

REAL-TIME LOCATION SYSTEM (RTLS)

Smarter Yards. Greener Ports Real-Time Precision

Challenges in Port Efficiency and The Need for Advanced RTLS



Inaccurate fleet visibility



Congested yard operations



Environmental regulations and compliance pressure



Lack of centralized decision-making information



Inefficient data sharing between stakeholders

Why our solution ?

This new AI-RTLS framework goes beyond tracking, integrating:

1

Engine Diagnostics – Real-time monitoring & predictive maintenance

2

Edge Enabled RFID Computing – Smarter Readers for intelligent and latency free operation monitoring & control



3

Portable Emissions Measurement System (PEMS) – Direct emissions tracking

4

AI & Analytics Engine – Data-driven decision making for optimization

5

Microservices-Based Architecture – Scalable, future-proof system

REAL-TIME LOCATION SYSTEM (RTL)

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WHAT MAKES IGO'S RTL AI-FIRST

- Context-aware and predictive
- AI-optimized autonomous movement
- Predictive and prescriptive alerts
- Self-improving decision algorithms
- Federated data and AI-driven orchestration



Business Gains

Direct Cost Reduction

- Lower maintenance costs
- Fuel savings
- Improved labour efficiency

Capacity Enhancement

- Higher equipment utilization
- Increase in container moves per hour
- Better space utilization

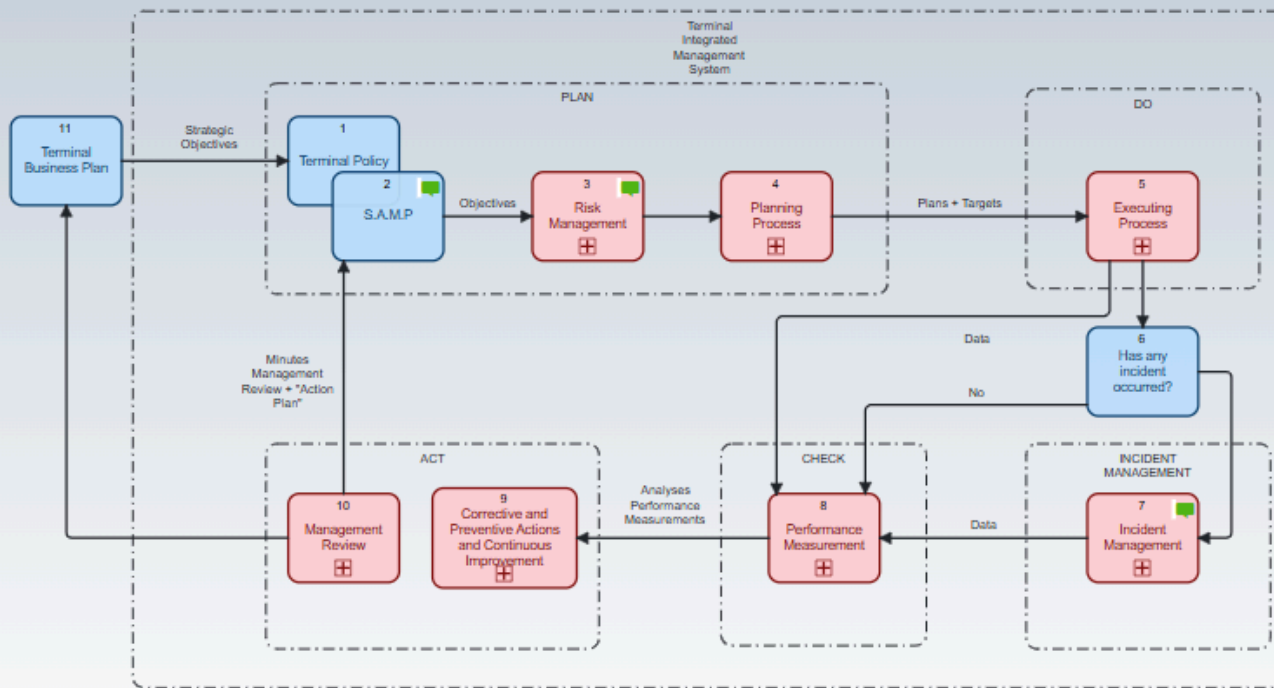
Competitive Advantage

- Better service levels and sustainability compliance
- Cost leadership through operational efficiencies
- AI-driven strategic planning

