How terminal's control staff may use the Benefits of Digitalization to improve terminal's processes
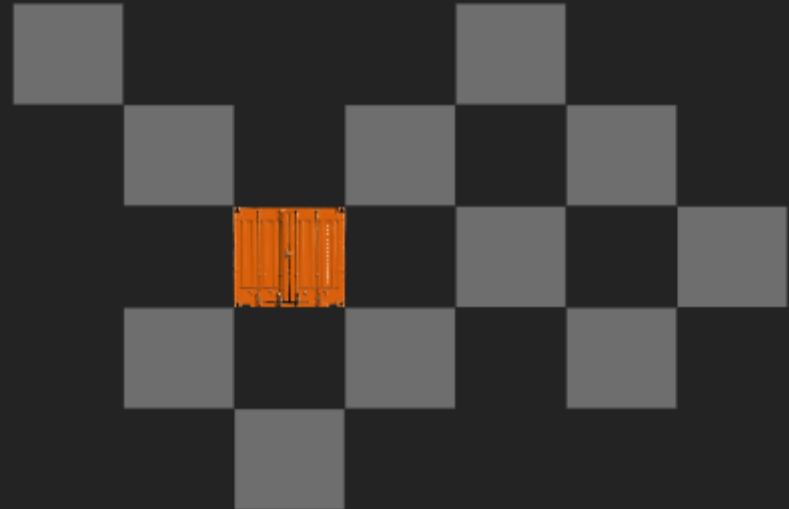
ISL APPLICATIONS

Holger Schuett

ISL Applications GmbH

20th Intermodal Africa 2018

Accra/Ghana, Nov. 27th - 29th

Introduction

Digitalisation yard

Complex Control

Role of the planner

Conclusions

The new role of the planner

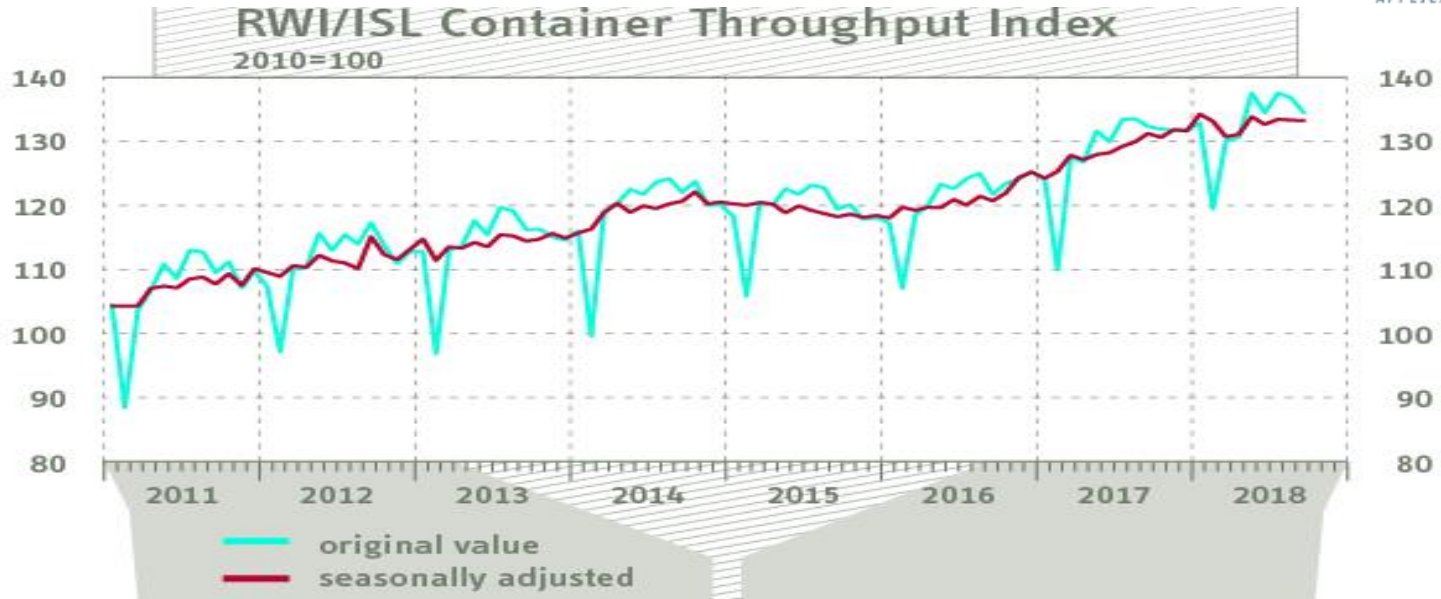## RWI/ISL Container Throughput Index
2010=100

