



Unlocking AI-driven Transformation in Container Handling Operations

www.avlino.com

Q4 2023



Table of Contents

- I. Who is Avlino?
 - II. What are the Customer challenges?
 - III. Technology-driven enablers
 - IV. The AICON Solution Suite
 - V. AICON's value proposition to customers
- Appendix A: Customer Case Study*

Who is Avlino?



We deliver adaptive **AI solutions** that enhance operational systems and decision-making, to increase **Container Terminal productivity and efficiency**



Our **AICON solution Suite** is unique to the industry as it provides directly embedded intelligent answers that help client realize operational KPI's



We **combine domain knowledge and analytical thinking with innovative technology** that continually self-adjusts to the most demanding and dynamic conditions



Headquarters
New Jersey, USA

Design Centers
Bengaluru, India
Porto, Portugal

Expertise
Artificial Intelligence
Machine Learning
Operations Research
Big Data Engineering
Cloud Infrastructure

Revenue Model
Software-as-a-Service



Challenges Faced by Container Terminal Operators

**Unpredictable
Customer
Demand**

**Underutilized or
overutilized equipment
& resources**

**Hardcoded
Software Logic
& Ops Systems**

**Systems unable to
respond to dynamic
conditions**

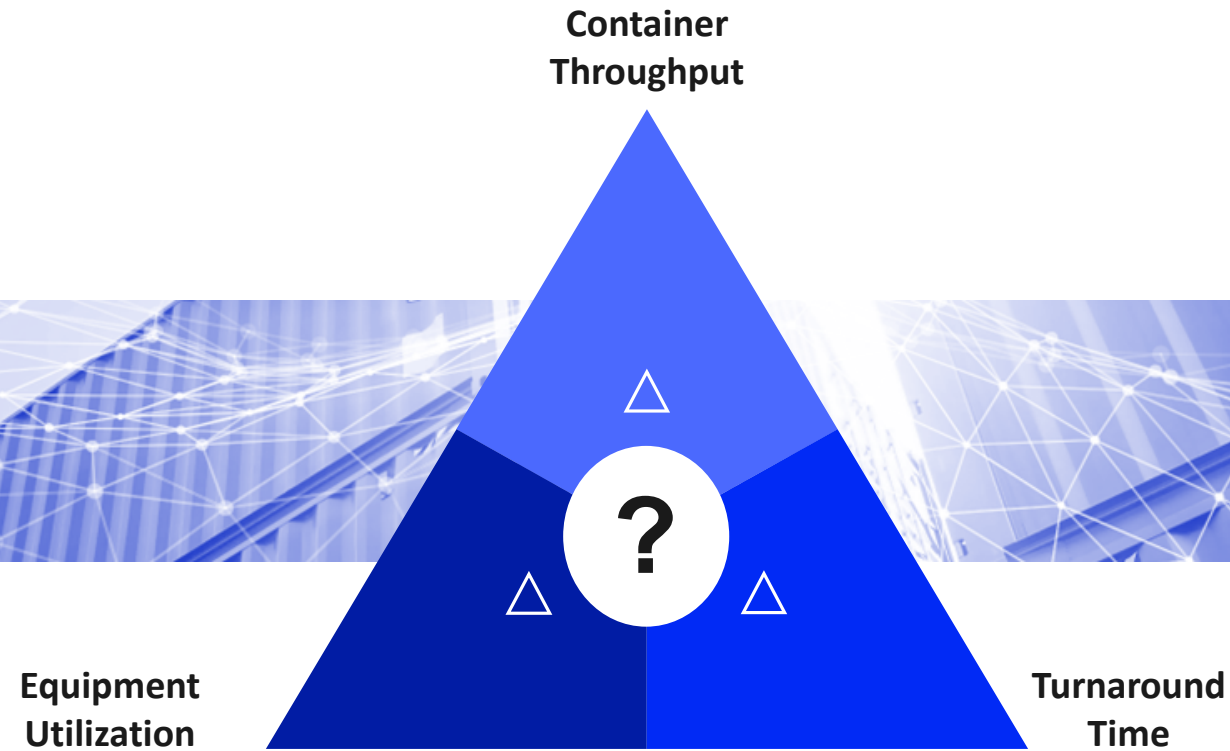
**Conflicting
Business
Goals**

**Sub-optimal
decision-making**



The conflicting business goals

- Terminals struggle to balance Volume (Throughput), Velocity (Turnaround time), and Value (Utilization/Profitability)



Quantifying the Challenges

Based on this conclude the approximate loss in revenue and the increased operational expense per 1M throughput container terminal.

