

Operational Efficiency Meets Sustainability

Reducing Terminal Emissions with the Power of Digital Twins and Predictive Intelligence



Harrison Nguyen

Business Development Manager
of RBS



Terminal Challenges

- Meeting higher productivity and efficiency demands
- Optimizing operations, planning, and scheduling
- Increasingly demanding liners and stakeholders
- Make accurate and dynamic forecasts
- Decision-making based on human memory and experience
- Harder to find skilled labour
- Output instructions using redundant data and information
- Inability to adapt, pivot, and scale to changing environments



Information



Processed data that is meaningful and structured but lacks deeper understanding, reasoning, validation and experiences.

It answers "What?"

VS.

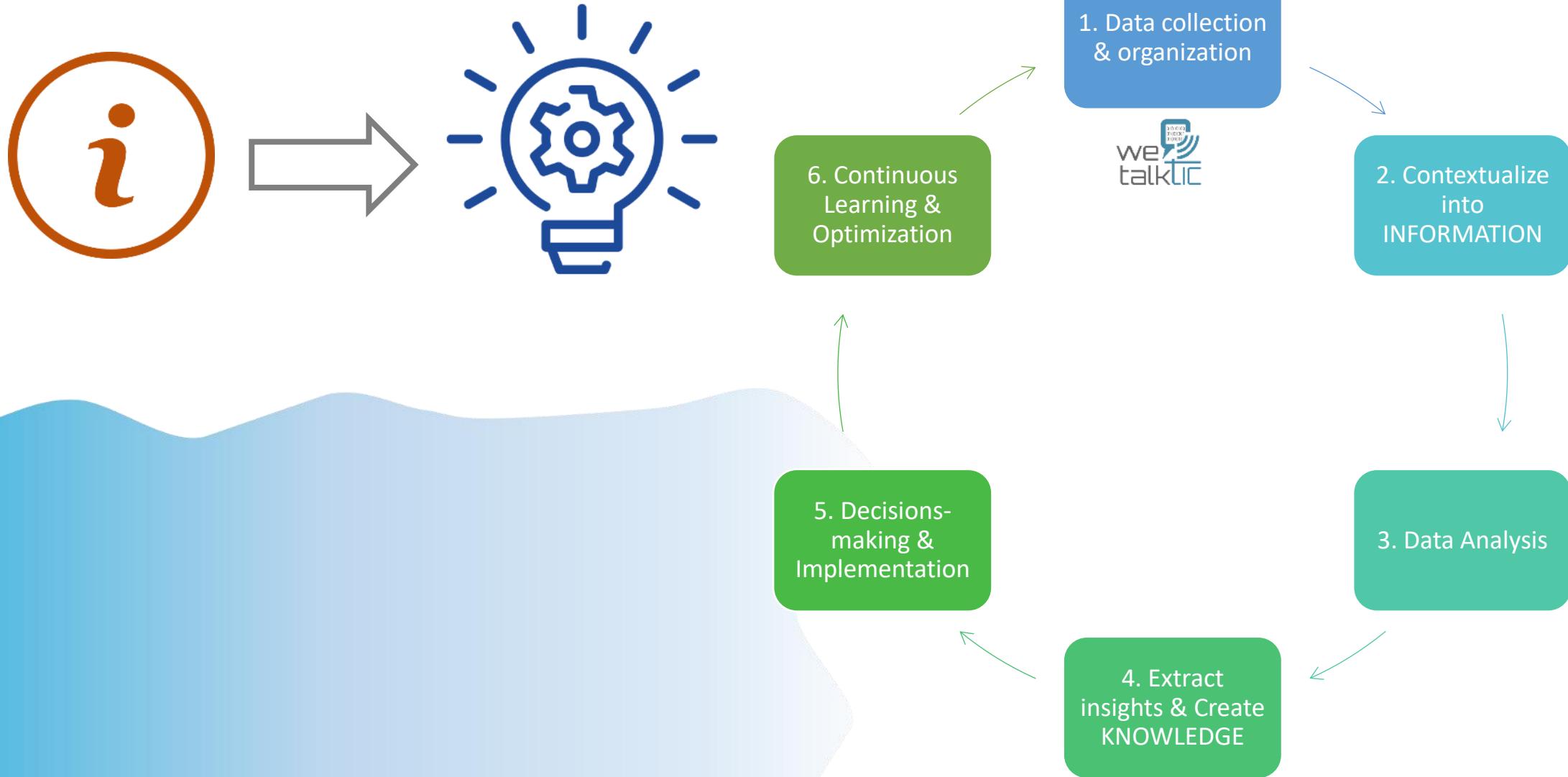


Knowledge

The actionable insight derived from information is the result of its understanding, interpretation, experiences, and application.

It answers "How?" and "Why?"

