



# TERMINAL AUTOMATION, REAL WORLD SOLUTIONS

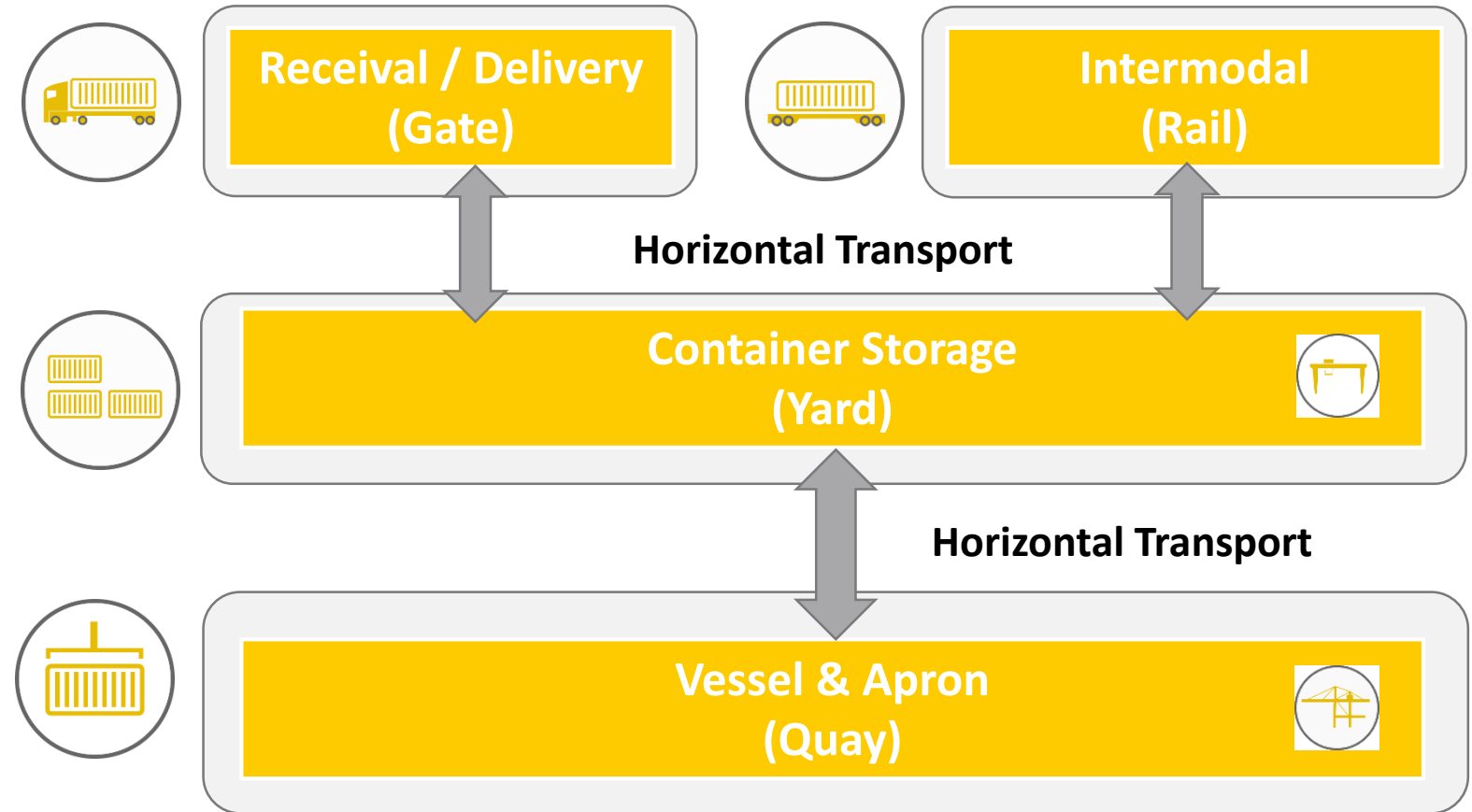
Transport Events Management, 28 October 2020

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# The Terminal as a system of 'integrated Modules'

By engineering the Terminal as a 'system' of integrated modules the methodology allows:

- Simpler design of the requirements and specs for each module,
- Flexibility to evaluate different options for each of the modules,
- Upfront identification of integration and localization requirements.



