

# RBS at Transport Event ASEAN Ports and Shipping 2023 in Bangkok

Electrification and an intelligent TOS can play an important role in the journey to net-zero.



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# Agenda

- RBS Company overview
- Decarbonisation approach:
  - Electrification
  - TOS Approach and standard data using TIC4.0
  - TOPS Intelligence as the terminal brain





# Norbert Klettner

- MD of RBS EMEA office since 2009 and Co-Owner of akquinet port consulting GmbH
- 20 years in the container industry
- RBS a founding member of TIC4.0
- Experience in the industry
  - Terminal Operator: Eurogate 2003 to 2008 operations, IT and TOS solutions
  - Started RBS EMEA in 2009 implementing TOPS TOS globally
  - Port and terminal optimization team with akquinet and CHESSCON
- Vice-President of “Terminal Industry Committee 4.0 (TIC 4.0)” association since 2019 – [www.tic40.org](http://www.tic40.org)





# Realtime Business Solutions

## TOPS Expert - Terminal Operating System

RBS is an Australian owned company with its headquarters residing in Sydney and multiple local offices worldwide:

- EMEA
- Indonesia
- Americas
- Vietnam
- Malaysia
- Thailand

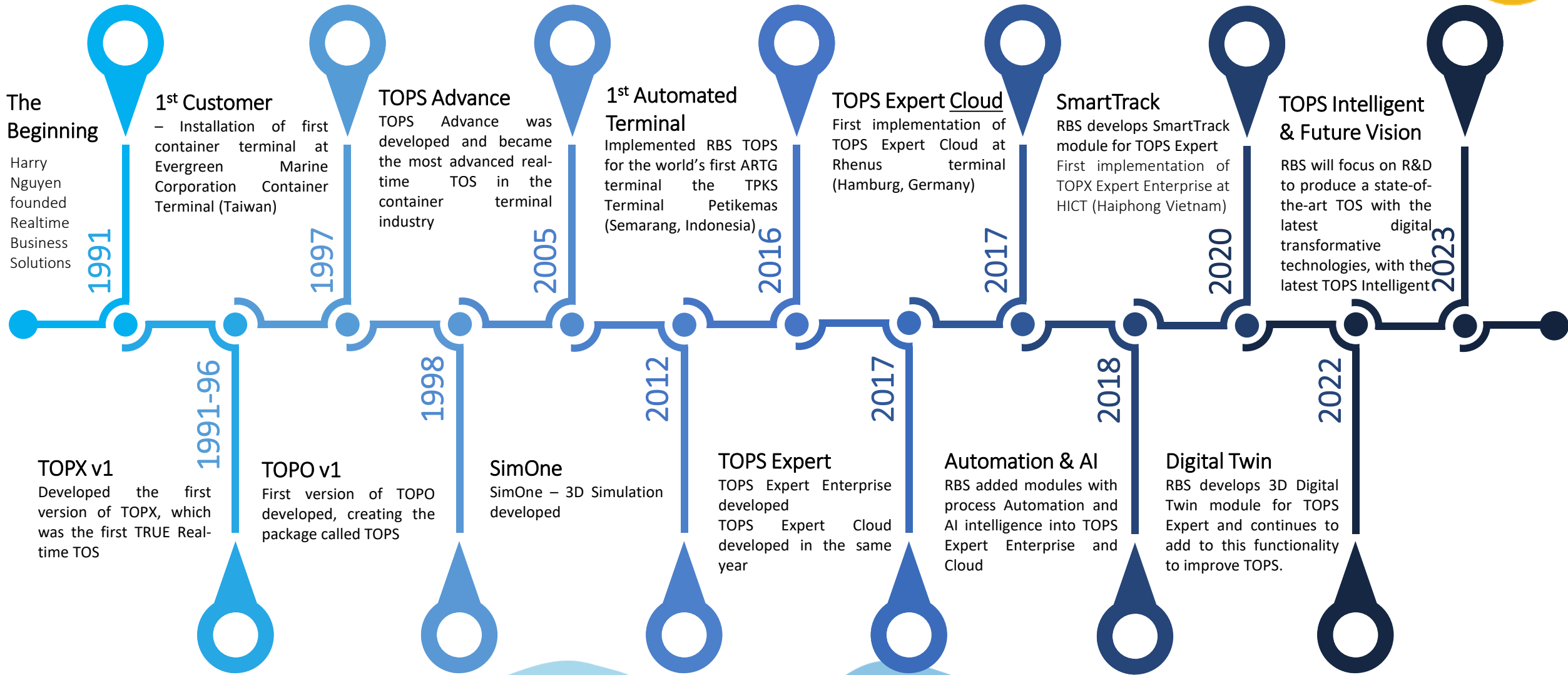
RBS specializes in developing software applications for the Container Terminal Industry