How to turn Information into Knowledge



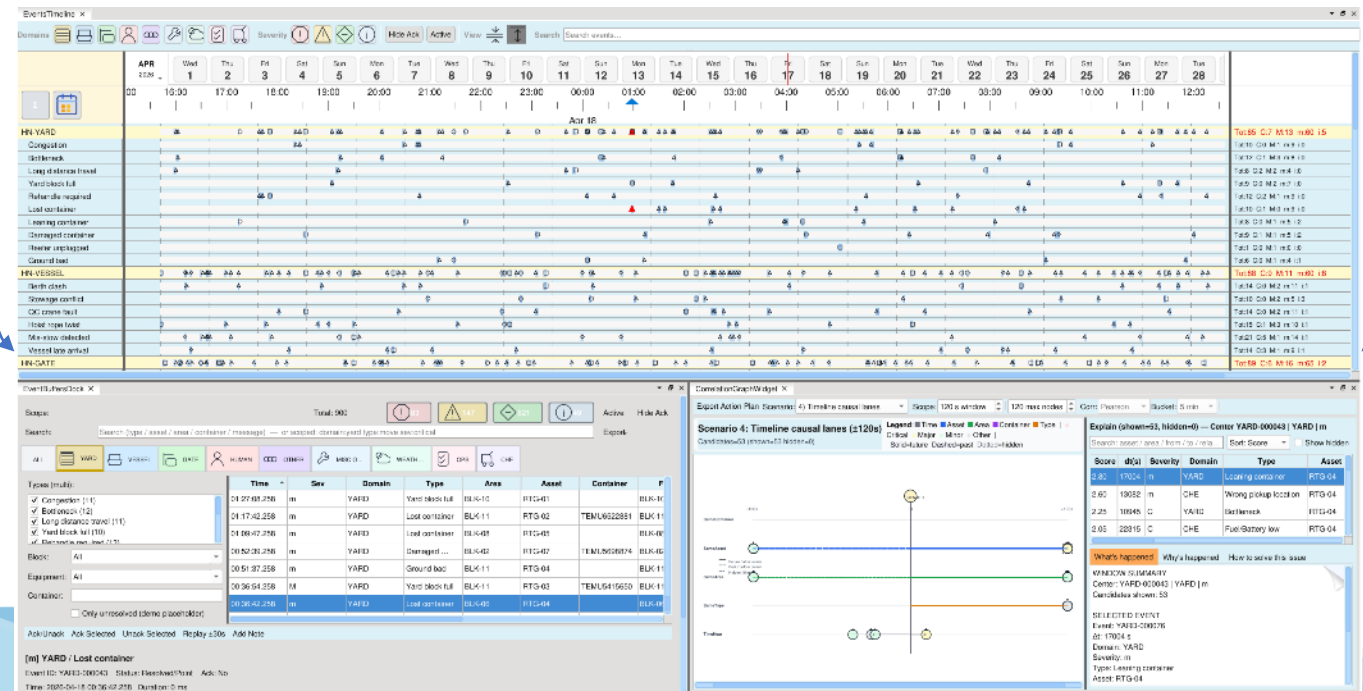
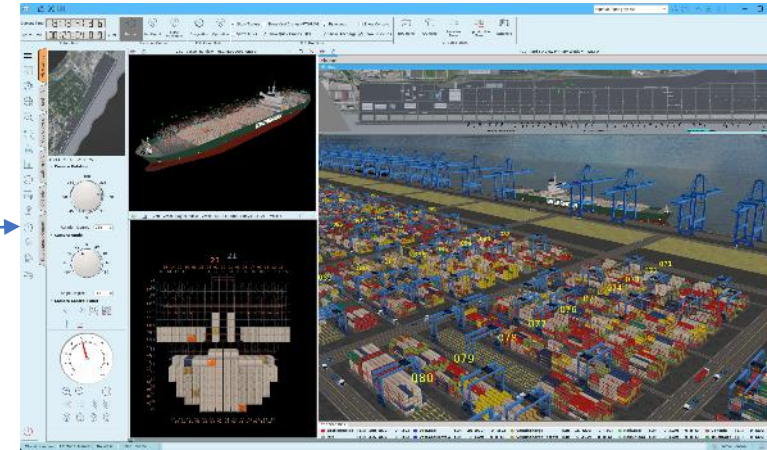
Less Human Guesswork & Clear Visualization



*From memory-based → to
Data-driven with visualization
to recall facts*

Superintelligent digital twin can show:

