

How to get more out of your existing resources

—

Learn from the big ones

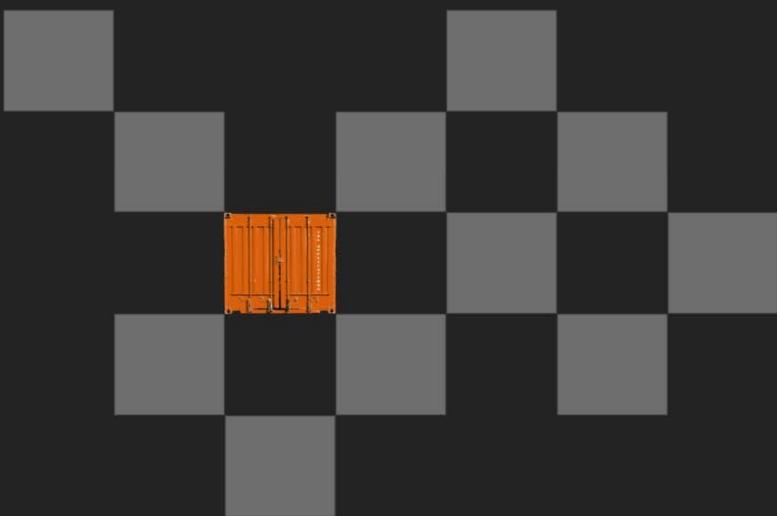


Jürgen Schuett

LGS Applications GmbH

Philippine Ports and Shipping 2017

Manila, February 23th – 24th 2017



RWI/ISL Container Throughput Index

2010=100

ISL
APPLICATIONS



During December 2016, The Container Throughput Index reached a new all-time-high of 124.3 points. The previous record was observed in Feb. 2015 (122.8 points). The fourth consecutive increase of the index indicates that the world trade has gained momentum noticeably at the end of 2016.

RWI/ISL Container Throughput index

- 81 ports worldwide
- ~ 60 % of worlds throughput
- available 3 weeks in new month www.isl.org news

More than 25 Years Simulation Experience

1989 1991 1993 1995 1998 2000 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2013 2015 2017



ISL

Products rebranding:
CAPS
SCUSY
ViTO



ISL
APPLICATIONS

CHESSCON

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

TecPlata ICTSI, Buenos Aires, Argentina

Terminal Investment Ltd, Netherlands

TotalSoftBank, Korea

TPT, South Africa

Warsteiner Brewery, Germany

How to improve terminal's efficiency



TOS
Control system

Equipment



The first ALV of KMI

Terminal
efficiency



Process automation

Terminal staff



Terminal's productivity is driven by

- The equipment
- The control system (TOS)
- The processes

Terminal Automation (processes as well as equipment) prepares for optimised operation, but more than ever very skilled control staff is required.

The last sentence within the Singapore Maritime Gallery (opened 09/2012):

„It is man making the difference“

Learning from the huge ones



Vessel simulator

- ☐ train your control staff (as shipping lines do)