legend:
- original value
- seasonally adjusted
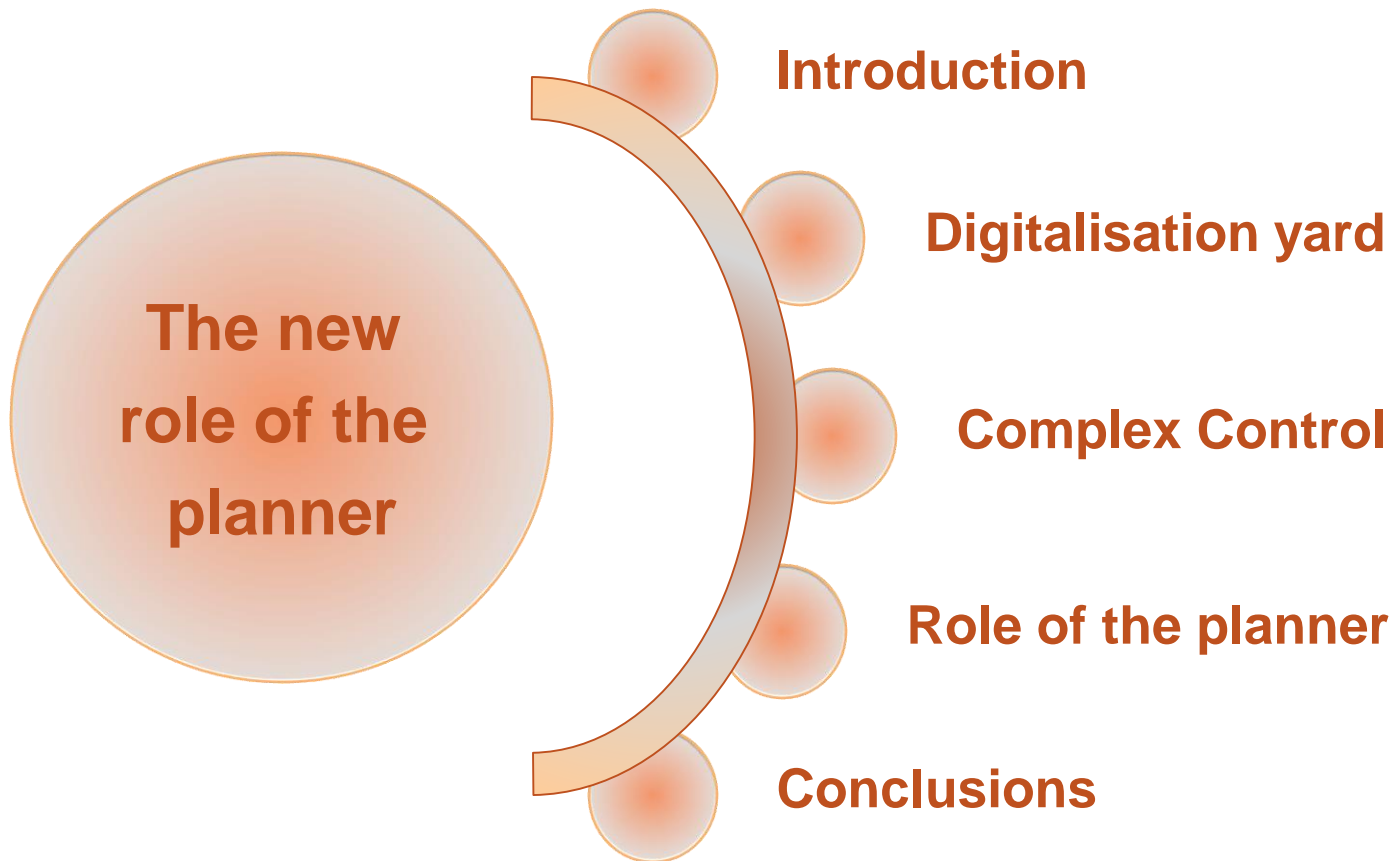
The Container Throughput Index decreased marginally from 133.3 points in the previous month to 133.2 points in September. According to the most recent data, index which – an early indicator of world trade development – has been decreasing two months in a row. Meanwhile, the index is two points below its peak value of January 2018. This indicates that world trade is presently at most stagnating..

RWI/ISL Container Throughput index
- *88 ports worldwide*
- *~ 60 % of worlds throughput*
- *available 3 weeks in new month* **www.isl.org** → *news*

More than 25 Years Simulation Experience

WELCOME TO THE CHESSCON FAMILY

OPTIMIZATION TOOLS FOR CONTAINER TERMINALS

Products rebranding:
CAPS
SCUSY
ViTO

Development funded by   European Union   Land Bremen   Bremerhavener Gesellschaft für Investitionsförderung und Stadtentwicklung mbH   b!s

Optimisation and Simulation – References (selected)

ASEAN Terminals, Philippines

Bromma, Singapore

Centerm Terminal, Vancouver, Canada

CSX, Jacksonville, USA

DP World, Australia

EUROGATE, Germany

HHLA, Hamburg , Germany

HPA Hamburg Port Authority, Germany

HIT, Hong Kong

JadeWeserPort, Germany

Cargotec / Kalmar Industries, Finland

CMSA ICTSI, Manzanillo, Mexico

MCT, Gioia Tauro, Italy

MTL, Hong Kong

Noell Crane Systems, Germany

NTB, Bremerhaven, Germany

Port of Tacoma, USA

PORTEK International Ltd., Singapore

PSA International, Singapore

Red Sea Gateway Terminal, Jeddah, KSA

SPIA ICTSI, Columbia

Tata Consultancy Services, India

TCP Valparaiso, Chile

TecPlata ICTSI, Buenos Aires, Argentina

Terminal Investment Ltd, Netherlands

TotalSoftBank, Korea

TPT, South Africa

Warsteiner Brewery, Germany

Great news: We are growing

ISL Applications GmbH becomes akquinet port consulting GmbH

ISL Applications recently joined the akquinet group in Hamburg. As a new AKQUINET subsidiary named akquinet port consulting GmbH we stay based in our head office in Bremerhaven and get two offices in Bremen and Hamburg. The idea is to get more manpower, to bundle know-how as well as to expand our services for ports and container terminals worldwide. Managing directors of the akquinet port consulting GmbH are Norbert Klettner and Prof. Dr.-Ing. Holger Schuett.

Of course our CHESSCON software stays the main tool to secure and optimise the operation of container terminals and ports worldwide in a wide range of applications

- optimising operational processes
- test-beds and training environments for TOS
- planning green and brownfield terminals
- evaluation of handling strategies
- visualising yard inventory in 3D
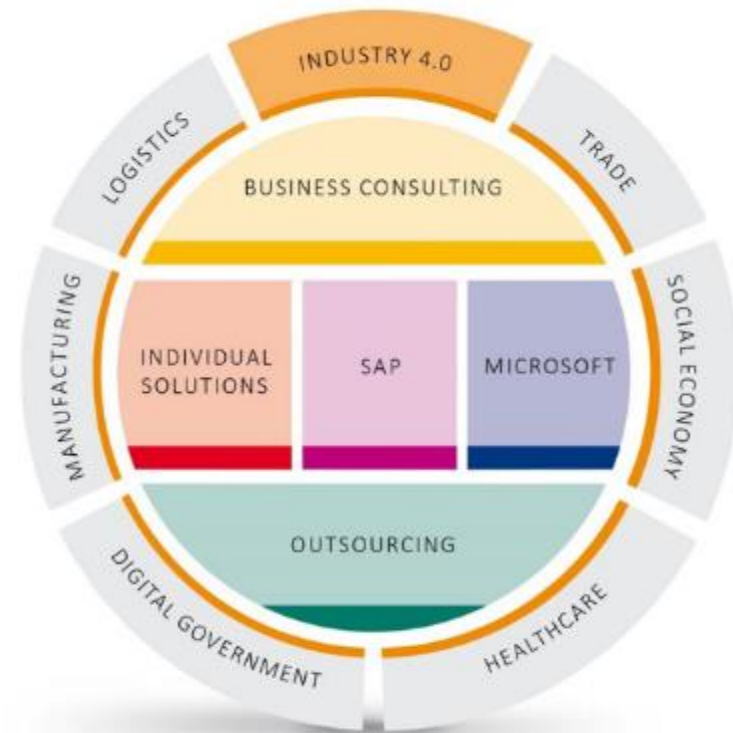- supporting shift planning
- and many more!