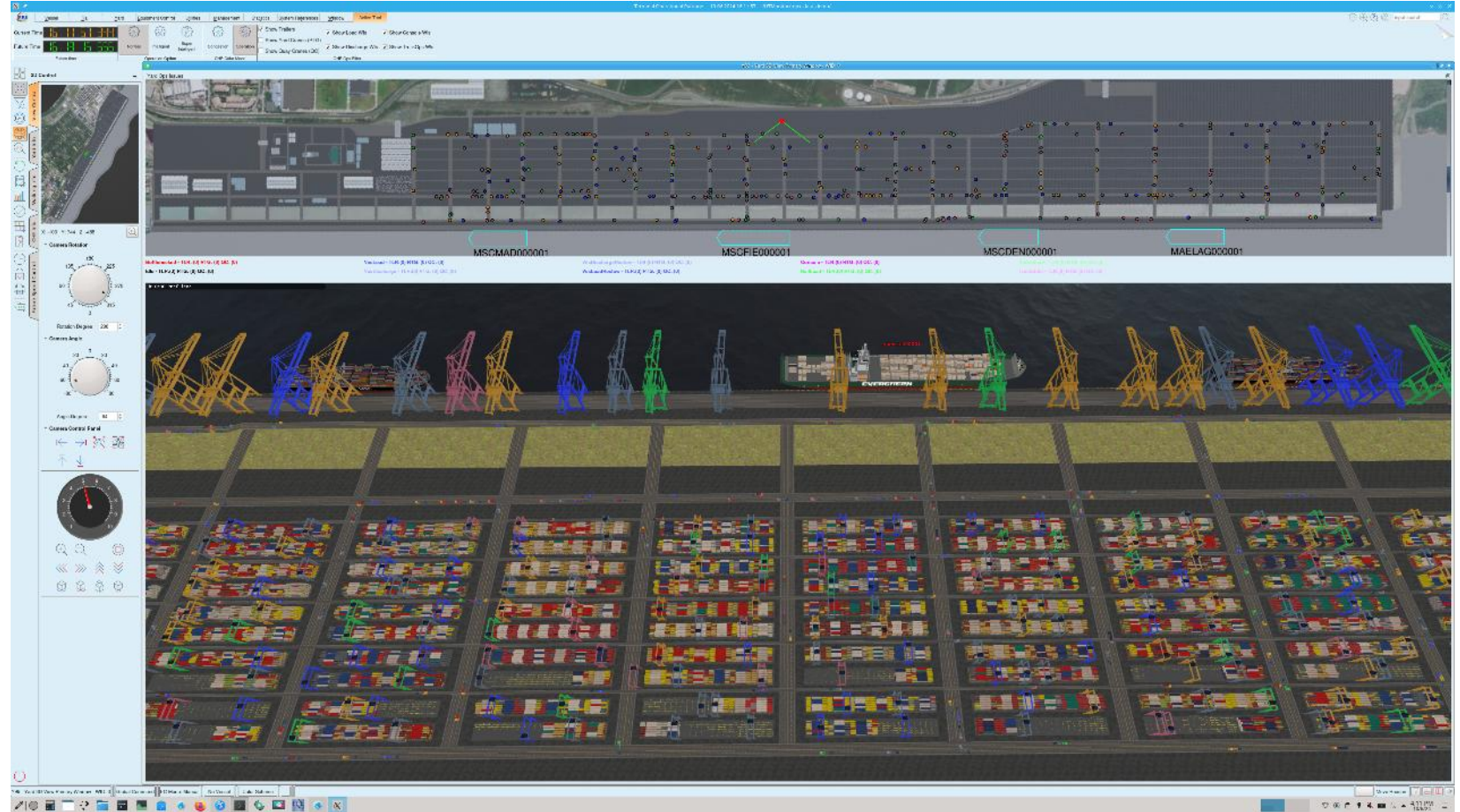
- What has happened
- Why it happened
- How to address this issue



