LUVINA SOFTWARE

SAFETRACK QA PROJECT

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LUVINA SOFWARE

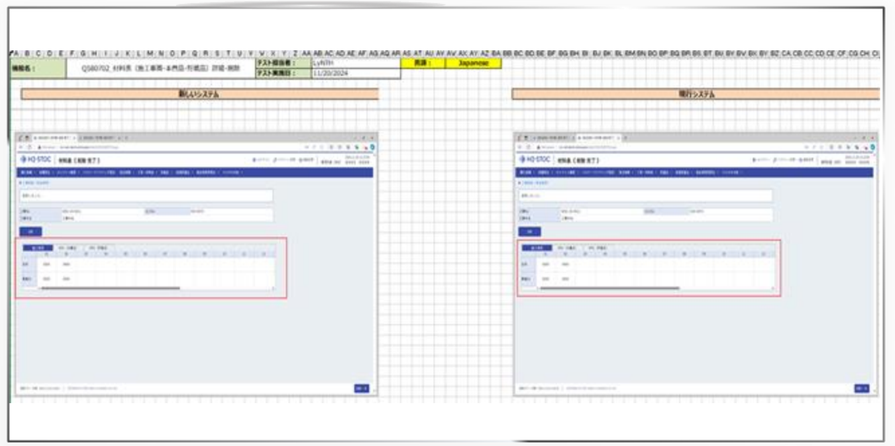
PROJECT OVERVIEW

Quality Assurance for Upgraded ERP System in Japan’s Railway Industry

PROJECT OVERVIEW

Luvina Software supported a major Japanese railway operator in validating their upgraded in-house ERP system. The goal was to ensure **system stability, data integrity, and functional correctness** following updates to both the application's source code and deployment environment.

Our team provided **comprehensive manual testing services**, focusing on real-world business scenarios and regression testing to identify any inconsistencies between the legacy and upgraded systems.



Country: Japan

Industry: Transportation - Railway

Focus Area: ERP (Warehouse & Inventory Management)

Project Duration:

- Phase 1: July to September 2024 (35 MM)
- Phase 2: October to December 2024 (16 MM)

Service Type: Full-scope Manual Testing

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Client Background & Challenges

The client operates a mission-critical ERP system that has been in use since the early 2000s to manage inventory and warehouse operations across its railway network. To meet evolving business needs and technical standards, the system underwent a significant upgrade, involving:

- Migration to a **new Windows Server environment**
- Updates to **core technical libraries** and application source code
- Enhancement of existing business features

Due to the system’s long lifespan and complexity, the client faced significant risks:

- **Potential incompatibility** between legacy functions and new infrastructure
- **High dependency** on existing business workflows
- **Increased likelihood of hidden errors** after the upgrade

To address these risks, a thorough testing process was critical.

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Luvina’s Testing Approach

✅ Data Validation

- Verified input/output accuracy
- Ensured data integrity during transactions
- Compared report and export formats across old and newsystems

✅ Business Logic Compatibility

- Conducted regression testing to ensure functional equivalence
- Identified discrepancies in business rule execution post-upgrade

