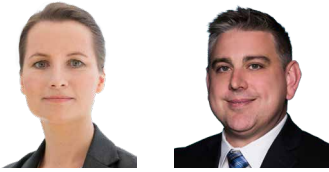


NAVIGATING COMMON WATERS: INSIGHTS AND LEARNINGS FROM DECADES OF OPTIMISING THE CONTAINER TERMINAL AND AVIATION INDUSTRIES





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At first glance, the aviation and container terminal industries might seem like two separate worlds—one soaring through the skies, the other anchored at bustling ports. Airports move people at high speeds across continents, while terminals guide containers through intricate supply chains. But when you zoom out, both industries share the same fundamental challenge: managing transport hubs where precision, efficiency, and adaptability determine success.

At the Port Technology Summit 2025 in Norfolk, Virginia, Dr. Eva Savelsberg (SVP, Terminal & Distribution Center Logistics, INFORM) and Loren Mathis (CSO Aviation, INFORM) explored this fascinating intersection, drawing on decades of experience optimising operations in both industries. Whether it's a gate or a berth, a tarmac or a terminal yard, the key to efficiency remains the same: seamless coordination across multiple transport modes and stakeholders.

DIFFERENT TERMINALS, SAME NATURE

From airport terminals to container terminals, smooth operations rely on a delicate dance between people, technology, and logistics. Behind every departing flight and every docked vessel is a team of professionals working in perfect coordination—whether they are air traffic controllers clearing a plane for take-off or crane operators carefully unloading a ship's cargo. These industries depend on skilled hands and sharp minds, ensuring that passengers reach



their gates and goods arrive at their destinations on time.

Beyond the human factor, technology is transforming both sectors. Airports leverage AI-driven baggage handling, self-service kiosks, and real-time air traffic management, while container terminals adopt real-time cargo visibility platforms, predictive maintenance, and Digital Twin simulations to optimise planning and decision-making.

CHALLENGES THAT SPAN LAND, SEA, AND SKY

Whether it's coordinating aircraft turnaround or container vessel unloading, both industries face mounting pressure to handle increasing demand while maintaining efficiency and security. Rising passenger numbers strain airport infrastructure just as megaships with

ever-larger container loads push terminals to their limits.

Disruptions in flight schedules can ripple across entire airline networks, just as delays in unloading a vessel can cause cascading inefficiencies across the supply chain. That's why real-time coordination and data-driven decision-making are essential for both industries. From flight dispatchers monitoring inbound aircraft to port controllers managing vessel traffic, every second counts when ensuring smooth logistics in high-stakes environments.

INFORM'S CROSS-INDUSTRY EXPERTISE BRIDGES TWO WORLDS

While air freight is focused on speed and high-value, time-sensitive cargo and maritime logistics prioritise volume and cost efficiency, the operational core of

both industries remains the same. We are looking at transport hubs where multiple transport modes must be coordinated to load and unload goods or people efficiently.

With this shared foundation, INFORM has been at the forefront of optimising these complex transport ecosystems for over five decades. The company, based in Aachen, Germany, celebrated its 56th anniversary in early February! Starting in 1969 with industrial logistics, it expanded into aviation in 1991, revolutionising cabin crew management and ground operations. By 2000, INFORM turned its expertise to maritime container terminals, helping operators streamline cargo handling, optimise yard operations, and improve vessel turnaround times—ensuring efficiency from the runway to the quay.

FROM TOUCHDOWN TO TAKE-OFF: HOW GROUNDSTAR KEEPS AIRPORTS RUNNING

On the aviation side, GroundStar helps airports, airlines, and ground handlers plan for and manage their daily operations. Simply put, if it's an airport process that occurs when the aircraft is on the ground, GroundStar optimises it. This could mean optimising gate selection to minimise taxi time and fuel burn, or ensuring that ramp workers are in position,

properly trained, and certified to operate the necessary equipment before offloading baggage.

GroundStar's impact extends beyond efficiency—it plays a critical role in tracking inbound activity, including both people and equipment. It isn't just about managing numbers; operating ground equipment in such a high-traffic environment is inherently risky. GroundStar ensures that employees assigned to specific tasks have the necessary qualifications and safety training, reducing operational risks while keeping everything running smoothly. Leveraging Digital Decision-Making, AI, and Operations Research, GroundStar enables proactive adjustments in real-time, ensuring that staffing, gate assignments, and resources are deployed with maximum efficiency.

MASTERING CONTAINER TERMINAL LOGISTICS – AND HOW IT RESEMBLES AVIATION

Just like aviation hubs, container terminals require intelligent, real-time decision-making to handle increasing freight volumes efficiently. INFORM helps terminal operators orchestrate the complex ballet of cranes, vehicles, and storage areas—ensuring that containers don't just arrive, but move seamlessly through the port.

Take PSA Antwerp as an example. Here, INFORM's Integrated Terminal Scheduler (ITS) synchronises the entire transport chain, from quay cranes to horizontal transport with Straddle Carriers and Automated Stacking Cranes. At HHLA Container Terminal Burchardkai (CTB), a similar project scope is implemented, and enhanced by the AI-powered Yard Optimiser, which leverages Machine Learning to further refine operations. By analysing historical data of container entry, exit, and movement patterns, the Yard Optimiser gains improved insights that enable smarter stacking, reduce unnecessary rehandling, optimise crane moves and travel distances, and ultimately enhance yard space utilisation. Likewise, INFORM identified the potential of historical data in aviation, and leverages Machine Learning algorithms with GroundStar to optimise ground operations even further. Although it may sound unbelievable, many airlines still rely on manual or Excel-based scheduling, planning for an unrealistic "blue sky day" where everything runs perfectly.