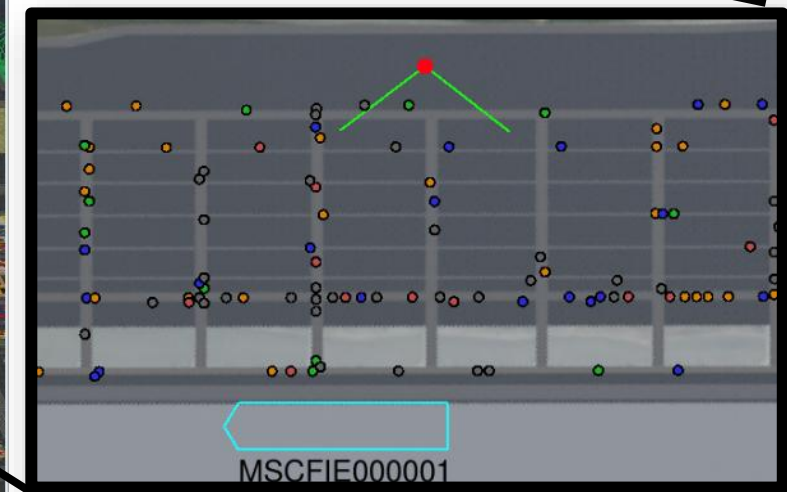
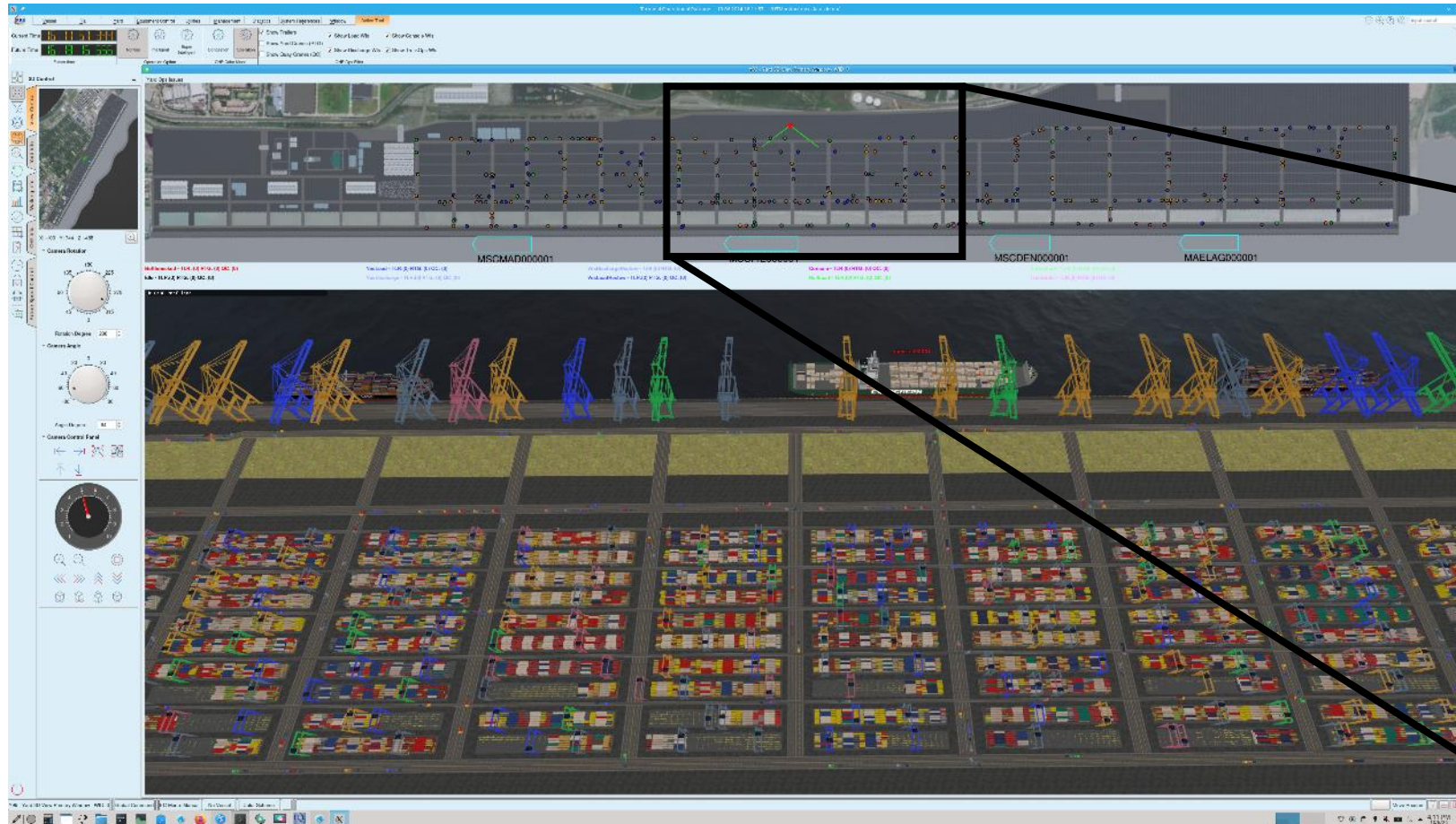
Inside the Mind of an Intelligent Digital Solution