- Over 30 years experiences
- Proven TOS that has been successfully implemented in over 40 terminals

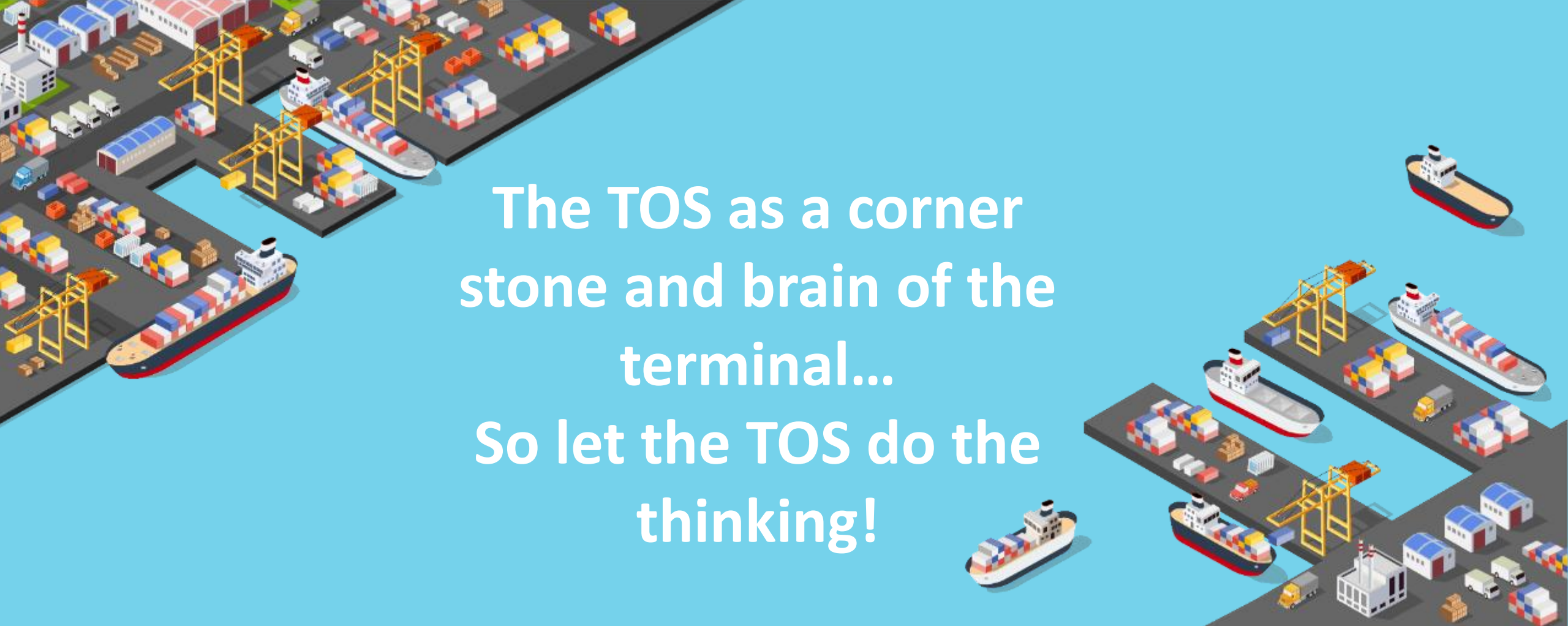




# RBS TOS Roadmap







The TOS as a corner  
stone and brain of the  
terminal...  
So let the TOS do the  
thinking!