Figure 2 – Areas of competence akquinet AG

The new role of the planner

Digitalisation yard

Digitalisation – a new technology???

- Digitalisation is an ongoing process!

- Let's have a look at the yard planning

Wenn I started in CT logistics, container information was „stored" in cards in a board at the wall

Digitalisation – a new technology???

- Digitalisation is an ongoing process!

- Let's have a look at the yard planning

… and first data was typed into computers

Source: Rama & Musée Bolo, modified by NeonZero - Apple II-IMG 7067.jpg

© ISL 2018

Digitalisation – a new technology???

- Digitalisation is an ongoing process!

- Let's have a look at the yard planning

With the years more and more data is available

Source: https://pixabay.com/de/bin%C3%A4r-bin%C3%A4rsystem-daten-datenmenge-2728117/

Digitalisation – a new technology???

- Digitalisation is an ongoing process!

- Let's have a look at the yard planning

And is displayed in the TOS (examples TSB, Navis, RBS)

But what about this view?
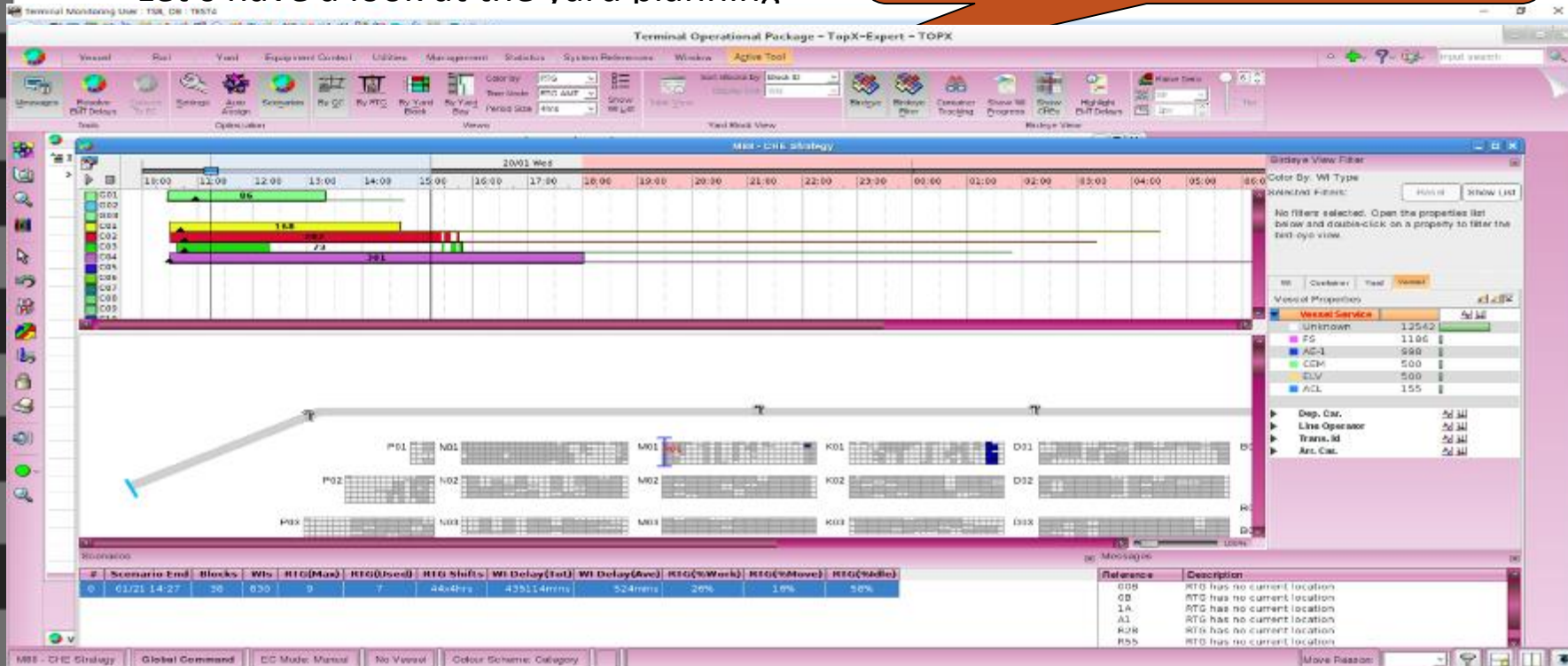
Galileo

Yard View – Visualize your Yard

Where are the boxes for the next 3l vessel?

… and how many restowers will occur?

Are the hazardous stacked properly?

How utilised are my stacks / areas?