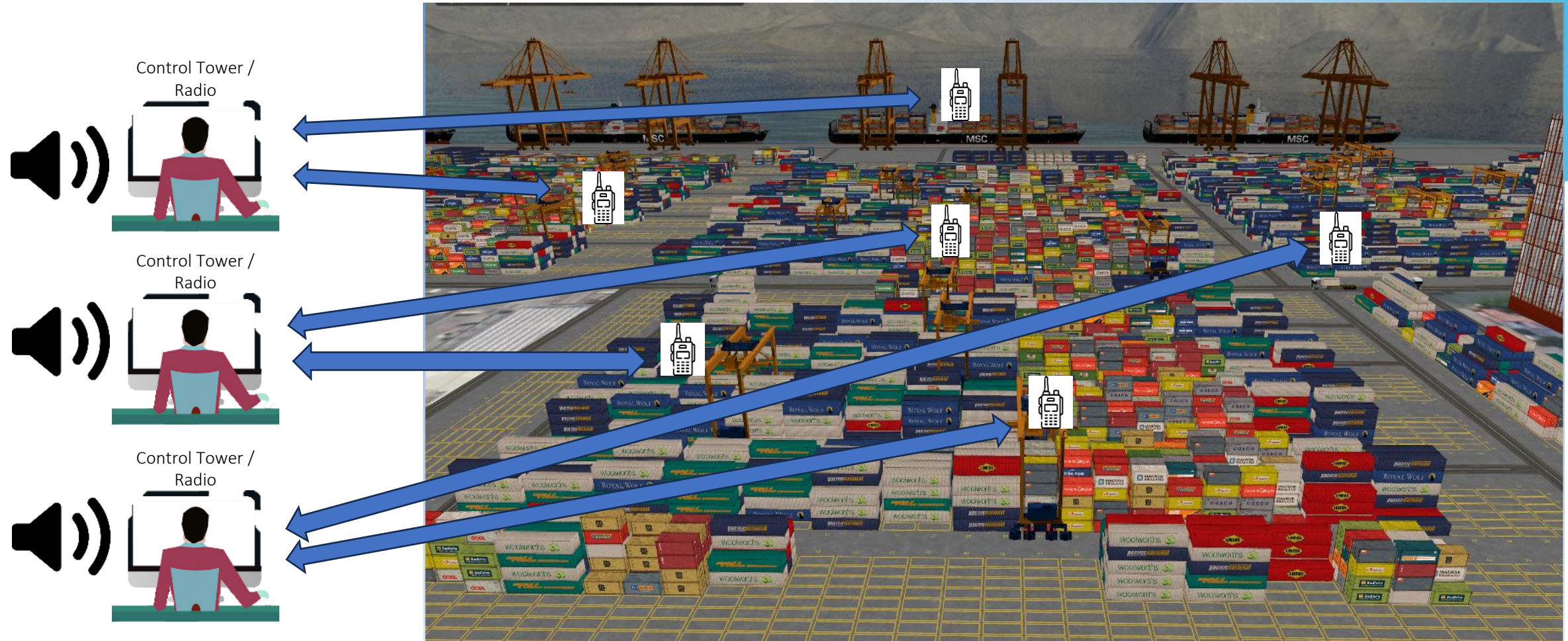
- An Intelligent 3D Solution is much more than just an average digital twin.
- These Solutions combines the digital twin concept with actual operational and executional features of the 8 dimensions to bring vast & unique benefits to terminals.
- The Solution will also have Super Intelligent capabilities which allow it to predict and resolve incoming future problems.
- Hence, it becomes a tool to optimize, perfect and boost a terminal's performance in completely new ways



Digital Twin X-ray

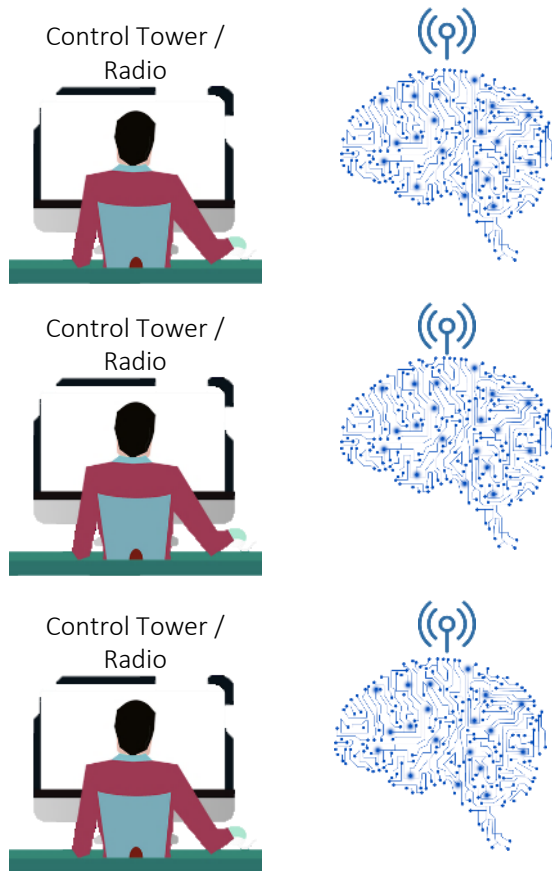


Without Intelligent digital twins



In other TOS systems without TOPX Intelligent 3D, there are often many inefficiencies such as congestions and bottlenecks all across the terminal. This leads to a lot of confusion, noise and delays in the control tower and the yard.