Penalties
Levied by Vessel operators when container terminals are unable to meet the vessel ETD

High Rehandle Rate
\$10-25

Avoidable expense per container due to higher number of touches

Lost Revenue
Unable to accommodate adhoc vessel calls

≈ \$5 - 8M

Annual Revenue Lost

≈ \$6 - 10M

Annual Excess Cost Incurred



A futuristic, wireframe-style construction site. The scene is composed of a complex network of blue lines and dots, representing a digital or data-based structure. Several red dots are scattered throughout, acting as focal points or markers. The overall aesthetic is high-tech and digital, set against a dark blue background.

Can Technology Solve this Paradox?

Technology Change Drivers Enabling Next Gen Smart Solutions



DATA ENGINEERING

- Sources
- Granularity
- Immediacy

COMPUTE INFRASTRUCTURE

- Faster
- Cheaper

MACHINE LEARNING & OPS RESEARCH

- Improved algorithms

CLOUD INFRASTRUCTURE

- Zero CapEx.
- Scale as you grow.

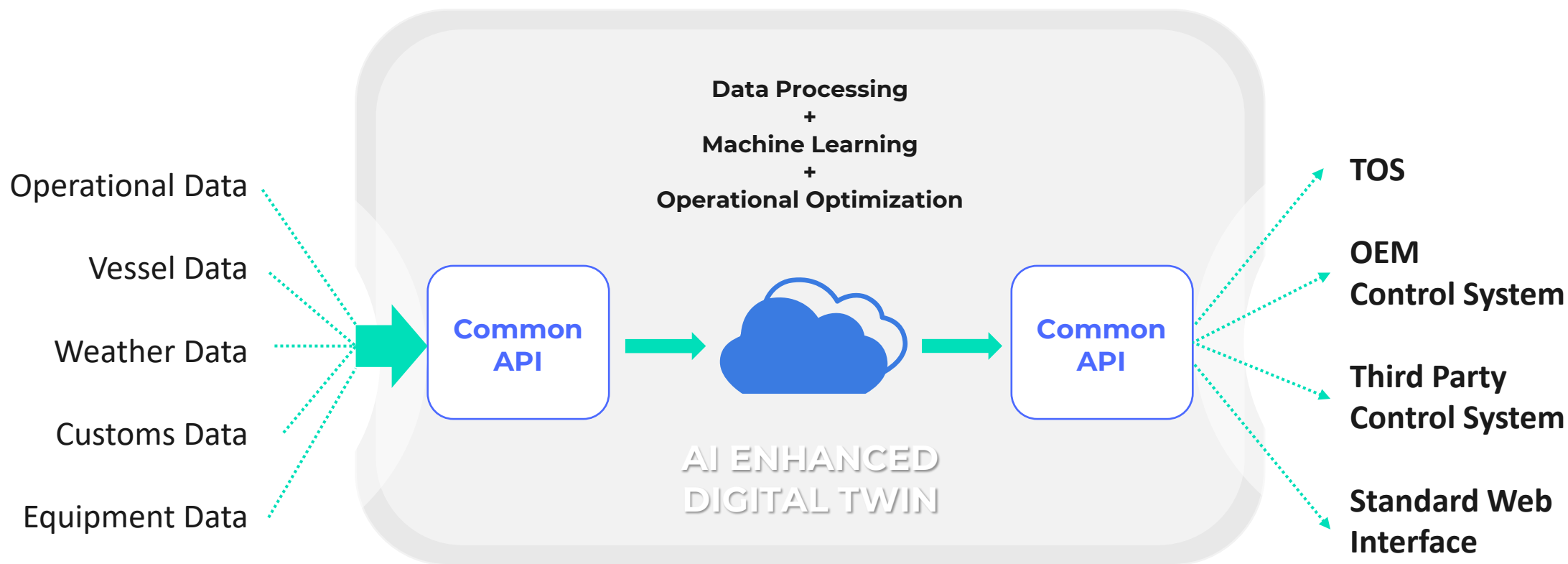
Leveraging these change drivers, Avlino developed AICON – an AI Solution Suite to solve the Container Terminal challenges

