhanced validation speed

Conclusion
By modernizing the test lifecycle, we helped the client gain speed, reduce defects, and build lasting confidence in SAP deployments.

Seamless S/4HANA Migration for a Global Energy Giant

A leading multinational energy company, operating in 13+ countries, produces 1.9 million barrels of oil equivalent daily. Known for innovation and operational excellence, it relies on advanced systems to drive performance.

Market dynamics

In today's dynamic market, successful S/4HANA migrations demand more than just technical execution; they require a deep understanding of evolving business needs and a commitment to seamless user experience. Our recent engagement exemplified this principle through a meticulously crafted test strategy for a complex S/4HANA Bluefield migration.

The client, however, faced several critical challenges.
Migrating from SAP ECC to S/4HANA without disrupting ongoing operations was a major concern. Complex system integrations and the risk of regression demanded careful attention. At the same time, they sought independent testing expertise to ensure unbiased validation and risk mitigation. Building and executing a robust Bluefield test strategy became essential to guarantee functional integrity and business continuity throughout the transformation.

Solution

LTIMindtree and Tricentis collaborated to deliver an independent testing strategy for their Bluefield migration. This involved safeguarding ongoing operations, validating critical integrations, and managing large-scale regression.

We created a business process hierarchy and 3000+ reusable scripts across SAP and non-SAP apps using the RELY.AI framework. Automation scaled from 0 to 100%, covering complex areas like capital spending and month-end closing.

Our test data management strategy ensured data accuracy across environments. We used Tosca Data Integrity to reconcile Snowflake and Teradata records and generated custom reports for faster SME validation.

Key outcomes

01
Test cycles reduced from 2 weeks to 3 days

02
1600+ test scenarios automated

03
Cutover data validation time dropped by 66%

04
2000+ new scripts and 100+ utilities created

Conclusion

We enabled a smooth S/4HANA migration with intelligent automation, strong governance, and zero business disruption—delivering lasting speed, accuracy, and assurance.

Case Study 3

Performance Optimization for a Global Mining Leader

The client, a global mining leader operating in over 100 countries, specializes in blasting technologies and digital mining solutions. With 145+ years of legacy, they prioritize innovation, safety, and sustainability to improve mining operations worldwide.

Market dynamics

Understanding application performance and data scalability is critical for modern mining operations. Our approach delivers actionable insights through detailed performance measurement, database volumetric analysis, and comprehensive reporting. Addressing challenges like test coverage gaps, high manual effort, and cost pressures is key to helping clients achieve operational resilience and competitive advantage.

However, the client faced specific hurdles.
The absence of a structured performance testing framework led to unclear performance metrics and limited analytical insights. Without reliable, data-driven evaluations, it was difficult to assess application load behavior accurately. Limited visibility into database performance further complicated optimization efforts, while disjointed performance data and lack of clear reporting slowed decision-making. Operational inefficiencies and rising costs from manual processes underscored the urgency for change.

Solution

LTIMindtree partnered with Tricentis to establish a performance testing framework using Tricentis Neoload. Our goal was to boost visibility, reduce manual effort, and accelerate cloud migration success. We built and executed test scripts across SAP GUI/Fiori applications on both Azure and GCP. Tests covered load, endurance, and breakpoint scenarios.

Our team identified performance gaps and validated improvements post-migration. A 250-user load test confirmed system responsiveness on GCP, while a 4-hour soak test validated system stability without memory leaks. Using data-driven insights, we pinpointed system limits and helped drive informed decisions around scalability and optimization.

Key outcomes

01

Smooth, low-risk GCP migration with pre/post-performance baselines

02

Faster response times and higher application resilience

03

Improved scalability through high-load simulations and breakpoint analysis

Conclusion

With our structured approach, we delivered performance assurance, scalability insights, and smoother cloud transition—equipping the client for future-ready operations.

Our AI-driven automation solutions have transformed SAP landscapes by increasing test accuracy, accelerating delivery timelines, and ensuring seamless business operations.

Our RELY.AI framework, co-engineered with Tricentis, has empowered industry leaders across energy, consumer goods, and mining to transform faster with confidence. From cutting test cycles by 70% to driving seamless global migrations and performance optimization, we deliver automation that's intelligent, scalable, and built for real business outcomes. This is how LTIMindtree ensures every SAP journey is future ready.

Empowering Enterprise Success with Intelligent SAP Assurance

Enterprise SAP programs often come with high stakes, complex landscapes, tight timelines, and the need to balance speed with quality. We recognize the pressure on both IT leaders and QA heads to deliver reliable outcomes without compromising business continuity. Where relevant, our framework, built on proven tools like RELY.AI, supports teams with smarter testing strategies that are practical and risk aware.