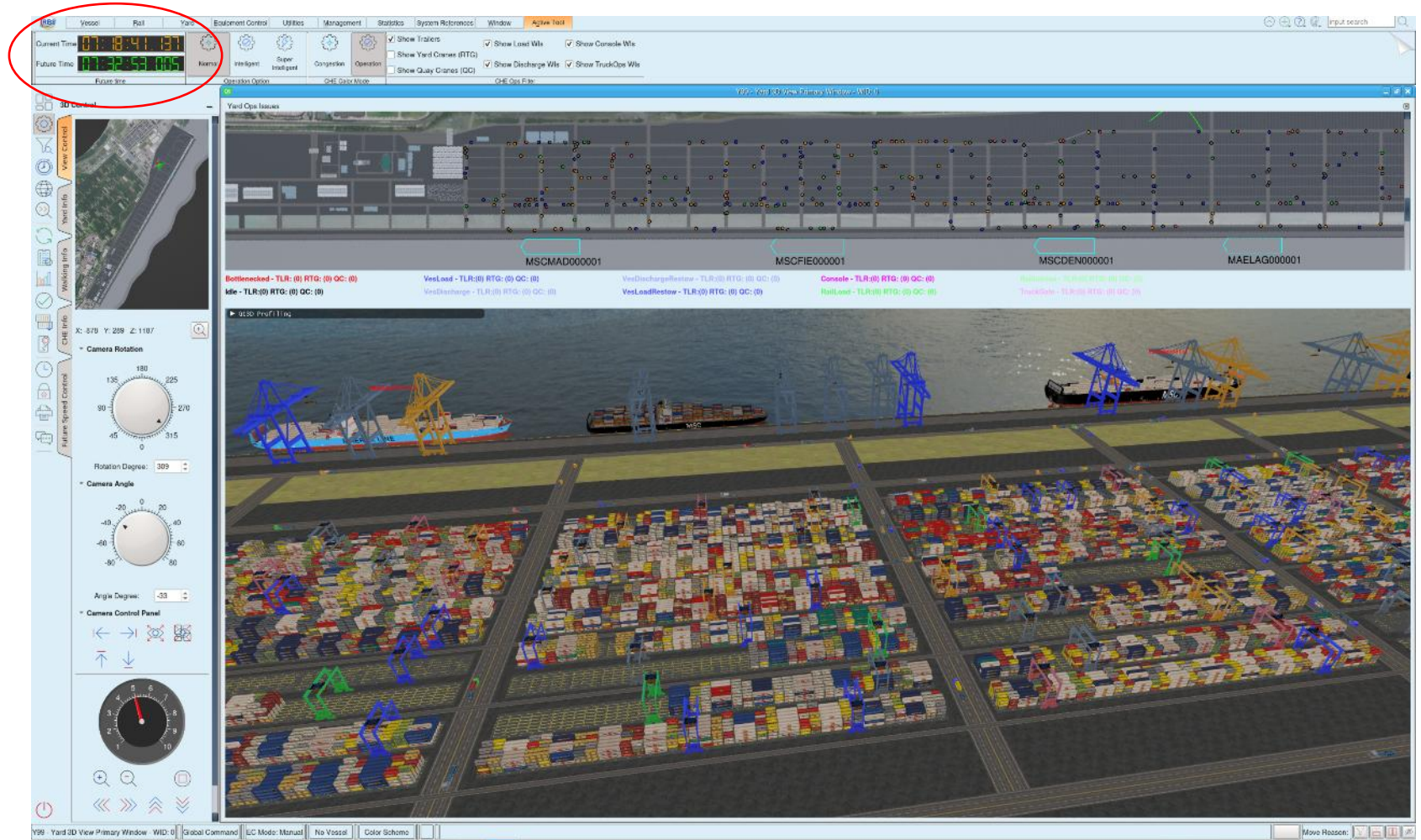
With Intelligent digital twins



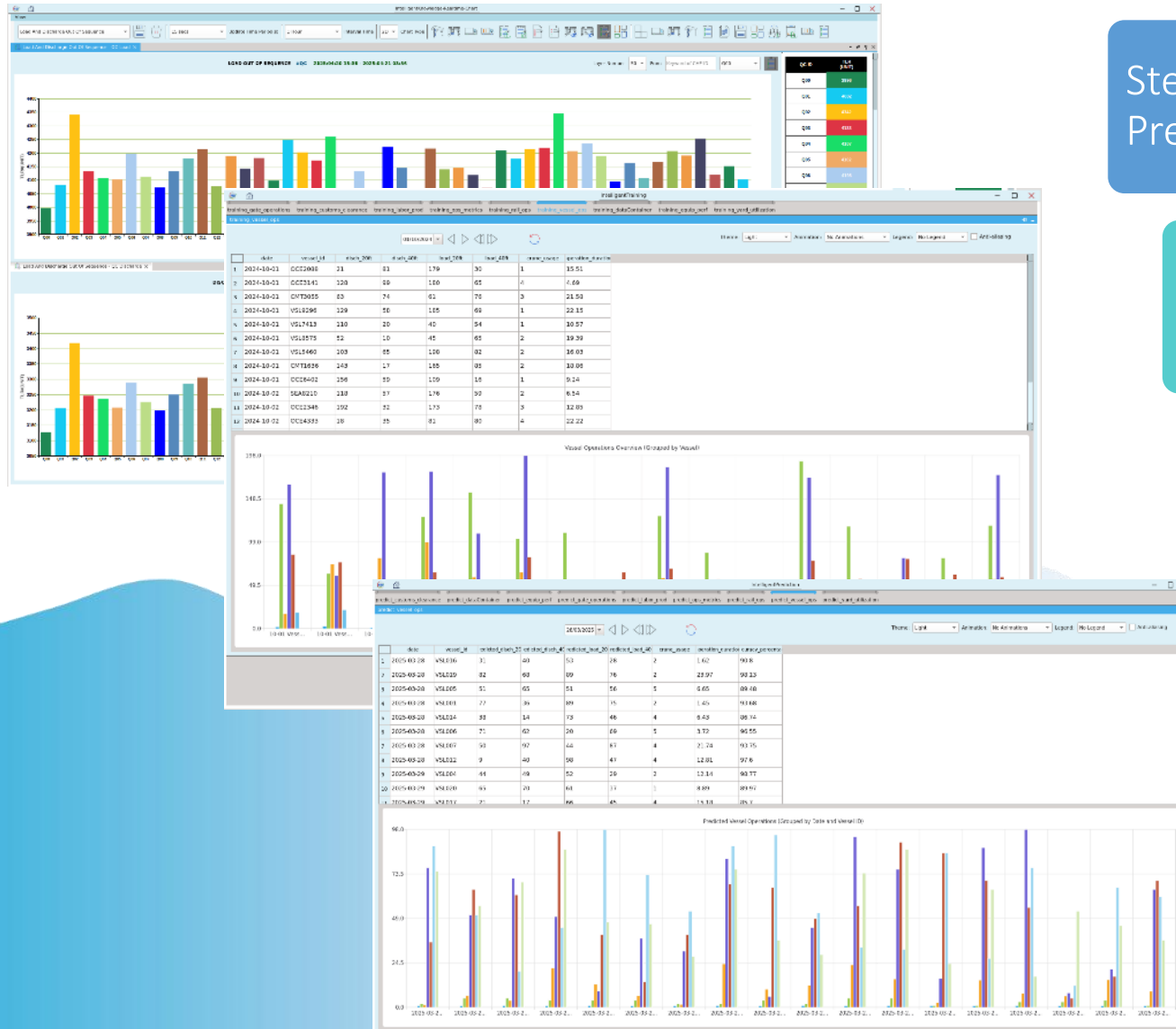
With TOPX Intelligent 3D, all these inefficiencies will be solved and communicated through the system. TOPX Intelligent 3D will think for every trailer, RTG, QC and more. This makes execution much smoother, calmer and simpler for everyone in the terminal.

Current vs Future

- With the digital twin reality, you can visualize the future execution plan while overseeing your current operations
- This future view, can be played up to 120x faster to see if any inefficiencies will occur
- TOPX Intelligent 3D will help resolve these inefficiencies and create the perfect WIs for real-time operations