Examples
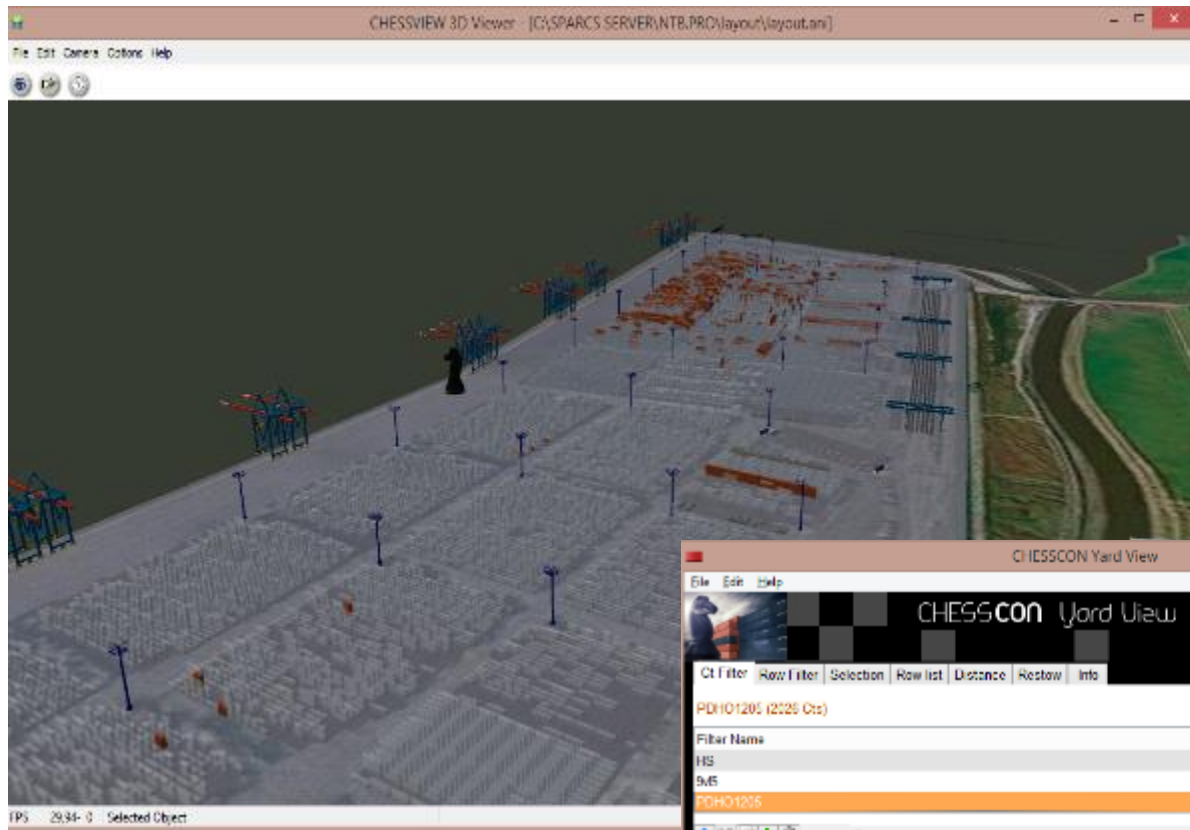
Straddle carrier Terminal

- Prestow for a "3I" class vessel
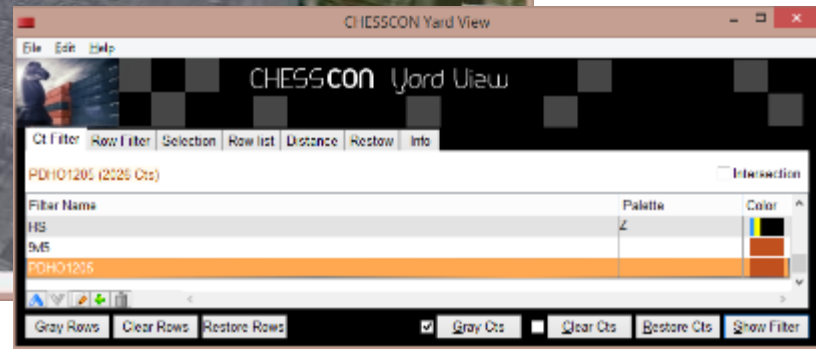
Examples
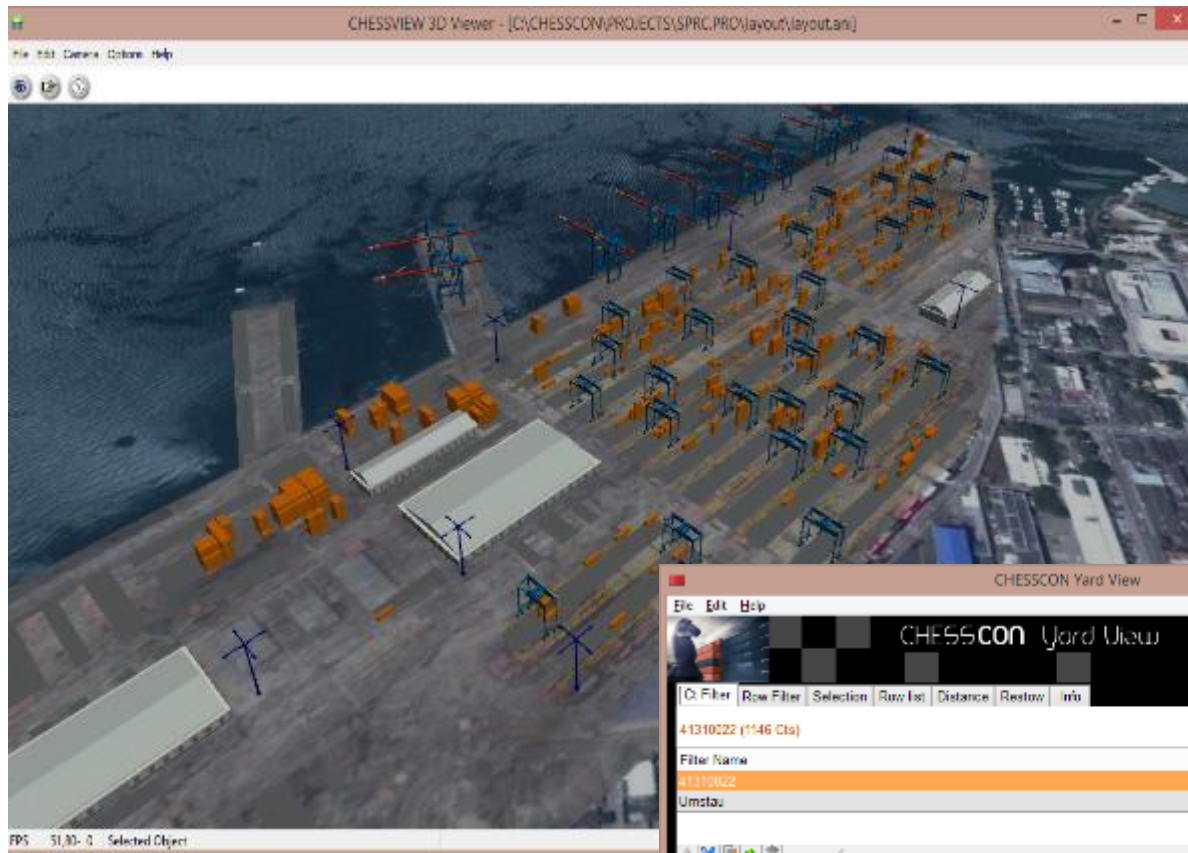
RTG Terminal

- Prestow for the next vessel

A picture shows more than 1000 words

→ … and is more intuitive than 100 tables

The new role of the planner

Complex Control

IT architecture

Layer	Components
ERP (Administration)	Accounting · Statement
TOS (Planning)	Berth Planning · Crane Split Planning · Yard Planning · Transport Planning · Stow Planning · ...
TLS (Real Time Scheduling)	Coordination
FMS (Execution)	STS Manager · AStC Manager · ASC Manager · LMTT Manager · OHBC Manager
EC,SPS (Equipment)	
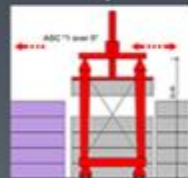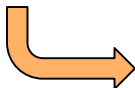
The new role of the planner