Key challenges

For Enterprise IT Decision-Makers:
(CIOs, CTOs, VP Enterprise Apps, Head of Enterprise Apps, Director IT, Director Engineering)

01

Risk of business disruption

Unforeseen issues during migration or upgrades can halt critical operations

02

Exceeding timelines

Delays in project completion impact business performance and strategy

03

Cost overruns

Uncontrolled testing efforts and rework inflate overall program costs

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For QA Leadership:
(VP Quality Engineering, Head of Testing/Quality Engineering)

01

Lack of targeted testing

Lack of focused testing results in missed risks and increased defects

02

Gaps in test coverage

Inadequate coverage leaves critical business processes exposed

03

Defect leakage to production

Insufficient testing leads to costly post-production issues

Strategic focus areas

01

Enterprise IT decision-makers

Reduce uncertainty, improve delivery speed, and maintain continuity during transformation

02

QA leadership

Adopt a risk-based testing strategy, increase test automation, and improve precision in validation

With tailored SAP assurance approaches, LTIMindtree helps enterprises strengthen their testing foundations, reduce transformation risks, and move forward with greater clarity and control.

At LTIMindtree, we understand the criticality of getting SAP transformations right the first time. Our RELY.AI framework equips enterprise IT and QA leaders with intelligent, risk-aware testing strategies that not only accelerate delivery but also safeguard continuity. It's not just about automation, it's about assurance with precision, clarity, and control.

Why LTIMindtree?

Here's how we've helped leading enterprises accelerate SAP transformation through intelligent automation—delivering measurable efficiency, faster testing cycles, and dependable business outcomes.

01 With over 25 years of SAP experience and a team of more than 9000 SAP professionals, LTIMindtree brings deep implementation expertise that helps enterprises modernize with clarity and confidence.

02 Leading analyst firms including Gartner, IDC, and Forrester recognize LTIMindtree's consistent delivery and SAP transformation leadership.

03 RELY.AI, our intelligent assurance framework powered by Tricentis, enables faster deployments, reduces risks, and ensures stability throughout large-scale migrations.

04 Our clear, three-step approach "Renew–Reimagine–Reinvent" helps businesses modernize at every level, from system upgrades to rethinking business processes.

05 Our industry-specific innovations and AI-powered testing and predictive analytics help clients move faster, improve coverage, and prevent defects.

06 We support diverse industries—helping a USD 80 billion consumer goods leader transform financial planning and improving supply chain accuracy for a EUR 20 billion electrical manufacturer.

07 At every step, we stay focused on helping enterprises realize business value—not just from SAP systems, but from the way they work, scale, and grow.

Planning your SAP S/4HANA move? Rely on us to lead the way.

At LTIMindtree, SAP transformation is driven by experience, powered by intelligence, and focused on outcomes that matter. Backed by 25+ years of experience and 9000+ SAP experts, we bring industry-specific insights, intelligent automation, and a relentless focus on business value to every transformation journey. With our RELY.AI platform, our clients move faster, smarter, and with greater confidence.

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Is your organization looking for Gen AI driven SAP S/4HANA Transformation?

Want to use our innovative solution?

Contact us at:

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To know more visit:

Our SAP Enterprise Solutions to know further about our SAP S/4HANA Testing Solutions!

Our Manufacturing Offerings to know further about our Manufacturing Solutions!

For more information about our initiatives, do reach out to us – *LTIMindtree Manufacturing | LinkedIn*

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Expert in De-risking S/4HANA Transformations

Shailesh Virkar brings over two decades of extensive experience in the IT industry, specializing in SAP solutions and digital transformation. As the Senior Director of Package Implementation at LTIMindtree, Shailesh has been instrumental in guiding numerous organizations through successful S/4HANA transformations, ensuring minimal risk and maximum efficiency.

Shailesh's deep expertise and strategic vision have made him a trusted advisor in the realm of SAP and digital transformation.

LTIMindtree is a global technology consulting and digital solutions company that enables enterprises across industries to reimagine business models, accelerate innovation, and maximize growth by harnessing digital technologies. As a digital transformation partner to more than 700 clients, LTIMindtree brings extensive domain and technology expertise to help drive superior competitive differentiation, customer experiences, and business outcomes in a converging world. Powered by 84,000+ talented and entrepreneurial professionals across more than 40 countries, LTIMindtree — a Larsen & Toubro Group company — solves the most complex business challenges and delivers transformation at scale. For more information, please visit **https://www.ltimindtree.com/**.