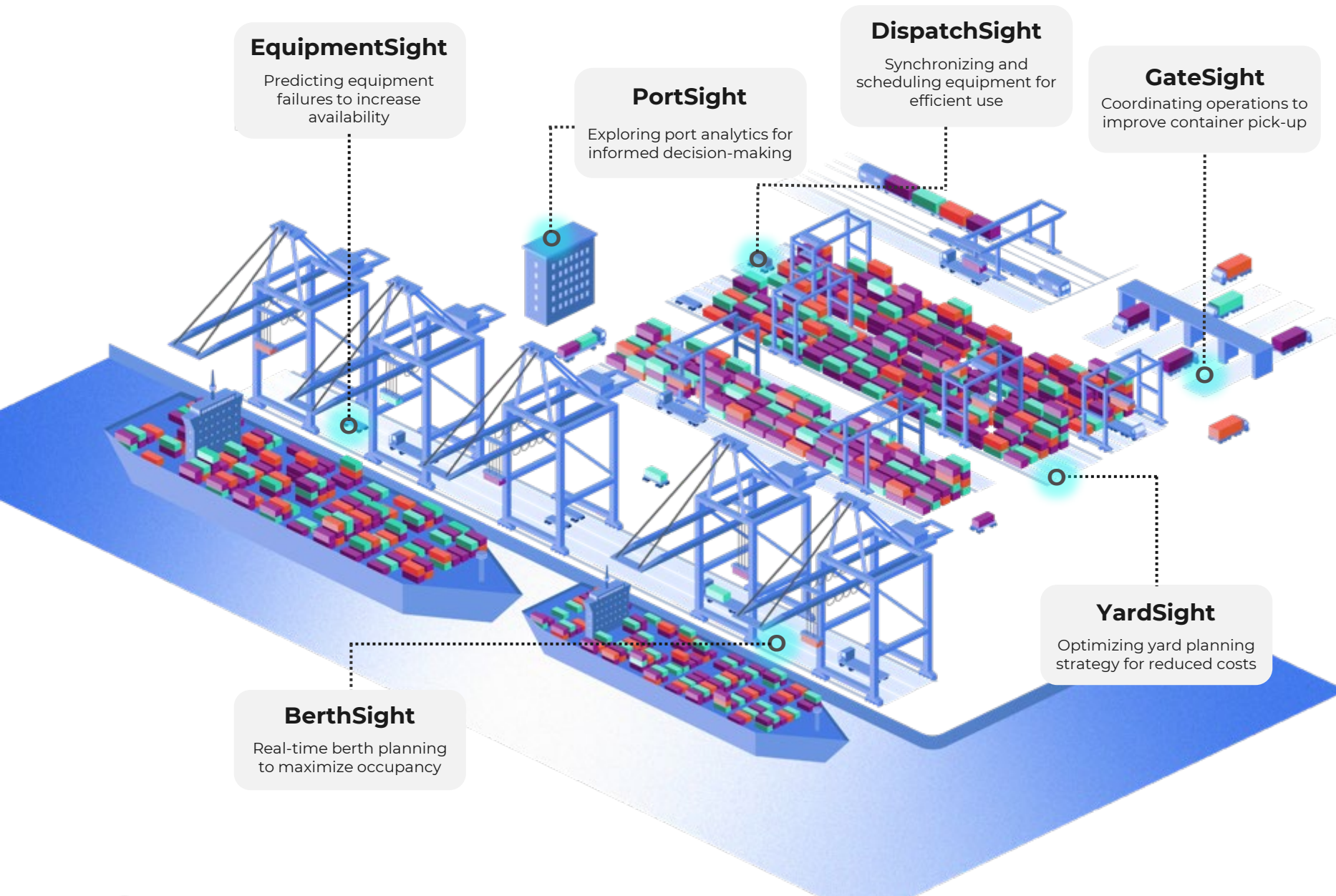


AICON SOLUTION SUITE

Comprehensive View

AICON Solution Blueprint





- AI-enabled Modules
- Combines Machine Learning, Operations Research and Big Data Engineering
- Integrates with TOS and sub-systems to generate visibility