Beyond full-suite systems, INFORM also offers AI-powered modular optimisation solutions that layer on top of existing Terminal

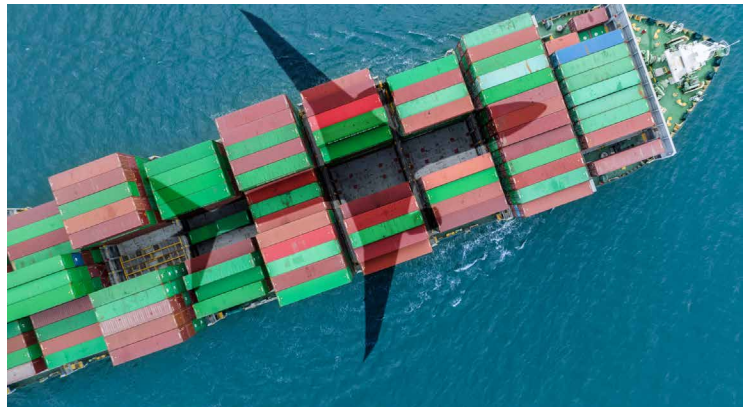


Operating Systems (TOS). From GCT Deltaport's Rail Scheduler, which aligns train loading and unloading, to Trapac LA's Crane Optimiser and Control System, which enhances rail crane operations, these solutions bring efficiency and predictability to the terminal landscape. The ability to integrate these modules means that terminals can scale their optimisation efforts gradually, aligning investments with strategic priorities while realising immediate efficiency gains. This mirrors aviation operations, where airlines frequently begin with a targeted optimisation—such as ramp or baggage handling—before expanding to a full suite of integrated solutions.

SAFETY, SUSTAINABILITY, AND SMART INFRASTRUCTURE: DO CONTAINER TERMINALS AND AVIATION FACE THE SAME FUTURE?

Efficiency alone is not enough—safety, sustainability, and technological infrastructure are the cornerstones of resilient and future-proof operations in both aviation and container terminals. As mentioned above, INFORM's GroundStar ensures that only properly trained and certified employees are assigned to specific tasks, mitigating operational risks while maintaining seamless workflows. Safety is equally paramount in container terminal operations, where AI-driven analytics assess yard layouts, traffic patterns, container attributes, and stacking strategies to minimise congestion, reduce accidents, and prevent workforce fatigue, while fostering work focus across personnel.

Sustainability is another shared priority, with electrification playing a crucial role in driving greener operations. However, integrating electric vehicle charging into complex, high-traffic hubs presents an additional logistical challenge. As Polly Crispin, Senior Business Development Manager at ROCSYS, highlighted at Port Technology Summit 2025, opportunity charging—allowing electric vehicles to recharge during natural



downtime—is emerging as a key solution in container terminals. These hands-free charging solutions enable electric cranes, trucks, and handling equipment to recharge strategically without compromising operational flow. In airports, this is a well-established idea as well, ensuring that ground vehicles, from baggage tugs to pushback tractors, are charged efficiently without disrupting tight turnaround schedules.

When it comes to emerging technologies, companies in both industries are actively exploring cloud-based and SaaS options, recognising their potential for scalability and efficiency. However, given the critical nature of aviation and terminal operations, it is understandable why many still depend on on-premise systems to maintain the highest standards of safety, security, and reliability. INFORM is also closely monitoring this trend, considering ways to provide flexible, future-ready solutions that align with the evolving needs of its customers.

WHERE DO WE GO FROM HERE?

From airport runways to shipping lanes, the challenges of optimising transport hubs are universal. As automation, AI, and smart logistics continue to evolve, the opportunities for cross-industry learning will only grow.

The conversation at Port Technology Summit 2025 highlighted the striking parallels between aviation and terminal logistics, proving that no matter where a hub is located, the key to success is seamless coordination,

intelligent decision-making, and continuous innovation.

If you're interested in learning how INFORM's optimisation solutions can elevate your operations, don't hesitate to reach out. Let's keep the world moving – together.

ABOUT THE AUTHORS

Dr. Eva Savelsberg is Senior Vice President of INFORM's Terminal & Distribution Center Logistics Division. Specialising in AI and optimisation, she enhances operational efficiency. With a PhD from RWTH Aachen, she has authored five books and more than 50 papers on freight transport innovation and contributes to industry publications and events.

Loren Mathis is Chief Strategy Officer of INFORM GmbH's Aviation division, leading AI-driven ground operations optimisation. With 15 years in aviation, he has managed billion-dollar workforce and GSE budgets and shaped airport operations strategies for major airlines, driving efficiency and innovation in global airport management.

ABOUT THE COMPANY

INFORM develops software to optimise business processes using AI and advanced mathematics of operations research. Founded in 1969, the company promotes sustainable value creation in various industries through intelligent decision-making. Its solutions are tailored to specific industry requirements and help customers worldwide to operate resiliently and sustainably with greater success.