Role of the planner

Before Digitali-sation

First software solutions

2-level decisions

Full process automation ?
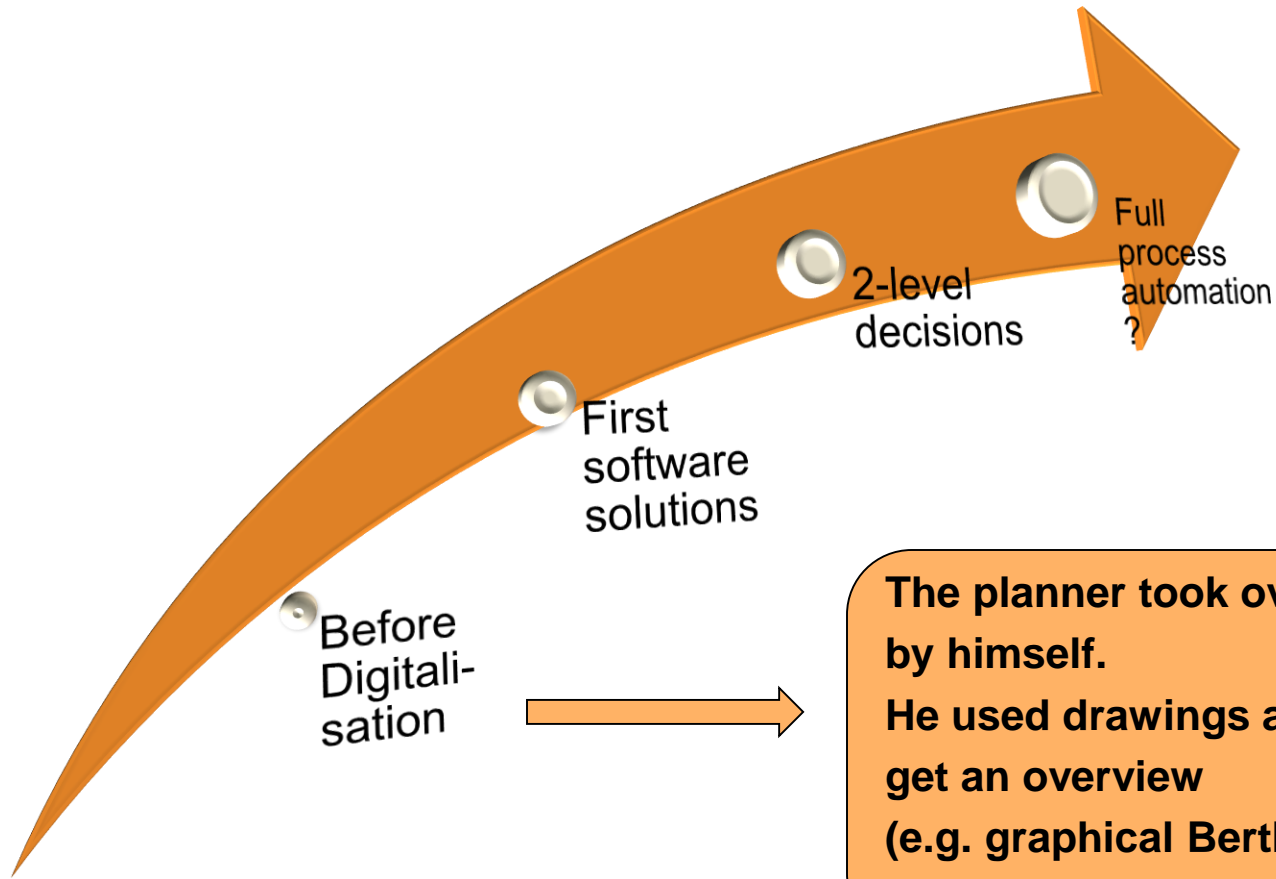
The planner took over all decisions by himself.
He used drawings and tables to get an overview
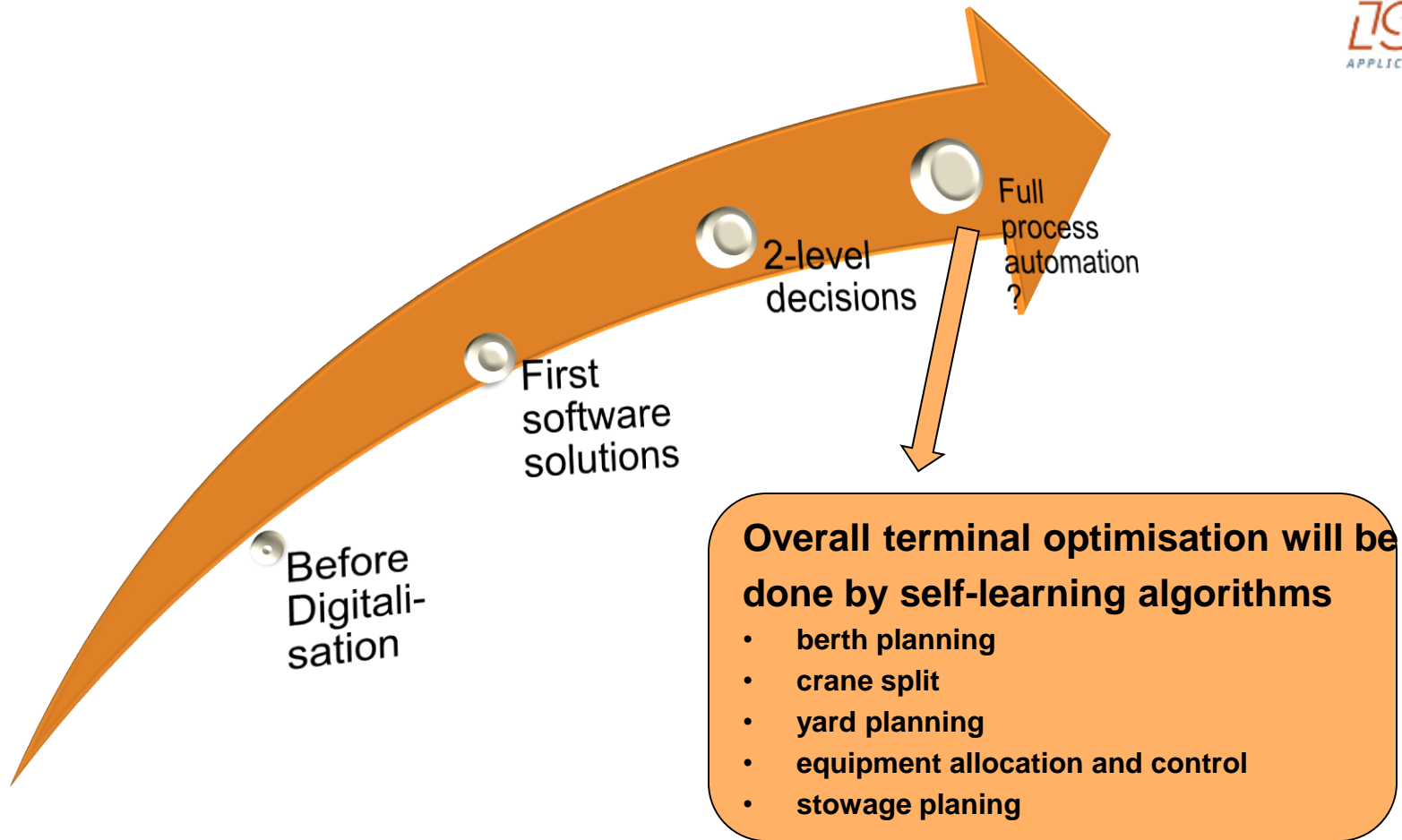(e.g. graphical Berth-plan – to be Revised 5-times a day)