# Carbon emissions in terminal operations?

- Most of the stacking and transport equipment is still fuel powered and produces carbon emissions
    - This is in most terminal the part of operations that produces the highest emissions!
  - Most ports and terminal (groups) have targets to get to net-zero
  - The target needs to be two ways:
    1. Use the equipment more efficiently to reduce emissions asap
    2. Transformation to carbon zero equipment – usually this means electrification
- ➔ The more efficient use of equipment will also benefit the electrification process for the CHE

# Electrification requires better real-time decision making!



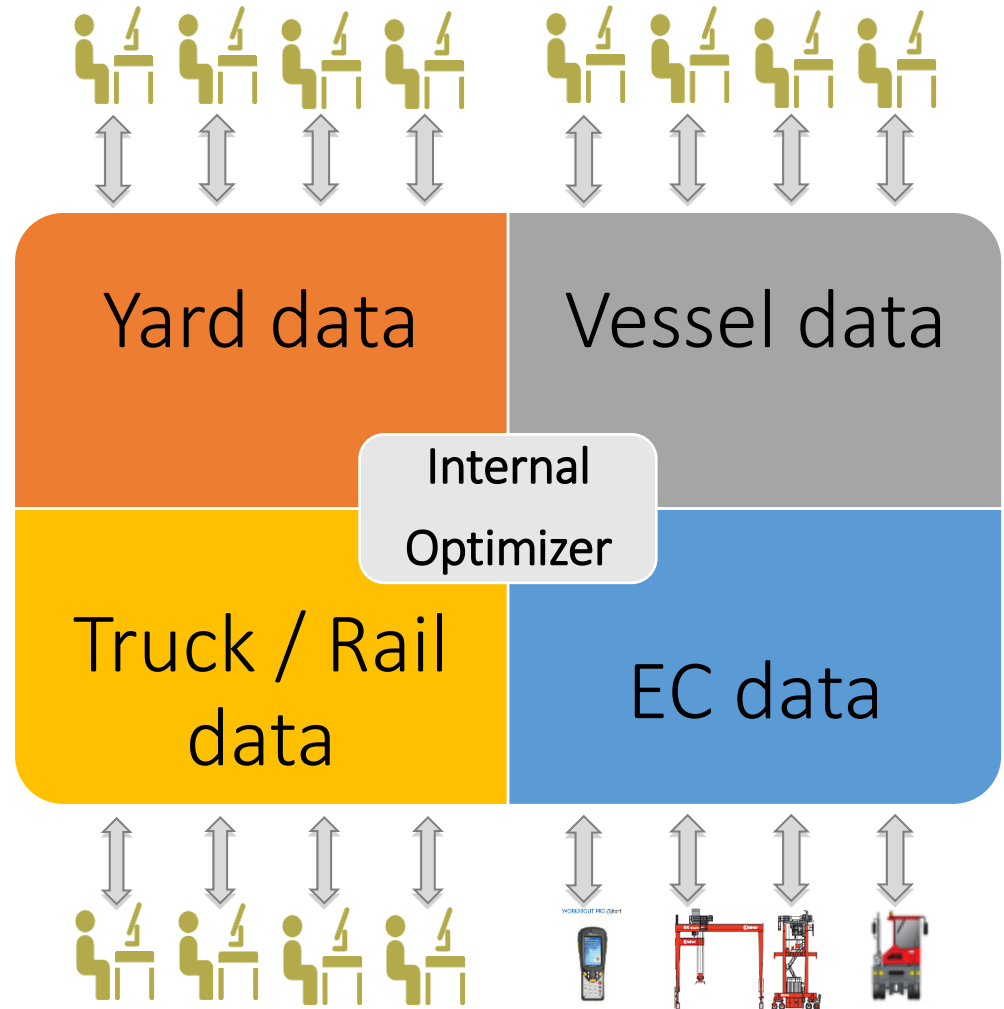
- Electric horizontal transport equipment will take its place in the market
  - Charging concepts with different approaches and needs:
    - Opportunity charging
    - Fast chargingBoth require more attention to the energy levels and the scheduling during operations.
  - It adds another entity in the operations that needs additional attention:
    - When to charge which equipment?
    - How to schedule this in real-time (use ops breaks e.g. hatch movements for charging)?
- > This requires data and enhanced real-time decision making in the TOS.**