Before vs. After – Impact

| Feature | Before Implementation | After Implementation |
|-------------------------|-----------------------|-------------------------|
| Equipment Uptime | Frequent Breakdowns | Maximized Availability |
| Container Movements | Inefficient Routing | Optimized Logistics |
| Fuel Efficiency | Excessive Consumption | Resource Optimization |
| Environmental Reporting | Estimation-Based | Data-Driven Precision |
| Maintenance Approach | Calendar-Based | Predictive Intelligence |

“ Benefits in One Glance



Dual map comparison

Explore the difference visually

Seamless in-app communication

Efficient version management

Keep track of every update

Instant Language switching

VALUE PROPOSITION

Clear visibility for faster implementation of change

Better alignment with process and requirements

Support agile improvements with real-time insights

Improve compliance audit readiness

Why i-BPM ?



1 End- to end business mapping solution

2 Comprehensive process oversight with requirement tracking

3 Enhanced process visibility with improved compliance control

4 Dynamic collaboration with role based access

i-SMILE

Transforming Terminal Training

ROI

Effortless content creation

Comprehensive Learning

Onboarding Simplified

Streamlined Assessments



“ Benefits in One Glance

PROCESS DRIVEN - SOP'S Compliance management, Requirement management and test scripts, Training, Document handling, etc.

LONG- SIGHTED - Provides an integrated view of the terminal to the operation team and takes learning to people instead of traditional learning tools

RESOURCING - Ramp-up new hires faster with easily accessible and meaningfully interlinked training material.

UP-Skilling - Helps consistent training of existing resources to validate/improve their knowledge through digital interactive training and assessments.

i-SMILE

i-SMILE at a glance

LMS for modern terminal business needs.

Planning

System

Management

**Content
Delivery**

Assignments

**Practices &
Exam**

Value to Business

1

**End to End traceability of
system Compliance**

2

**Reduced Trainer Cost
and no Test environment
required**

3

**Visibility to process change
management**

4

Ramp up new hires faster



i-CATS

ROI

Reduced test execution
turn around by at least

75% - 80 %

Reduce Test Cost by at least

50% - 60 %

Increase Test coverage by at
least

70% - 80 %



“ Benefits in One Glance



IMPROVED ROI



QUICK RELEASE
TURNAROUND TIME



IMPROVING
EFFICIENCIES



BETTER ASSET
MANAGEMENT

Top challenges in Terminal Testing



Complex system landscape



Delay in implementing new functionalities



Minimal testing timelines



Frequency of software releases

Why i-CATS ?

1

Single click automated execution

All under one roof – Dataset preparation and prerequisites validation

2

Wider Test Coverage

Fully automated and predefined sanity and regression test suite.



3

Reduced Time to Report Issue to Vendor

Automatic video capturing of test execution runs and collection of application logs on failure.

4

Minimal Resource(s) required for Testing

Over 1000+ functional test artefacts that could be executed without manual intervention.