Full process automation ?

2-level decisions

First software solutions

Before Digitali-sation
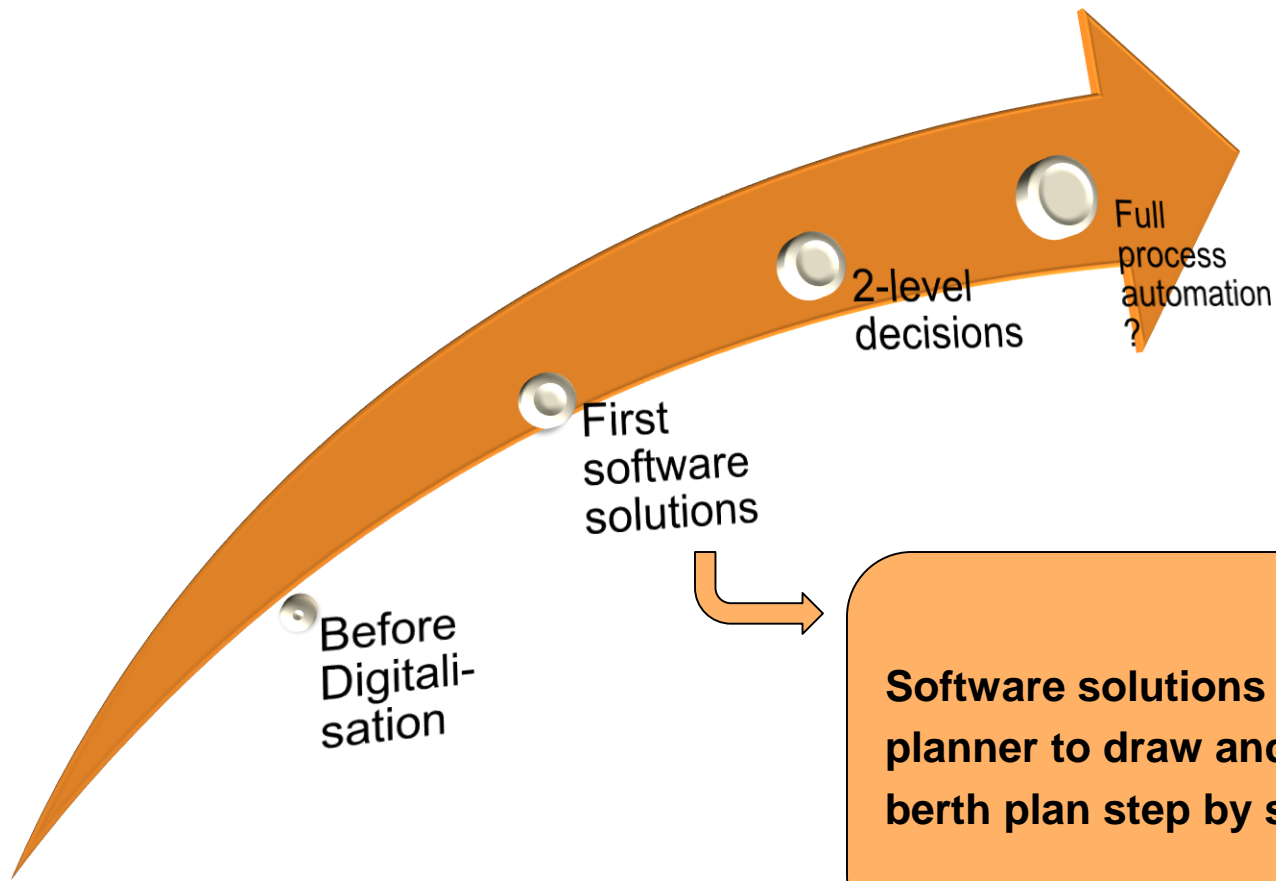
Software solutions supported the planner to draw and change the berth plan step by step.

Full process automation?