# TOPS System as the optimization engine

- The TOS as the brain and optimization engine:
  - Inside the TOS all planning and forecasting information are available.
- Optimization is based on
  - Information => DATA => TIC4.0
  - Algorithms (ML, AI, ...?!?)
  - Efficiency and speed of decision making for the EC

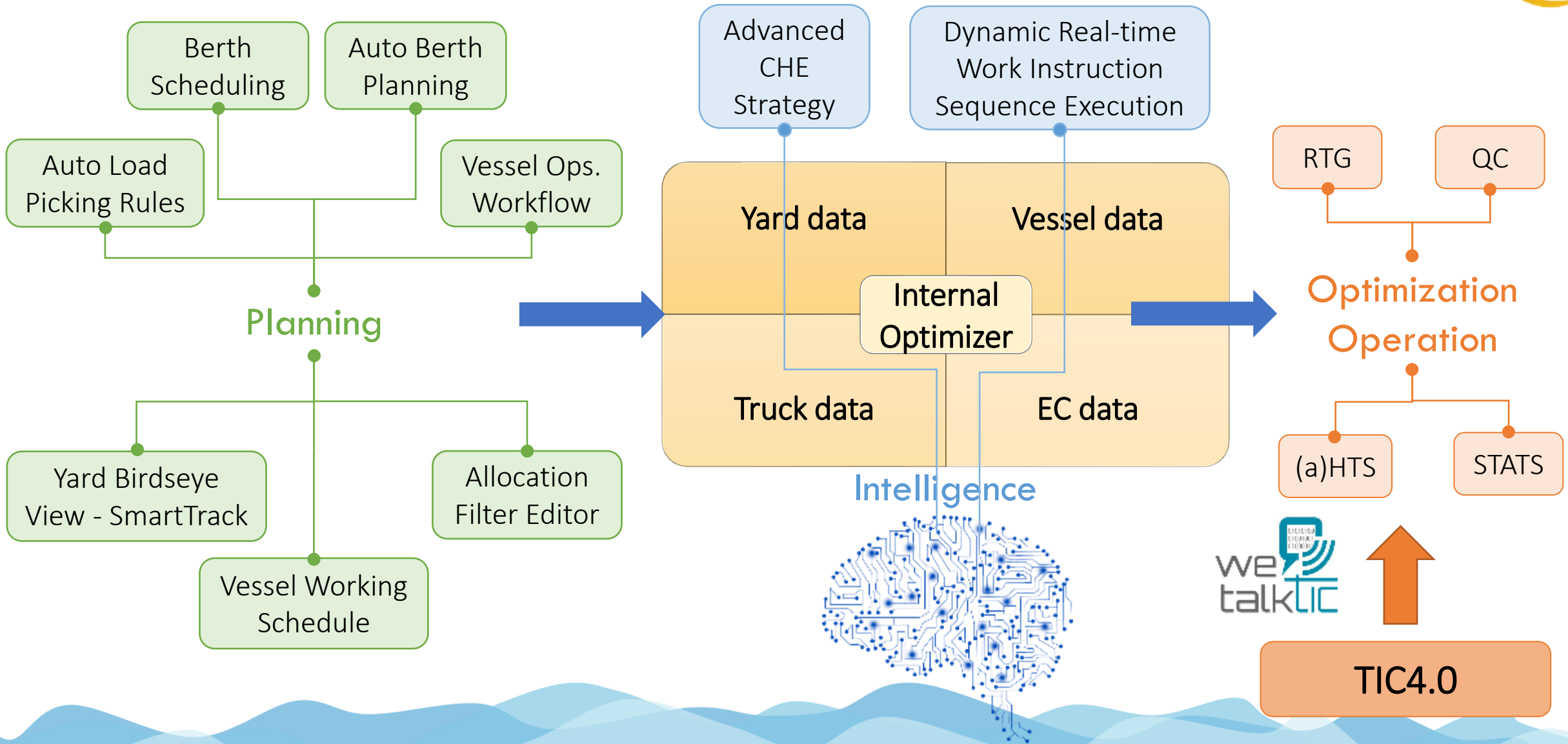
## TOPX Single Server Real-time Architecture