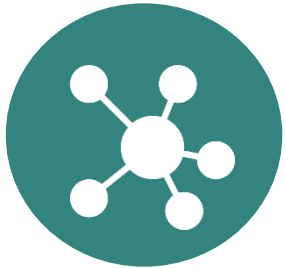
# DIGITALIZATION & AUTOMATION 'building blocks'



**Processes**



**Systems**



**Data**



**Workforce**

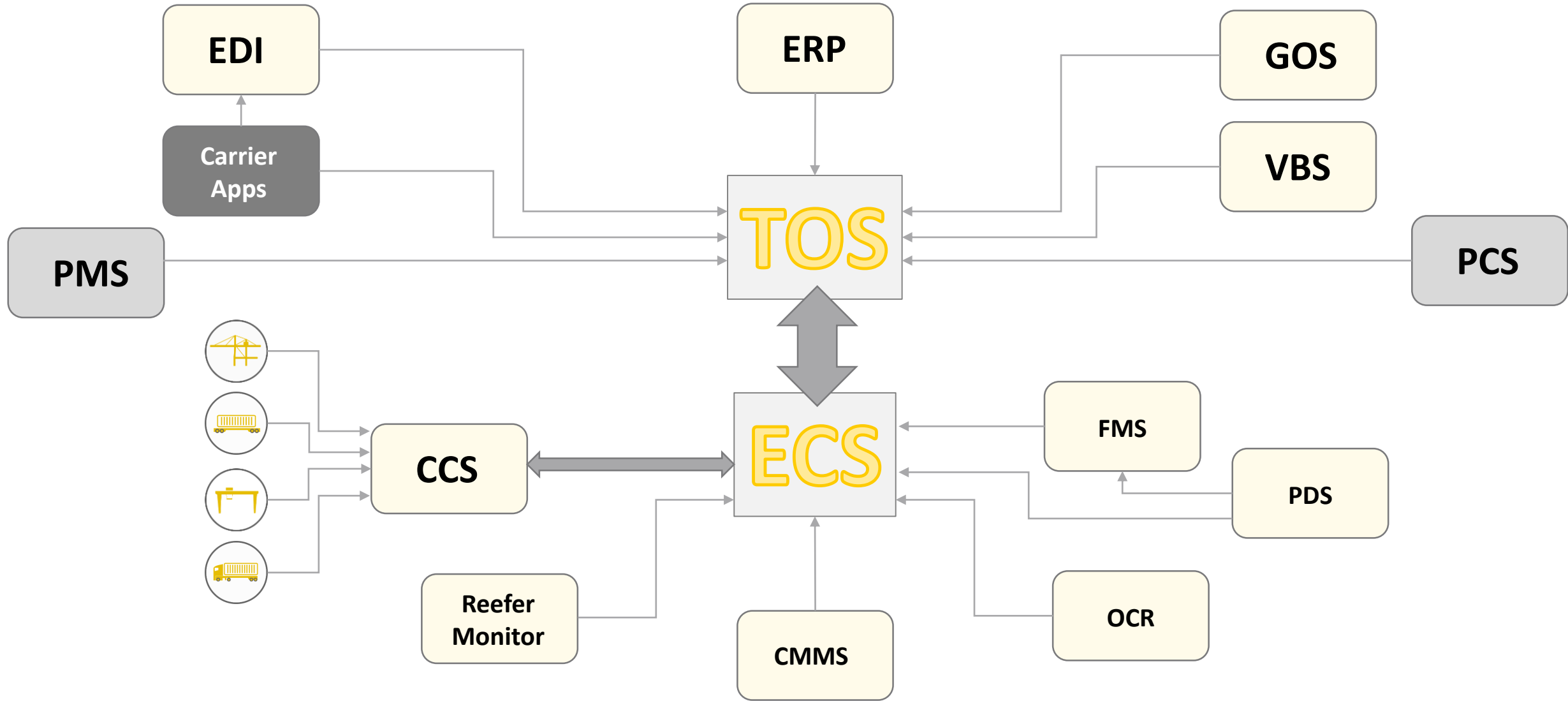


**Digitalization involves transforming the business transactions to a single process platform to act as the operational backbone.**

**Automation can only be properly implemented in a platform of Operational Excellence, instilling discipline on core processes.**

**Beyond Efficiency, strong drivers are on realizing new standards to improve Sustainability, Safety and Security at Terminals.**