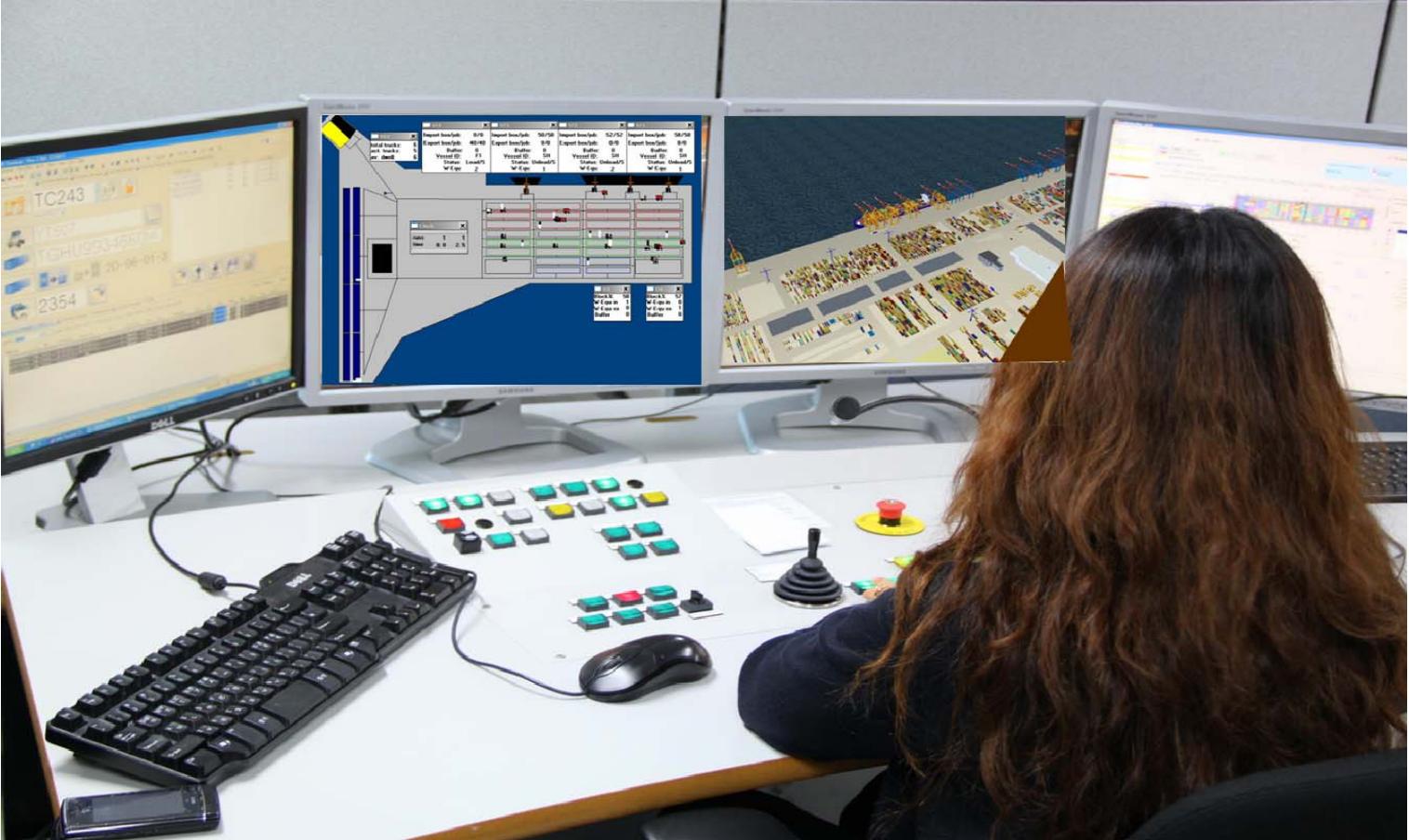


Crane simulator

- train your control terminal staff (as you do with crane drivers)