# Expert-Intelligent Thinking

## With TOPX-Intelligent real-time information





# TIC4.0 enhances the data availability for energy level



The equipment provides data to the TOS or IoT Cloud in TIC4.0 standard. The horizontal transport needs scheduling that looks ahead of the current operation and can react in real-time on changes and updates.



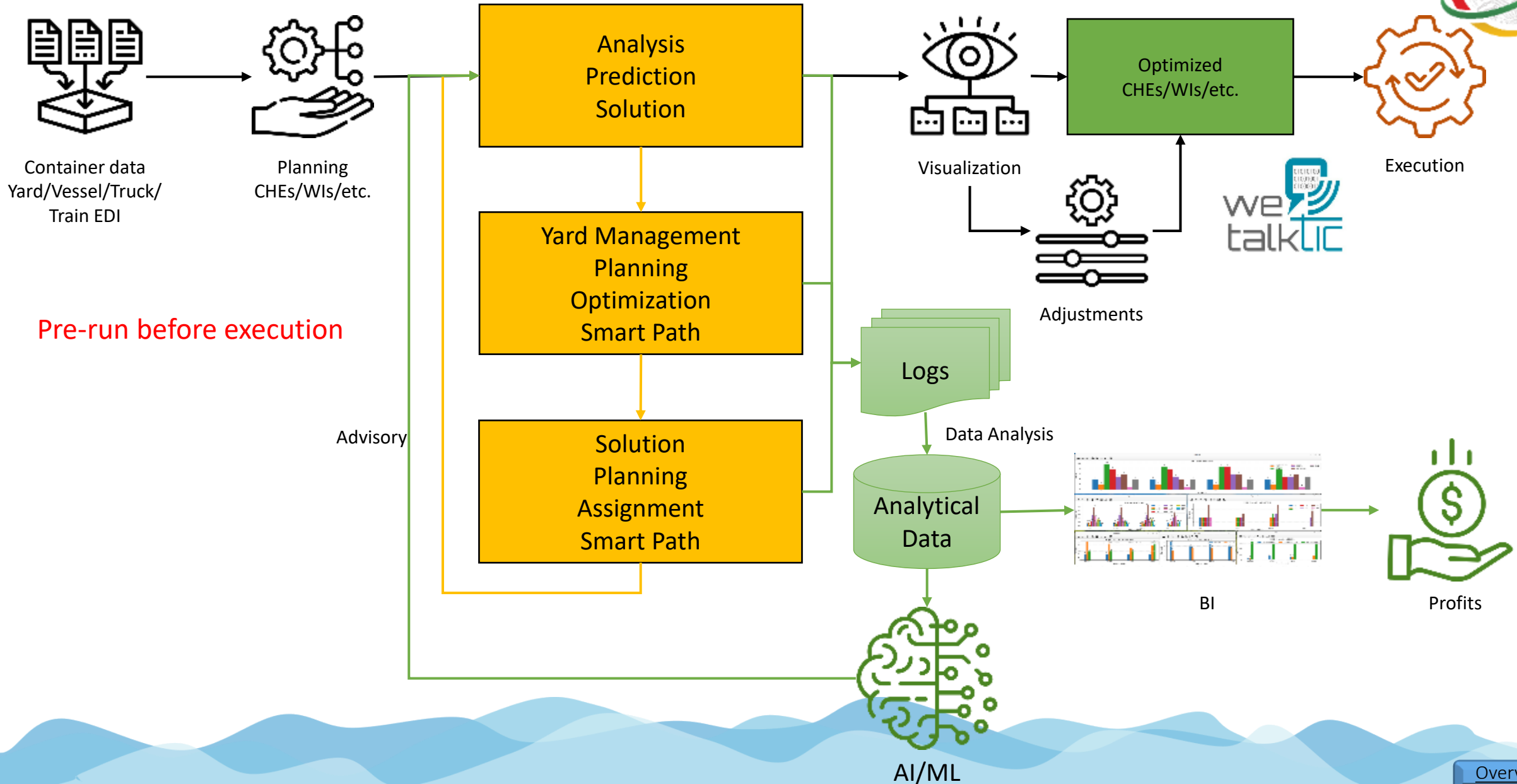
The combination of a **SUBJECT** with multiple combinations of **CONCEPTS**, **OBSERVED PROPERTIES** and **POINT OF MEASUREMENT**; give us a unique meaning of a **VALUE**.