# THE TERMINAL ECO-SYSTEM



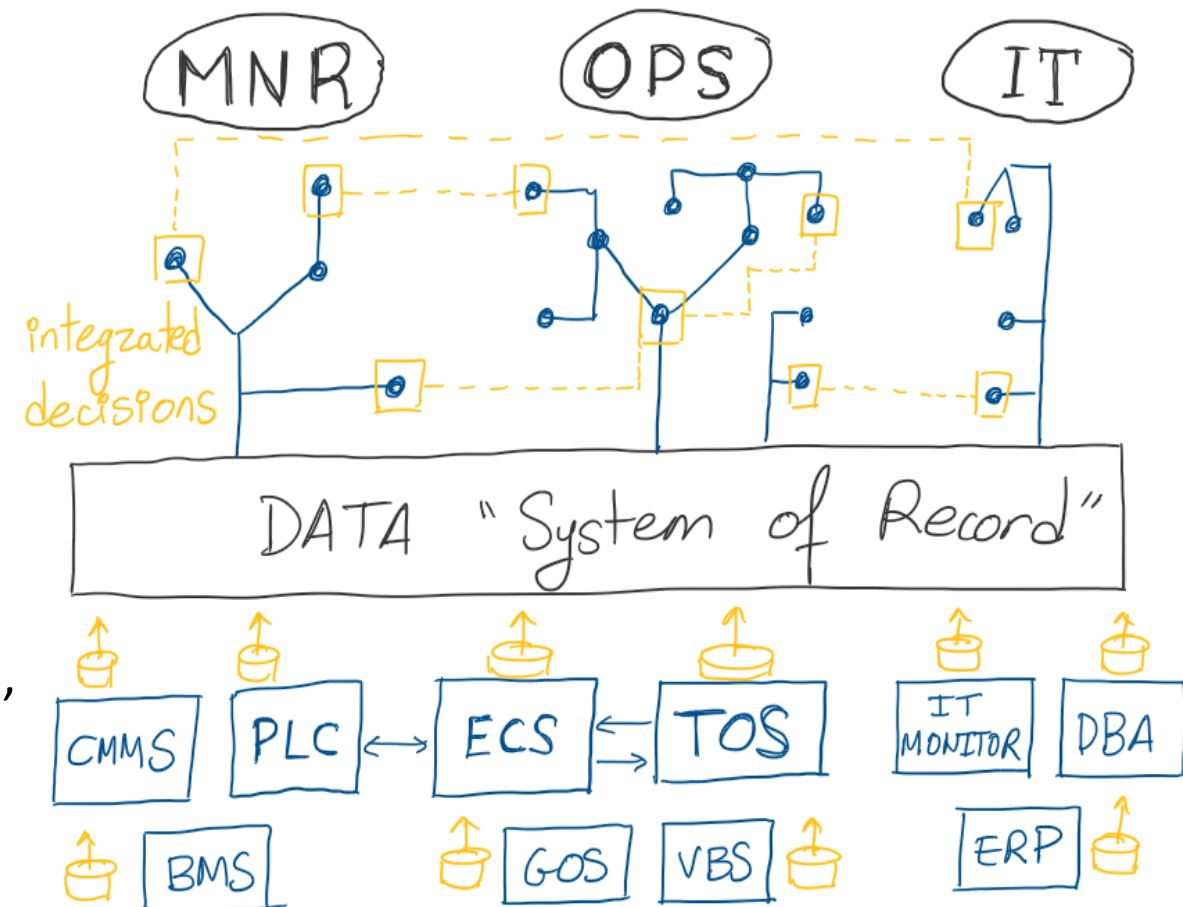
# CURRENT TECHNOLOGY CONSTRAINTS

- We need **Data** to be **available** and to be **'open'**:

- ✓ Data to be Accessible, to be Standard, to be Structured, to be Contextualized (labelled),
- ✓ We need enough Data to form a 'system of record' that can indeed generate knowledge and learning.