i-PERFORM

Container Terminal Non-Functional Automated Testing Solution

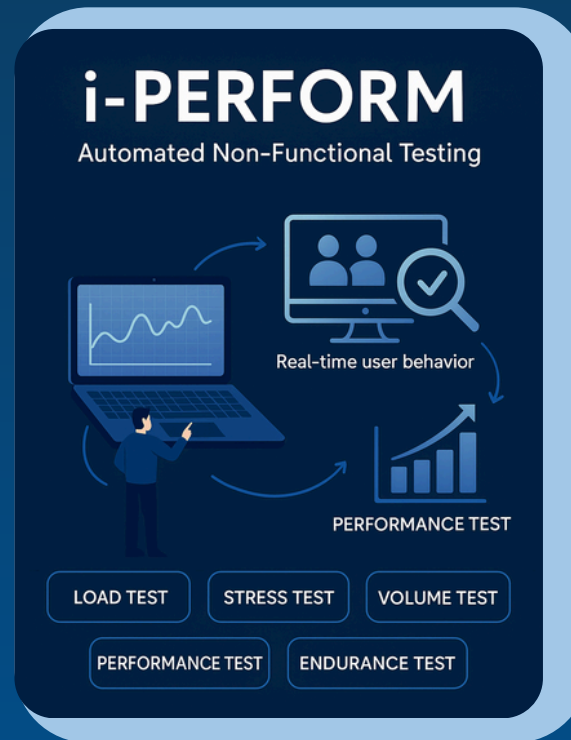
ROI

Faster Execution Cycle

Improved Application Performance

Real Time Equipment Simulation

Transparency into the test result



“Benefits in One Glance

No Coding Required

Run performance tests without scripting knowledge.

Effortless Test Management

Easily organize regression and progression test suites.

Smart Test Data Handling

Automatically creates test data for each scenario

Instant Reports & Alerts

Auto-generated reports delivered with email notifications

i-PERFORM

i-PERFORM at a Glance

Si-PERFORM is an integrated and automated solution for the Non – Functional testing using MF Load Runner/JMeter

It's mainly used to measure the application performance, scalability and stability

Types of Testing Performed

- Volumetric Testing
- Load /Performance
- Endurance Testing & Failing Simulation

Why i-PERFORM ?

➤ Customized Workload Model

Business users can design and executed the test run according to their requirements.

➤ Minimize SME Support

Minimal amount of SME'S support is required. Enhance he test script quickly and can re-use it in different environment if required.

➤ Easy Dataset Setup & Quick Reporting

Automatic Testing Data preparation according to the volume requirements & Monitoring. Automatic generation of test execution report.



VALUE PROPOSITION

i-Know can be integrated with multiple system, not just TOS

Vessel performance dashboard with KPIs including GMPH, NMPH, BMPH, LMPH, Delays, lift types (count) and cargo type(counts).

100+ out-of-the-box dashboards (with detailed KPIs providing insights into (near) real-time operational performance.

Integration of live view operational data with business intelligence, which caters for real- time decision making



“Benefits in One Glance

- Water-side dashboard showing performance of QCs, including starting and Finishing time, Gang hours, and delays.
- Live view of terminal performance, without impacting operational system.
- Highly efficient in- memory processing for real-time business
- Reduction of customer phone calls/inquires and wait times, freeing up staff for other, more complex task.
- Integrated view helps to create “one - single version of the truth” as these views make issues with (master) data more apparent
- Landside report with truck visit details, turnaround time (TTT) Time spent in various stages...

i-KNOW AT A GLANCE

➤ I-Know business cubes are an “Out-of-the box” Plug-and-play solution, which is fully integrated to work with TOS

➤ Key operational report in i-Know are part of the BI Packaged Contents and have key real-time report that extend to TOS Functionality

➤ i-Know offers complete transparency of the BI Cubes, allowing for the terminal to build their own dedicated Dashboards.

➤ Also I-KNOW simplifies integration with Operation Data and other Data sources like - Finance, Engineering, Gate system.

KEY REPORTS

1

Vessel Reports

- Vessel Performance
- Crane Log

2

Yard Reports

- Equipment stoppage
- Yard Handling Distribution



3

Live Report

- Shift Productivity
- Truck Visit

4

Commercial Reports

- Revenue Analysis
- Shipping Line Yield per TEU

i-ENDURANCE

Test CHE's durability and stability

i-Endurance at a Glance

1 Designed for testing r ECS releases, which are integral and critical component of any automated terminal

2 Automated Load Simulation



3 Identify software and Hardware issues during continuous operation of the CHE's

4 Verifying continuous operation of ASC, ACC and AHT

i-ENDURANCE

“ Benefits in One Glance

Equipment Testing

Commissioning Speed

ECS Software Validation

Monitoring & Feedback