Email 2345345 From Jason Martial at 2020-06-04T09:37:08.000Z the subject with id **STS8765745346** and subject name **MFT-ST501** has the **working status (output actual)** on **TRUE** and the **drive speed (output actual)** is **25 km/h**.

msg.id: D6wZ6ngBBIsOzhTbxvHy; msg.sender: TOSMFT; msg.timestamp 2020-06-04T20:55:08.000Z; msg.start\_timestamp: 2019-06-04T20:55:08.000Z; terminal.id CIT\_FS; terminal.name: "Curro local Terminal"; terminal.type: "terminal"; terminal.quay.cycle.move\_and\_unloading.counter.actual.output.box : 265.568; terminal.quay.cycle.move\_and\_loading.counter.actual.output.box : 265.544; terminal.quay.cycle.move.actual.output.box : 531.112; terminal.quay.cycle.move\_and\_unloading.counter.actual.output.teu : 458.548; terminal.gate.cycle.move\_and\_unloading.counter.actual.output.box : 258; terminal.quay.cycle.move\_and\_loading.counter.actual.output.teu : 458.548; terminal.gate.cycle.move\_and\_loading.counter.actual.output.box : 244; terminal.rlyde.move.counter.actual.output.box : 531.614; terminal.move.cost.actual.input.€ : 50.444.333;