- Adapts in real-time to the changing conditions
- Delivers value to the C-Level, while helping analysts, managers and planners across the terminal



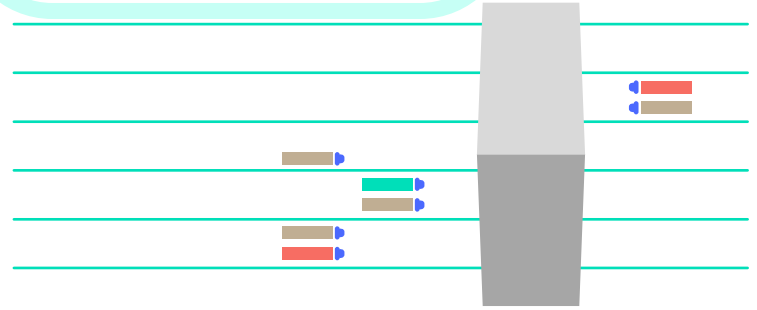
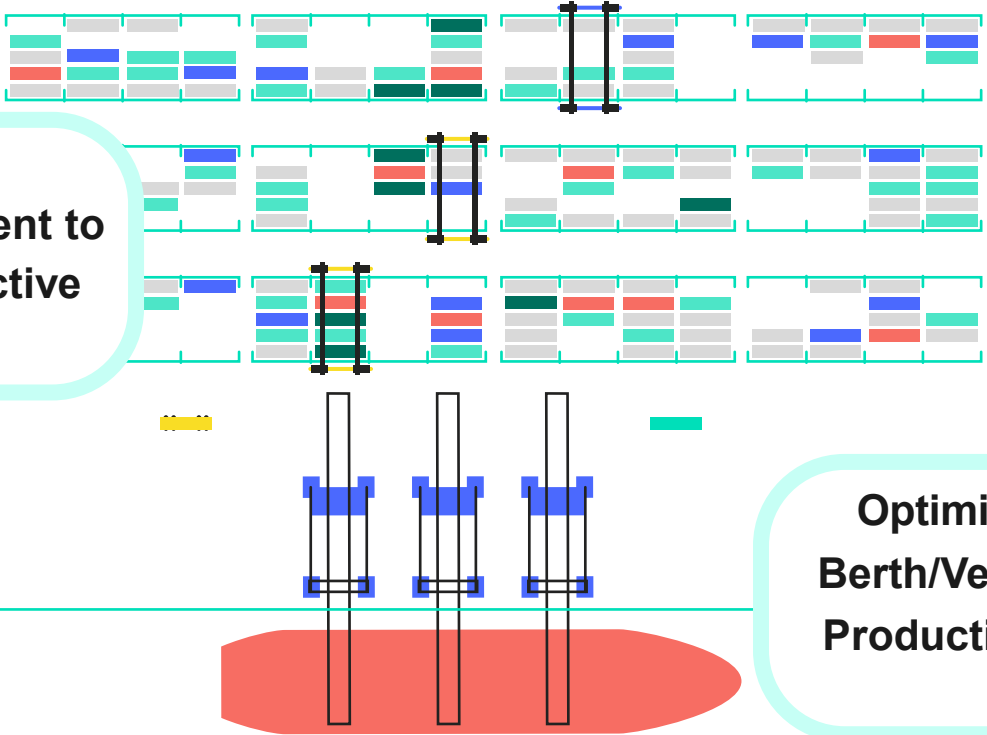
AICON Value Addition to Container Terminal Operations

