



The Digital Journey for Latin American Terminals

Benchmarking Progress & Building for the Future

Case study: Developing a middleware solution

February 24-25, 2025



**Container Terminal
Automation Conference**
Americas

Daniele Labate, *Director of Professional Services*



The Reality Across Latin America

Wide spectrum of digital maturity

- Manual workflows still present in some terminals
- Partial system integration in many sites
- Advanced automation and analytics in a few leading operators
- Uneven infrastructure and investment capacity

Key message:

The gap is not just technology — it's integration and execution.

The Core Challenge: From System to Ecosystem

Most terminals have a TOS.

Few have a fully connected digital ecosystem.

Common gaps:

- TOS not fully integrated with:
 - Gate systems
 - Yard automation
 - ERP
 - Maintenance systems
 - BI platforms
- Data exists — but is not trusted
- Reporting is reactive, not predictive

Key message:

Digitalization is no longer optional — it is strategic

Benchmarking Digital Maturity

Terminals can assess themselves across:

1. Operational Systems

- TOS integration level
- Automation degree

2. Data & Analytics

- Real-time dashboards
- Predictive capabilities

3. Process Standardization

- Manual vs digital workflows

4. People & Culture

- Digital skills
- Change management readiness

Key message:

Benchmarking is not just about technology — it includes people, processes and data governance

Building the Foundation

Key transformation pillars:

- Clean, reliable data architecture
- System integration (avoid digital silos)
- Phased investment roadmap
- Leadership alignment
- Measurable KPIs

Key message:

Transformation does not require full automation from day one — it requires a structured roadmap

The Benefits of Moving Forward

- Improved berth productivity
- Reduced turnaround time
- Better asset utilization
- Data-driven planning
- Stronger resilience to disruptions

Key message:

Digital maturity is not about technology adoption — it is about enabling smarter, faster decisions



OnGoing Project: Terminal Portuario de Guayaquil



Hanseatic Global
Terminals

Project Overview & Objectives

Project Goal

Design and implement a middleware routing layer that:

- Receives requests from multiple 3rd-party systems
- Transforms and routes them to the TOS
- Uses standard APIs exposed by the TOS
- Handles responses back to external systems

Business Objectives

- Decouple external systems from direct TOS integration
- Standardize message formats and validation
- Improve scalability and maintainability
- Enable easier onboarding of future partners
- Control security and unauthorized access

Key Capabilities

- API gateway & routing
- Error handling & retry logic
- Logging, monitoring & auditing
- Security (authentication, authorization, encryption)

Delivery Plan (12 Sprints – 24 Weeks)

Phase 1 – Foundations (Sprints 1–3)

- Requirements finalization (functional & non-functional)
- Architecture design & tech stack validation
- DevOps setup (CI/CD, environments)
- API contract definition
- Security framework definition

Deliverable: Approved architecture + development-ready platform

Phase 2 – Core Middleware Build (Sprints 4–6)

- Core routing engine
- API connectors to TOS
- Error handling framework
- Logging & monitoring baseline

Deliverable: Functional middleware core integrated with TOS (sandbox)

Phase 3 – 3rd Party Integrations (Sprints 7–9)

- Integration with 3rd Party #1
- Integration with 3rd Party #2
- Integration with 3rd Party #3
- Performance optimization

Deliverable: End-to-end flows operational for all partners

Phase 4 – Go-Live (Sprints 10–12)

- Performance & load testing
- UAT & bug fixing
- Documentation (technical + operational)
- Production deployment
- Hypercare support

Deliverable: Production-ready middleware live

Governance, Risks & Dependencies

Governance Model

- 2-week sprint cadence
- Sprint demos & retrospectives
- Daily “stand up” meetings
- Weekly technical review
- Monthly steering committee review
- KPI tracking

Key Risks

- TOS API changes or limitations
- 3rd party API inconsistencies
- Data mapping complexity
- Performance bottlenecks
- Security compliance constraints

Mitigation

- Early API validation
- Contract-first development
- Load testing before UAT
- Security review from the initial Sprints

Expected Business Outcomes

Operational Impact

- Faster onboarding of new partners
- Reduced production incidents
- Improved monitoring and traceability
- Clear accountability layer between TOS and partners

Performance Targets

- 99.9% availability
- Sub-2 second response time
- Production-ready within 6 months

Success Definition

- No direct partner dependency on TOS
- Fully monitored, controlled integration layer
- Smooth transition to operations



Thank you

DSP Data & System Planning SA
via Cantonale 38
6928 Manno
Switzerland

- Mail: contact@dsp.team
- Phone: +41 91 230 27 20
- Website: www.dsp.team