Learning from the huge ones

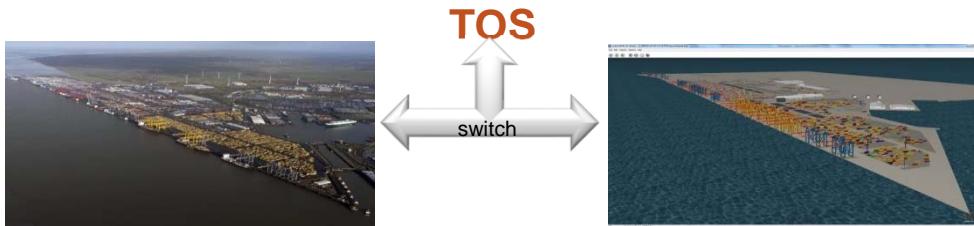


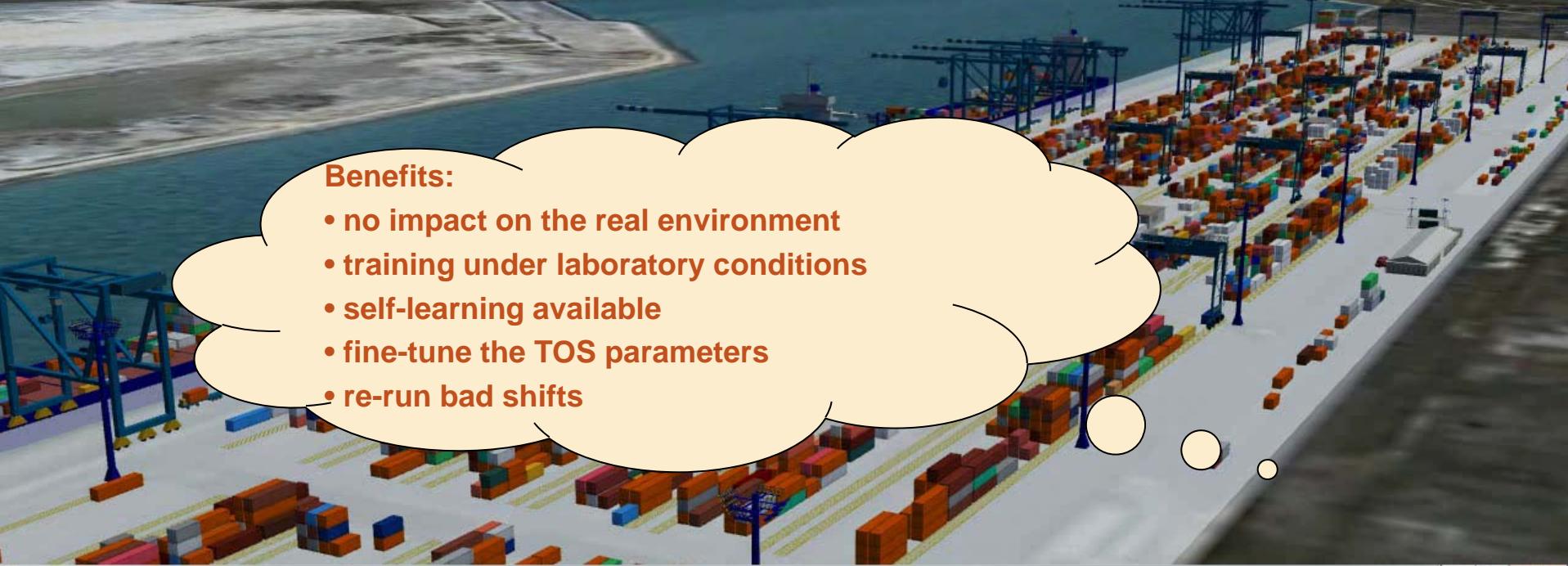
The main mission of CHESSCON VIRTUAL TERMINAL

what you can do with CHESSCON

Emulation:

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





Benefits:

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

SPARCS 3.7.24.1 - Kassl

File Edit Vessel Yard Container Planning Control Windows Help

0  AP

navis

Equipment Pool QC06: 6

Actions Display

Handler id* Icon Only* Screen*

Handler id*	Icon Only*	Screen*	Dispatch State*	Move D
121			Carrying a container; Waiting at Row	1321+
122			Go to crane; Waiting at Ship	1321+
124			Go to crane; Waiting at Ship	1321+
125			Go to crane; Waiting at Ship	1321+
C06				