Improving resource allocation to minimize equipment utilization and travel distance

Reduce congestion and truck turn around time with AI-based operational strategies

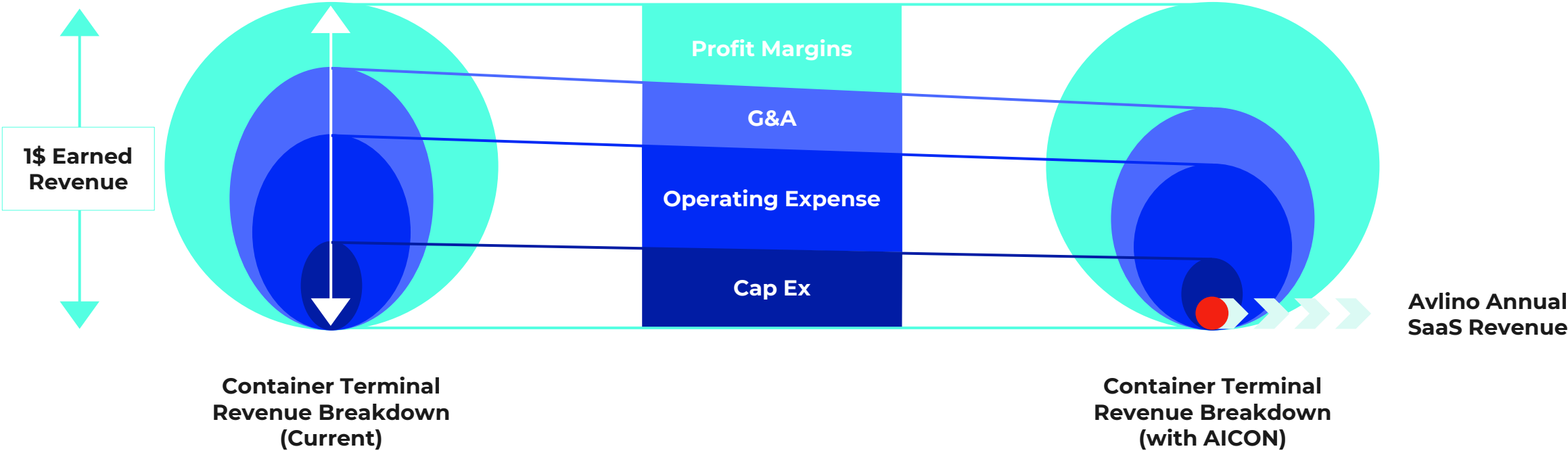
Optimize container placement to reduce unproductive moves

Optimize Berth/Vessel Productivity



How do clients realize value from AICON SaaS solution?

Each AICON module has an associated per year per terminal SaaS price



The clients realize significant reduction in CapEx and OpEx by using AICON.
In the current deployment scenarios, customers are realizing a ROI within 6 months.



AICON - Beyond Software

AI systems are outperforming current systems:

- Dynamically adapting to real time operational changes
- Delivering ML-based self-learning
- Reconfiguring parameters automatically
- Replacing the penalty approach with an objective functional realization approach



THANK YOU

Contact us

sales@avlino.com
www.avlino.com

Headquarters

100 Matawan Road
Matawan, NJ 07747
+1 732 946 0472

Portugal Office

Rua Sá da Bandeira, n°605
4000-437 Porto, Portugal
+351 221 145 999

India Office

Residency Rd Bengaluru, Karnataka
+91 93424 01987



Copyright 2023 Avlino Inc.

The content in this document may contain privileged or confidential information and cannot be disseminated, displayed, distributed, copied, modified or reproduced in any form without express prior written consent.

Appendix A

Customer Implementation Results

Client #1

ASC Terminal

Client Objectives

- Increase Gate Throughput
- Reduce the Rehandles for External Truck Delivery
- Reduce the overhead moves – housekeeping and rehandles for housekeeping
- Improve Yard Efficiency at higher occupancy (volume)



Update for week of Sep 20th, 2023: 38% Reduction in unproductive moves!