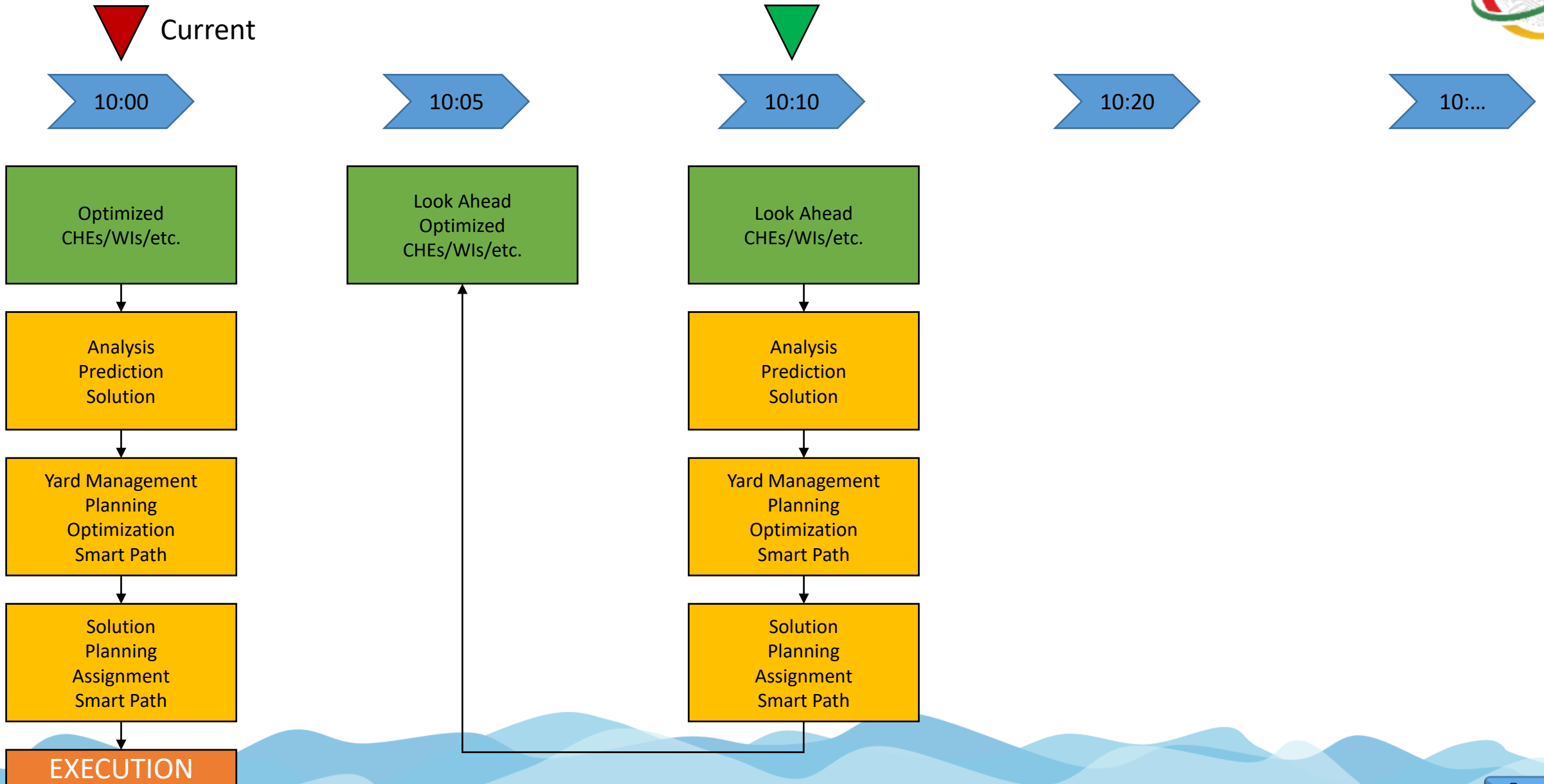


# TOPX Intelligent Predictive/Preventive solution



# TOPX Intelligent Predictive/Preventive scenario

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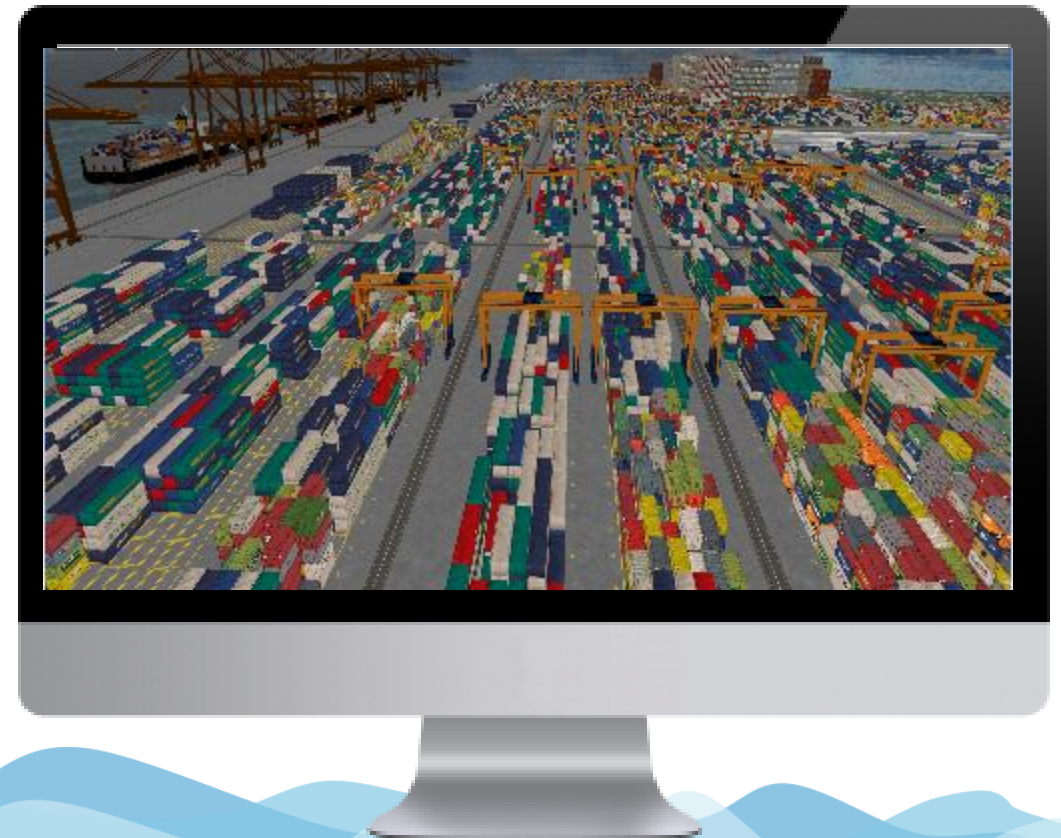
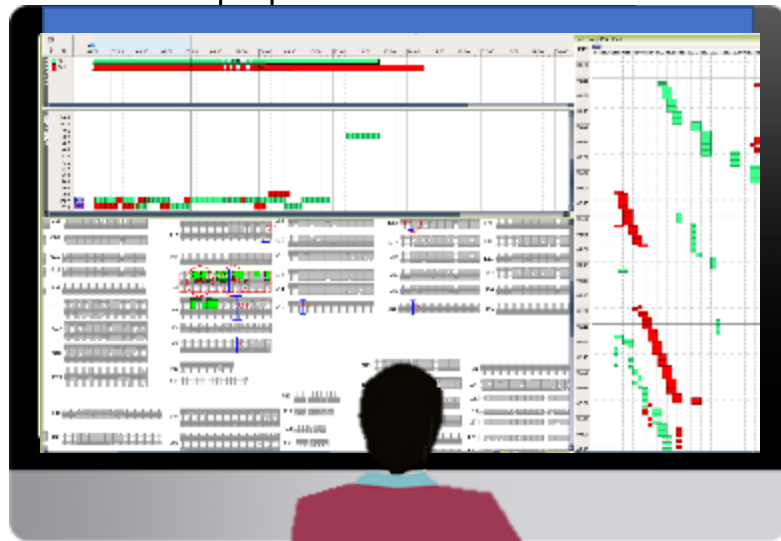
# The a real-time TOS plays an important role in the electrification journey!

Our new TOS module integrates standard TIC4.0 data with integrated planning information for enhanced scheduling and dispatching!

This can start from today with today's CHE and improve the electrification journey later on.

**TOPX** Intelligence with real-time decision making°

Equipment Controller





# Realtime Business Solutions

Your Success Our Commitment

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