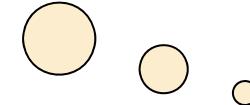
Point of Work Q06

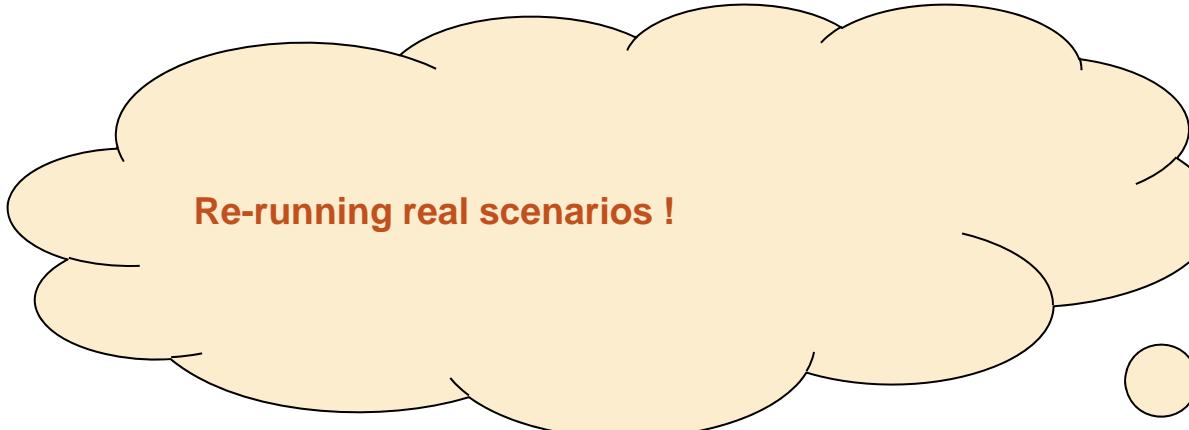
Actions Display

Sequence*	Container No.*	Type*	Current Position*	Handler id*	Dispatch State*
1	GATU8091789	45G1	*TR-121*	121/R33	In Progress
2	GATU8588121	45G0	CANX020*0361490	124	Go to Crane
3	FSCU6472343	45G1	CANX020*0361290	125	Go to Crane
4	HLXU6350672	45G1	CANX020*0361090	122	Go to Crane
5	HLXU6273703	45G1	CANX020*0361688		(not evaluated)
6	CRSU6439396	45G1	CANX020*0361488		(not evaluated)

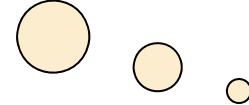
This is state of the art (at least at Greenfields)

❑ **But what are the next steps?**





Re-running real scenarios !



CHESSCON Shift Preview

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SPARCS 3.7.27.3 - chesscon

EC Console

Point of Work B09

Actions Display

Pool Pow Name Dispatch Mode PushRate Max PMs Relative Priority Status

MOB1	MOB1	STOP	40	20	low high	no current shift
SK30	SK30	STOP	40	8	low high	no current shift
N01	B01	STOP	40	8	low high	no current shift
N02	B02	STOP	40	8	low high	no current shift
N03	B03	STOP	40	8	low high	no current shift
N04	B04	STOP	40	8	low high	no current shift
N05	B05	STOP	40	8	low high	no current shift
N06	B06	STOP	40	8	low high	no current shift
N07	B07	STOP	40	8	low high	no current shift
N08	B08	STOP	40	8	low high	no current shift
N09	B09	Manual	40	8	low high	0,0 30,0
N10	B10	Manual	40	8	low high	0,0 30,0
N11	B11	STOP	40	8	low high	no current shift

