

A VIEW FROM 'ABROAD' ON EUROPEAN INNOVATIVE STRENGTHS

- Physical / mechanical innovation
- Technological / IT innovation
- People & process innovation
- Seen from the maritime world

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- **Independent advisor and non exec board member**
- 20 years with A.P.Moller-Maersk in various executive positions including CCO Greater China Region, Managing Director for Maersk Line UK and Maersk South Africa.
- 8 years with DP World as CEO for Europe and Russia as well as Group SVP for Global Strategy (Dubai)
- 3 years with Gultainer as Group CEO

Innovation and leadership

1. Technical / IT – Rotterdam World Gateway, the first fully automated container terminal.
2. Blue sky thinking, Scenario Planning 2060 – Kalmar / Cargotec TM
3. Blockchain, how to use IT technology in shipping, example from BlockShipping TM and Port of Rotterdam.
4. Conclusions, how is Denmark perceived when viewed from abroad ?

- Rotterdam World Gateway / DP World TM



Rotterdam World Gateway - April 2012



Rotterdam World Gateway - May 2013



Rotterdam World Gateway - March 2018



Automatic guided vehicles ← DISRUPTION → Remote controlled cranes

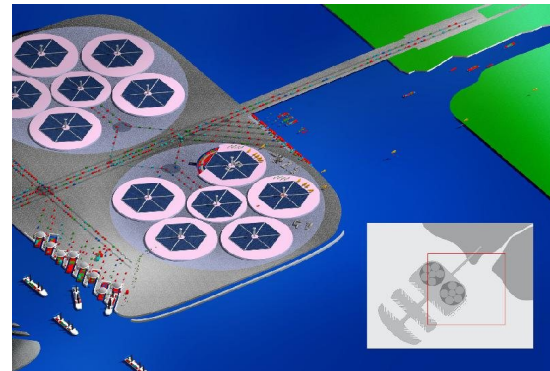
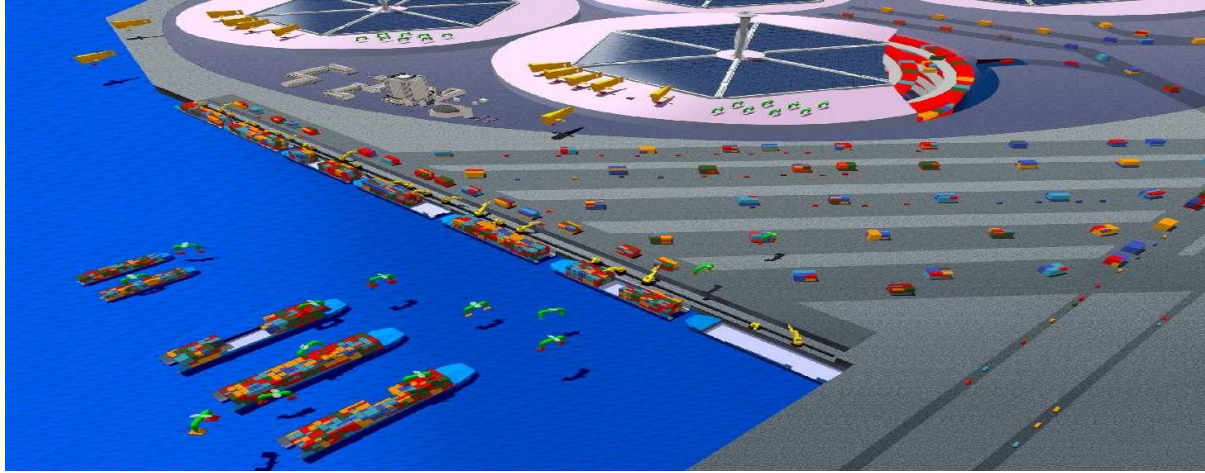




Kalmar – vision 2060 TM

- Container quay cranes might become redundant, and ‘spreaders’ will most likely be replaced by drones or flying equipment.
- Container ships will have detachable loading bays, enabling them to move away from the mother ship directly to the quay (if there is a need for a quay).
- All ports will be automated and run on renewable energy with zero carbon emission. Ports might be located inland instead of on the shoreline.
- There will be no personnel safety concerns as all functions are automated.
- Continuous predictive maintenance ensures that day to day operation runs smoothly at all times.
- Container terminals will be complete logistic ecosystems that act as global interchange points for an on-demand society.