Prediction & Knowledge



Step 1: Data collection & Preprocessing

Step 2: Data transformation into Features

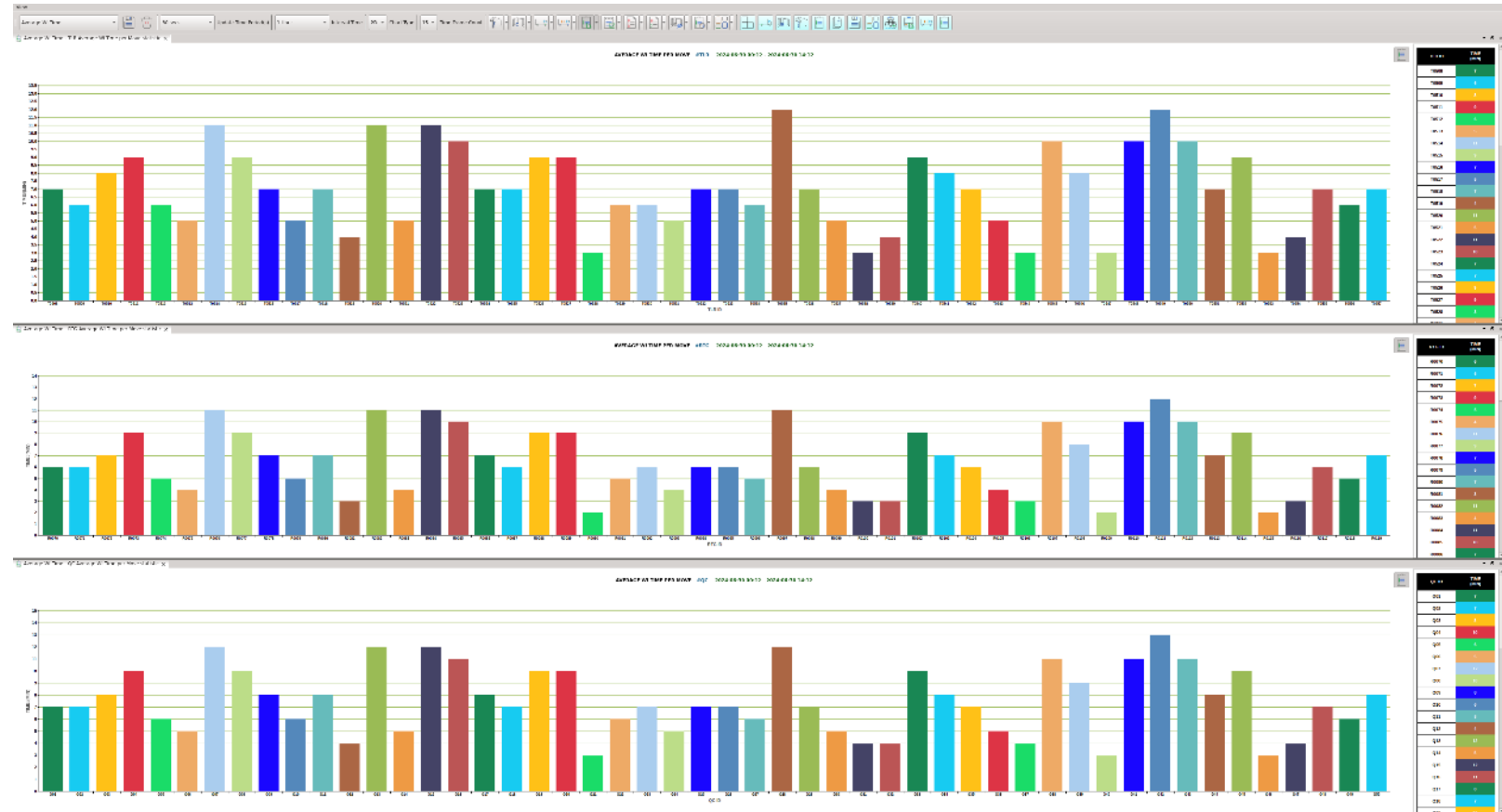
Step 3: Training

Step 4: Prediction

Step 5: Visualization

TOPX Intelligent 3D – Analysis Charts

- With TOPX Intelligent, an analysis chart will be outputted to show where inefficiencies occurred
- With this chart, you can view where and how problems occur in your yard
- It will also show how TOPX Intelligent 3D resolve issues when they occur
- Thus, you can use this information to even further improve the design of your terminal



Encourages green ports by tracking Co2 emissions



Analysis charts can help track emissions and fuel used from equipment, this in turn will help terminals see where they can reduce their emissions and help meet local government regulations



Intelligent 3D Solutions: Intelligence in Every Dimension



The result of Supercharged 3D Intelligence



Improved Operational
Efficiency



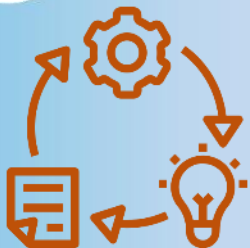
Enhanced safety
for workers



Assist labor efficiency



Improved Customer
Satisfaction and
Customer Service



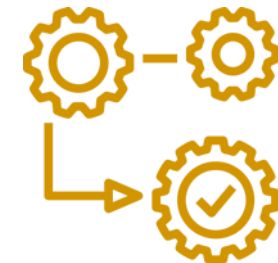
Preventative Measures
/Problem Solving



Improved
environmental impact
and carbon friendly



Better Decision
Making



Increased Control

And many more benefits...

Realtime Business Solutions

Your Success Our Commitment

Tel : +61 2 9893 9255

Email: sales@rbs-tops.com
sales@rbs-emea.com



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WWW.RBS-TOPS.COM