2-level decisions

First software solutions

Before Digitali-sation
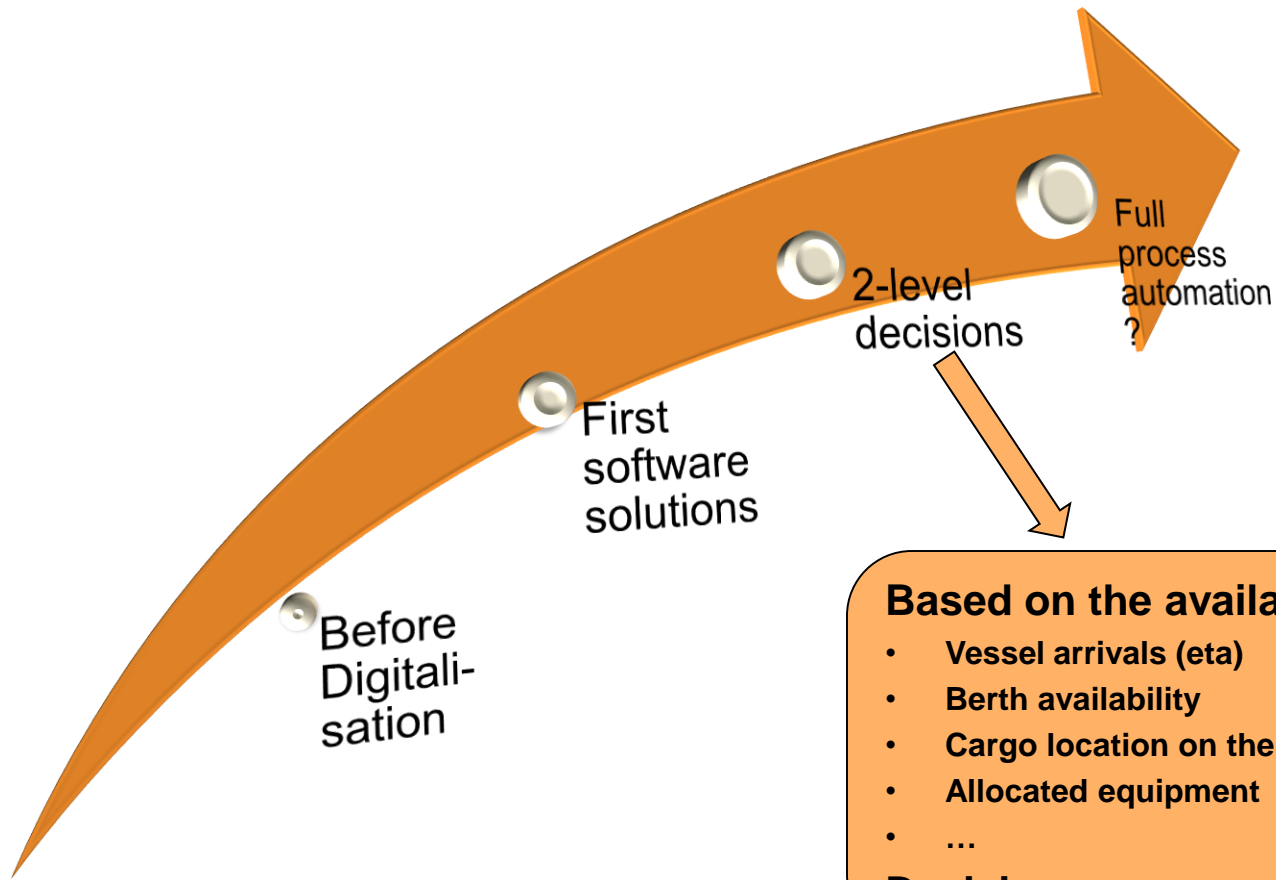
Based on the available data

- **Vessel arrivals (eta)**
- **Berth availability**
- **Cargo location on the yard**
- **Allocated equipment**
- **…**

Decisions are proposed automatically

Before
Digitali-
sation

First
software
solutions

2-level
decisions

Full
process
automation
?

Overall terminal optimisation will be done by self-learning algorithms

- **berth planning**
- **crane split**
- **yard planning**
- **equipment allocation and control**
- **stowage planing**

Vessel simulator

- train your control staff (as shipping lines do)

Crane simulator

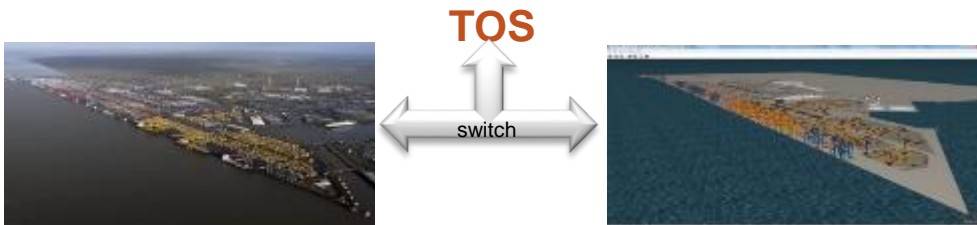- train your control terminal staff (as you do with crane drivers, e.g. Liebherr:)

Learning from the huge ones
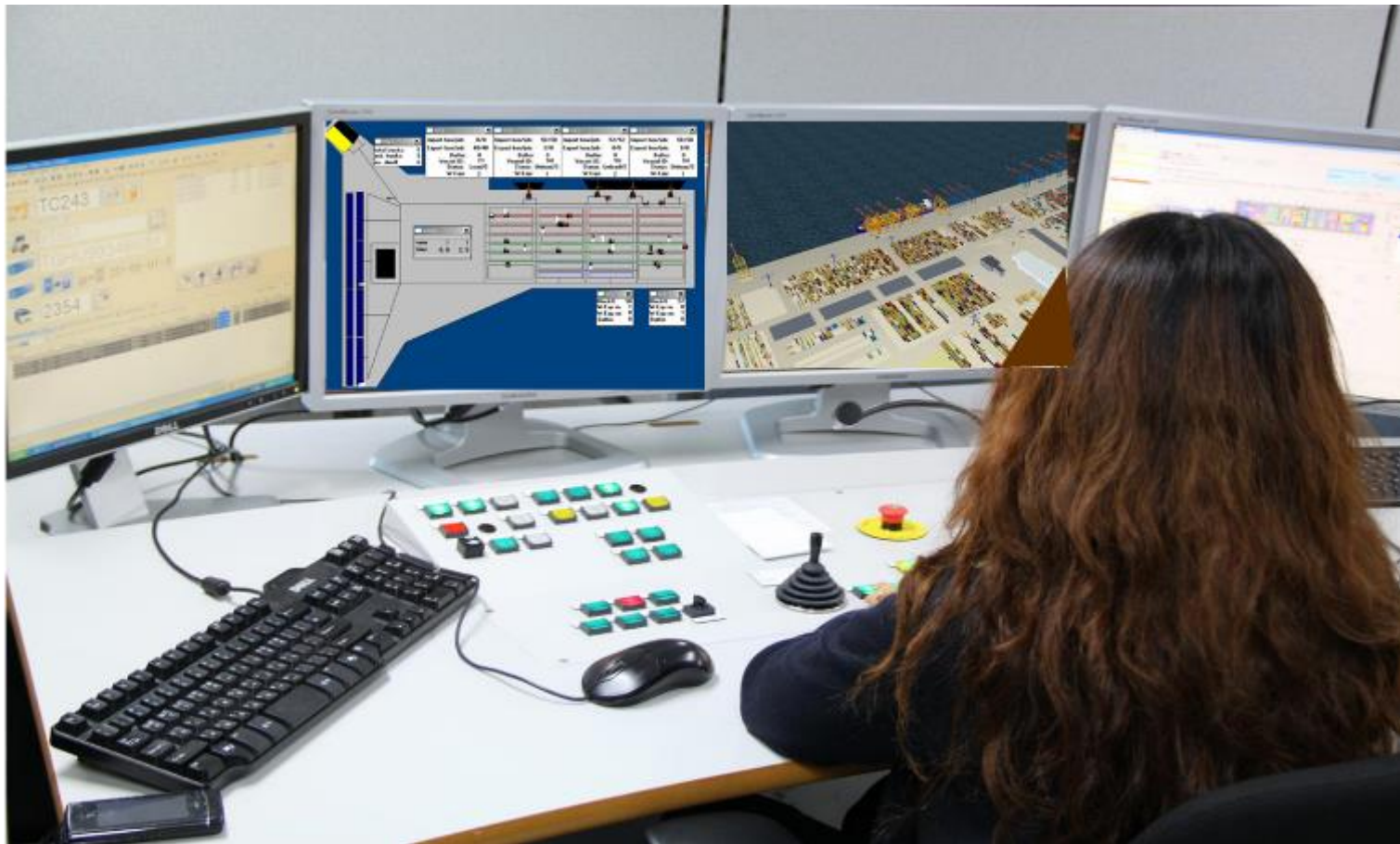
The main mission of CHESS**CON** VIRTUAL TERMINAL