- We need to move towards a **connected intelligent eco-system**:

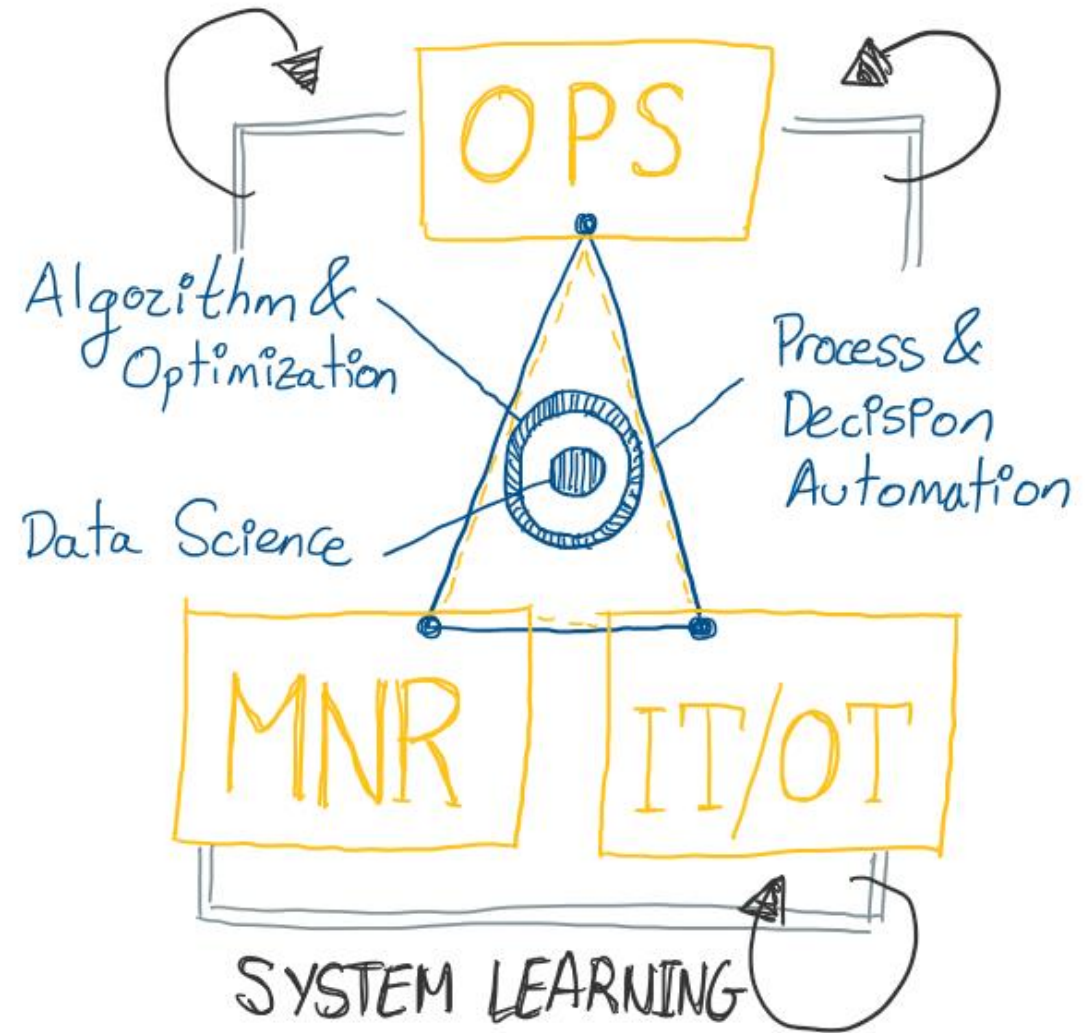
- ✓ Algorithms do nothing without clear direction (input), starting from zero every time they run,
- ✓ Algorithms decisions are scattered in different systems and not integrated for an optimal end result.



# WORKFORCE BOUNDARIES

The most critical barriers to truly leverage technology potential will be organizational:

- For the Terminals, the **department boundaries** between Operations, Maintenance and Information Technology need to be removed,
- The technology demands a strong **'empathy'** from the human users, and the system needs to record user interaction to learn from best practices,
- New **roles and competencies** will be necessary in a new Industrial Revolution driven by Data and Algorithms.



# Conclusions and take-aways

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- While clearly is the Future for Terminals, Automation can only be properly implemented on a platform of Operational Excellence,
- It requires transforming the business silos to a single digitized process platform to act as the operational backbone,
- An integrated operational and technical capability is necessary and still there are serious challenges for finding standardized solutions,
- Next wave of Terminals will implement Digitalization and Automation hand-in-hand to truly connect processes, tools, data and workforce,
- Workforce frameworks evolution is key to be able to leverage technology potential and to realize its competitiveness benefits.



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