✅ UI Consistency & Usability

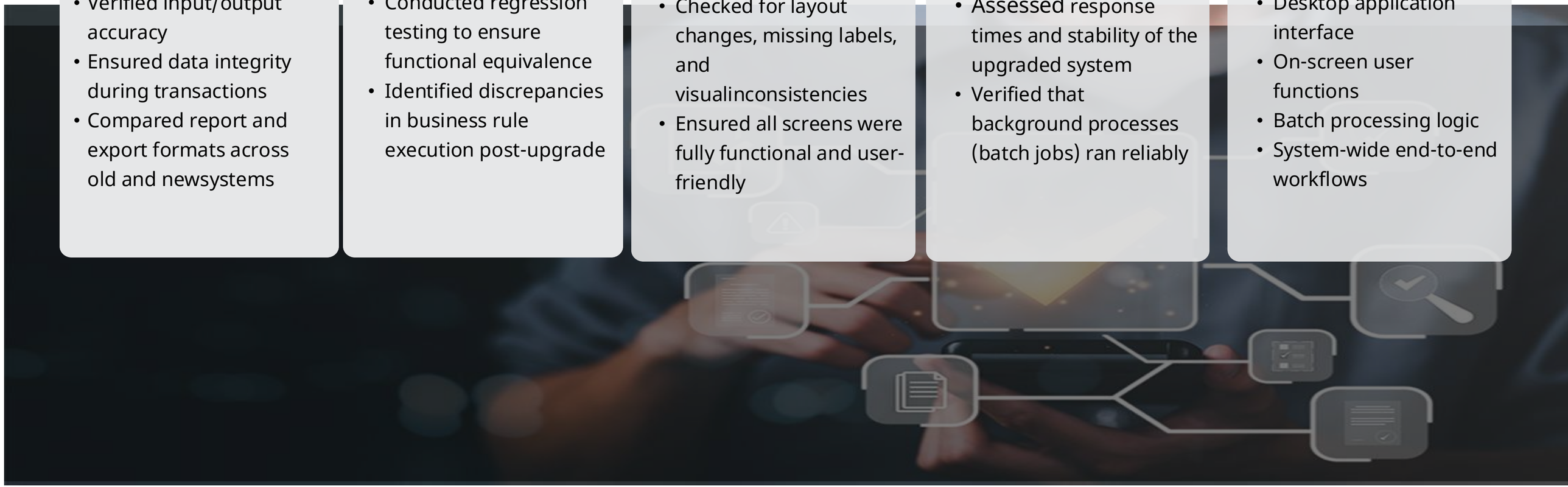
- Checked for layout changes, missing labels, and visualinconsistencies
- Ensured all screens were fully functional and user-friendly

✅ Performance Assurance

- Assessed response times and stability of the upgraded system
- Verified that background processes (batch jobs) ran reliably

✅ Scope of Testing

- Desktop application interface
- On-screen user functions
- Batch processing logic
- System-wide end-to-end workflows



PROJECT OVERVIEW

Luvina’s Solutions

To ensure the quality and timely delivery of the ERP upgrade testing project, Luvina applied a strategic and process-driven QA approach tailored to the client’s specific challenges:

1. Optimized Testing Strategy for Complex ERP Systems

Drawing on extensive experience with large-scale ERP systems like *GRANDIT*, our team:

- Analyzed the interdependencies between business modules
- Developed a Master Test Schedule to allocate resources efficiently
- Maintained delivery timelines as committed to the end client

2. Agile Resource Coordination and Transparent Delivery

- Maintained weekly visibility into testing output to help the System Integrator (SI) adjust their review schedule in real time
- Reserved internal backup resources to scale up quickly when delivery acceleration was needed

3. Standardized Process to Align Stakeholder Expectations

- To avoid misunderstandings and ensure consistency across teams, we:
- Executed a pilot trial phase to validate the testing process
- Standardized Test Evidence (TE) reporting format and secured approval from the SI
- Rolled out the approved process and reporting standard across the entire QA team

All testing activities followed strict CMMI-compliant procedures, and were carried out by highly skilled QA professionals, ensuring that Luvina’s deliverables met the highest quality standards and minimized the workload for the SI.