Kalmar vision 2060™



Blockchain / Blockshipping™

What is it that Blockchain can do? The short answer: "Cuts out the middleman"

Exchange of information and value can be done fast, efficiently and safely directly between the involved parties, this happens without central control or approval.

The front runners of Blockchain developments are amongst others IBM, Intel, J.P. Morgan, SAP, DeutscheBank, Airbus and many more.

Blockchain ensures that there is no uncertainty or ambiguity about the validity of a transaction. The entire track of the full transport chain is always fully visible to all parties involved in the transaction.

Individual Blockchain transaction will complete automatically through the use of a so called smart contract e.g. when a specific set of well defined criteria have been fulfilled. Blockchain is decentralized and is 'self-repairing', and consequently extremely resilient against any cyber attacks.

What is the future for Blockchain ? It is still too early to say, however, Blockchain has the possibility to be a major disruptor in any industry whether it is in shipping, governments, industrial conglomerates or the finance industry - all will potentially be impacted.

An example from Denmark - Blockshipping APS

Blockshipping established GSCP – Global Shared Container Platform

GSCP has the potential to generate a significant savings potential for the global shipping industry as well as a potentially large reduction of CO2 pollution.

Blockshipping is collaborating with, amongst others, Kammeradvokaten, NNIT and Amazon Web Services

Blockchains in GSCP – Blockchain is being used exactly in the areas where the technology has it's strengths combined with other more traditional IT systems for the remaining part of the platform.

GSCP use a Blockchain for the global container registry which ensures that e.g. that the ownership of a container is always known.

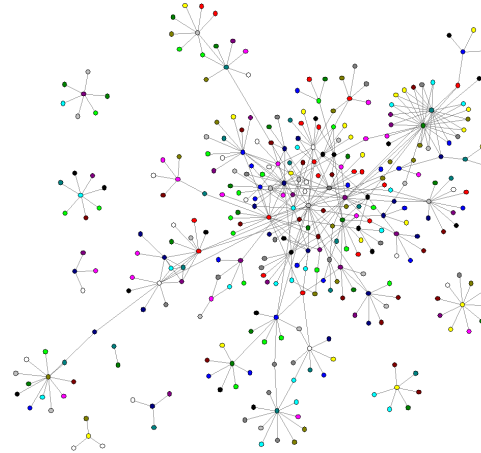
Another example is automated billing through the use of 'smart' containers. Over time the container will independently send messages and updates where it is located en-route and when it has arrived at its destination – this will be done through an IOT unit which will be an integrated part of the container.

An example from Holland - POR

- The Rotterdam Port Authority and IBM teamed up for a multi-year digitization initiative to transform the port's operational environment using Internet of Things (IoT) technologies in the cloud and the aim is to combine this with Blockchain technology
- It begins with the development of a centralized dashboard application that will collect and process real-time water (hydro), weather (meteo) sensor data and communications data, analysed through the IBM IoT platform.
- Port of Rotterdam has already started its digital transformation and sensors are currently being installed across 42 km of land and sea – spanning from the City of Rotterdam into the North Sea – along the Port's quay walls, mooring posts and roads. These sensors will gather multiple data streams including water (hydro) and weather (meteo) data about tides and currents, temperature and wind speed.
- Port of Rotterdam can use the data to make decisions that reduce waiting times, determine optimal times for ships to dock, load and unload, and enable more ships into the available space. All such decisions and the reasons behind them will be available to all involved.
- The port already today shares some of this information via the Port Community System, but it is expected that Blockchain will help improve efficiency and further reduce costs.

Many people and companies are reticent of the future of this technology. The general opinion of sceptics is that; Blockchain fundamentally is 'only' a tamper proof shared online transparent ledger.

Official definition simplified: Blockchain is a technology that enables peer to peer update or transmission of electronic data and information without any intermediaries.

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How is Denmark perceived ?

We are obviously the happiest nation in the world

1. Danes are innovative, creative and at the forefront of change, always open for new ideas and concepts.
2. Hard working, dedicated and disciplined (in the time we work – perception is that we work to the clock)
3. Equal opportunities regardless to gender, age or your social background.
4. Danes are honest, there is basically no corruption and Danes are trustworthy.
5. Punctual, on time delivery and high quality standards.
6. Danish people normally get straight to business with minimal pleasantries.

One thing to bear in mind, the Danish language on a day to day basis only use about 1/3rd of the words available in English. This makes us appear very direct.

Thank you -