what you can do with CHESS**CON**

Emulation:

- use your Terminal Operation System (TOS)
- use your software interfaces
- but use a **Virtual Container Terminal**

TOS

switch

Benefits:
- no impact on the real environment
- training under laboratory conditions
- self-learning available
- fine-tune the TOS parameters
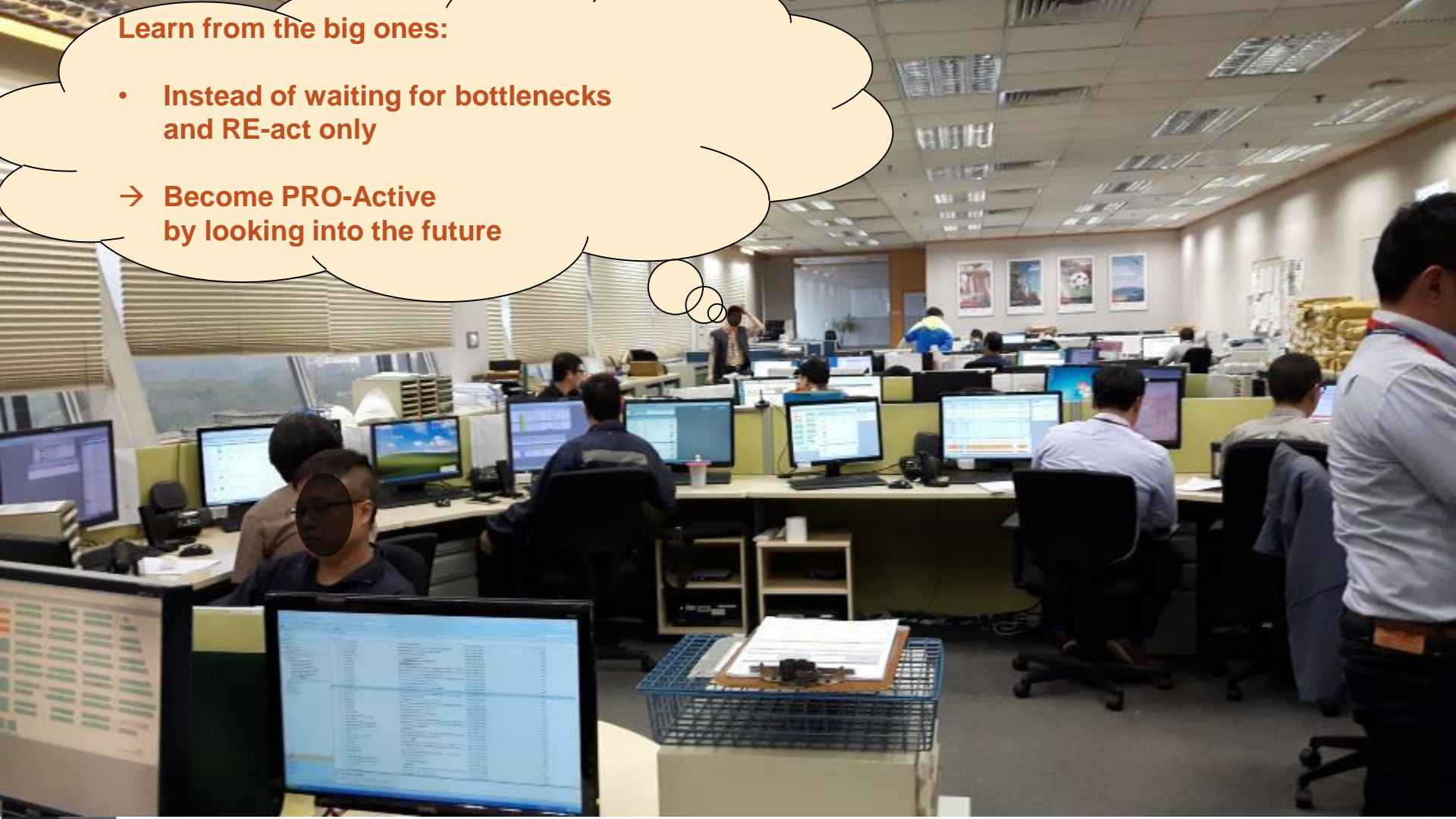- re-run bad shifts

Learn from the big Ones

Conclusions

Learn from the big ones:

- **Instead of waiting for bottlenecks and RE-act only**

→ **Become PRO-Active by looking into the future**

Conclusion

- **Visualise your actual container inventory**

- **Train your staff with Virtual Terminals**

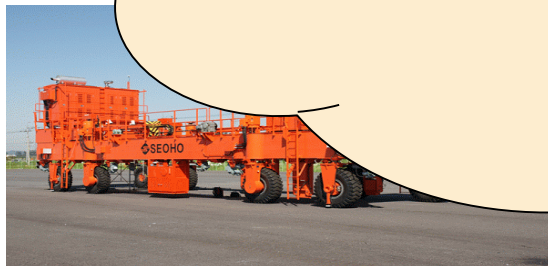- **Forecast the future operation**
  → Become Pro-Active

How to improve terminal's efficiency

The first ALV of KMI

Instead of investing in more and more man and machines:

Get more out of your existing resources

MAKE YOUR RIGHT MOVES!

WWW.CHESSCON.COM

CHESSCON
VIRTUAL TERMINAL

I'm looking forward to the following discussion!

Holger Schuett, Prof. Dr.-Ing., CEO

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