PROJECT OVERVIEW

Key Achievement

✅ Seamless Post-Upgrade System Operation

- The ERP system remained fully operational immediately after go-live, with **no downtime or disruption** reported
- Over **800 screens and batch processes** were thoroughly tested across two phases
- Achieved **100% functional stability** for all core business operations

✅ High Data Integrity

- Achieved a **>99.95% data consistency rate** between the legacy and upgraded systems
- Ensured accurate report exports, receipt generation, and batch processing, minimizing operational risk

✅ Exceptionally Low Post-QA Defect Rate

- Post-QA bugs reported by the end user were **less than 0.35 bugs per 100 test cases**, outperforming the industry benchmark (~0.5 bugs/100 TCs)
- Bug count in Phase 2 was **reduced by nearly 50%** compared to Phase 1, thanks to process refinements

✅ Long-Term Maintenance Cost Savings

- Comprehensive testing, covering logic, performance, and UI, significantly reduced post-deployment issues
- Estimated to help the client **save 15–20% in maintenance costs** within the first 12 months post-upgrade, compared to typical ERP projects of similar scale

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PROJECT PHASES AND RESOURCE ALLOCATION

Test Migration Phase 1

Duration: June 20, 2024 - September 6, 2024

Project Component	Activities	Deliverables	Duration	Resources
Project Preparation	- Develop QA Plan (KHDA) including detailed test methodology, quality KPIs, and communication plan - Risk management plan - Master schedule creation	Finalized QA Plan (KHDA), risk plan, and master schedule	2 weeks	1 PM, 3 TLs
Environment Setup	- Prepare client test environment for testers - Prepare server and DB for testing readiness	Ready-to-use client & server/DB environment	–	1 DEV, 1 Infra Engineer
Trial Testing	- Conduct pilot testing - Refine sample Test Evidence (TE) based on initial customer feedback - Establish final communication & workflow structure - Benchmark testing productivity	Verified TE samples, defined test workflow, initial productivity baseline	1 week	1 PM, 1 TL, 4 Testers
Main Testing Phase	- Execute manual testing following the master schedule - Submit weekly deliverables	Weekly submission of bug lists, test result reports (KQT), and TE	8 weeks	1 PM, 3 TLs, 12 Testers

Test Migration Phase 2

Duration: September 30, 2024 – December 12, 2024

Project Component	Activities	Deliverables	Duration	Resources
Project Preparation	- Update QA Plan (KHDA) with newly added testing items - Update risk plan and master schedule	Updated QA Plan and master schedule	1 week	1 PM
Environment Setup	- Prepare test-ready environment for newly added testing items	Ready-to-use environment	–	1 DEV
Trial Testing	- Conduct trial test for new modules - Revise TE format based on customer feedback - Fine-tune project communication & handover structure	Updated sample TE and communication alignment	1 week	1 PM, 1 TL, 3 Testers
Main Testing Phase	- Execute functional testing and submit deliverables weekly as per updated master schedule	Weekly submission of bug lists, test result reports, and TE	8 weeks	1 PM, 1 TL, 3 Testers

Luvina’s Quality Assurance Approach

Luvina’s Quality Assurance Approach

To ensure the delivery of a high-quality product, Luvina implemented a structured and disciplined QA strategy tailored to the complexity of the ERP upgrade project:

1. Standardized Understanding Unified Test Evidence (TE) Practices

- Created sample Test Evidence (TE) documents during the trial phase and proactively gathered feedback from the customer.
- TE formats were regularly updated throughout the project to reflect real-world insights and evolving customer expectations.
- Achieved early alignment with the customer on how TE should be captured, reducing the risk of rework.

2. Strictly Controlled Testing Process

- All testing team members received formal training on the QA process, including how to collect and submit TE from the beginning of the project.
- Luvina’s internal QA department monitored the testing process continuously, conducting regular quality reviews and reporting metrics on test execution.

3. Tight Control Over Versioning, Baseline, and Q&A Process

- Maintained rigorous control over version management and baseline documentation to avoid errors due to miscommunication or incorrect execution.
- Ensured all deliverables were structured correctly, delivered on schedule, and met all content requirements as agreed with the client.

4. Transparent and Agile Change Management

- When change requests or new directives were issued by the client, Luvina responded immediately by:
  - Updating all relevant project checklists and templates.
  - Communicating changes to 100% of the team and obtaining confirmation of understanding and implementation.
- This ensured all team members were aligned and changes were executed uniformly, minimizing confusion or delays.

Thank You

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