Equipment Pool N09: 5

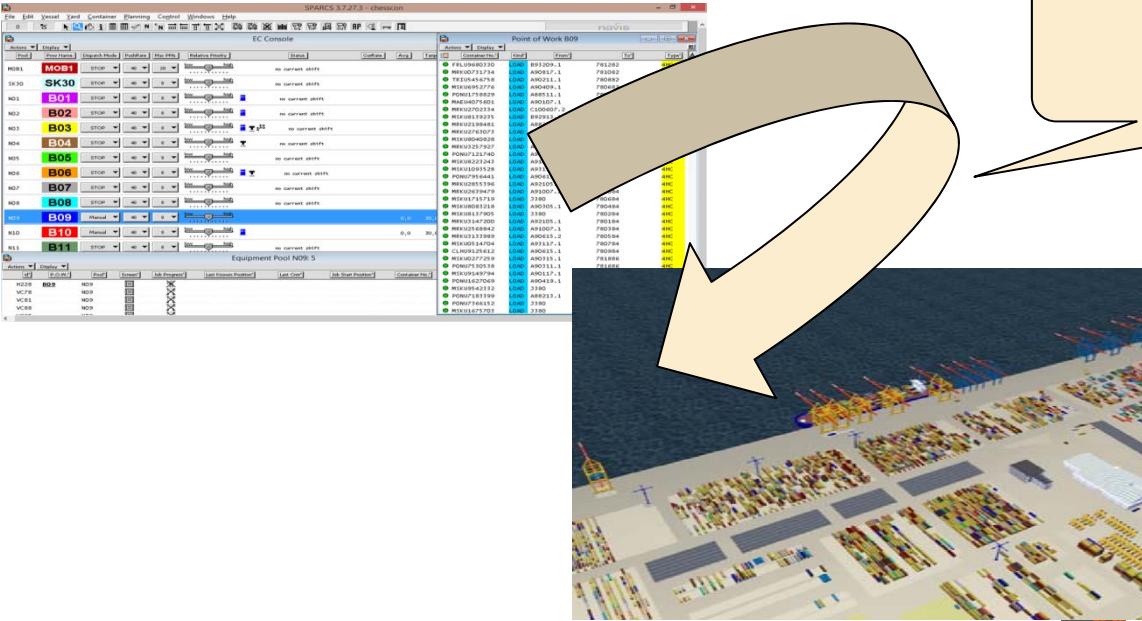
Actions Display

ID*	P.O.W.*	Pool*	Screen*	Job Progress*	Last Known Position*	Last Cntr*	Job Start Position*	Container No.*
H228	B09	N09						
VC78		N09						
VC81		N09						
VC88		N09						

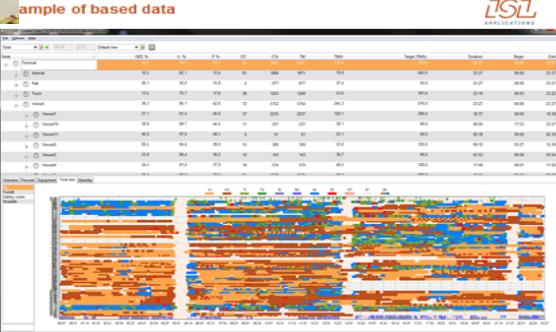
1 step:
Backup the real shift scenario

MRKU3257927	LOAD	A93117.3	782284	4HC
PONU7121740	LOAD	A92105.3	782084	4HC
MSKU8223243	LOAD	A91007.3	781884	4HC
MSKU1093528	LOAD	A93117.2	781684	4HC
PONU7956441	LOAD	A90615.3	781484	4HC
MRKU2855396	LOAD	A92105.2	781284	4HC
MRKU2639479	LOAD	A91007.2	781084	4HC
MSKU1715719	LOAD	J380	780684	4HC
MSKU0083218	LOAD	A90305.1	780484	4HC
MSKU1837905	LOAD	J380	780284	4HC
MRKU3147200	LOAD	A92105.1	780184	4HC
MRKU2568842	LOAD	A91007.1	780384	4HC
MRKU3133969	LOAD	A90615.2	780584	4HC
MSKU0514704	LOAD	A93117.1	780784	4HC
CLHU9125612	LOAD	A90615.1	780984	4HC
MSKU277259	LOAD	A90315.1	781886	4HC
PONU7530538	LOAD	A90311.1	781686	4HC
MSKU9149794	LOAD	A90117.1	781486	4HC
PONU127069	LOAD	A90419.1	781286	4HC
MSKU9542332	LOAD	J380	781086	4HC
PONU7183399	LOAD	A88213.1	780886	4HC
PONU7366152	LOAD	J380	780686	4HC
MSKU1675703	LOAD	J380	780486	4HC

CHESSCON Shift Preview



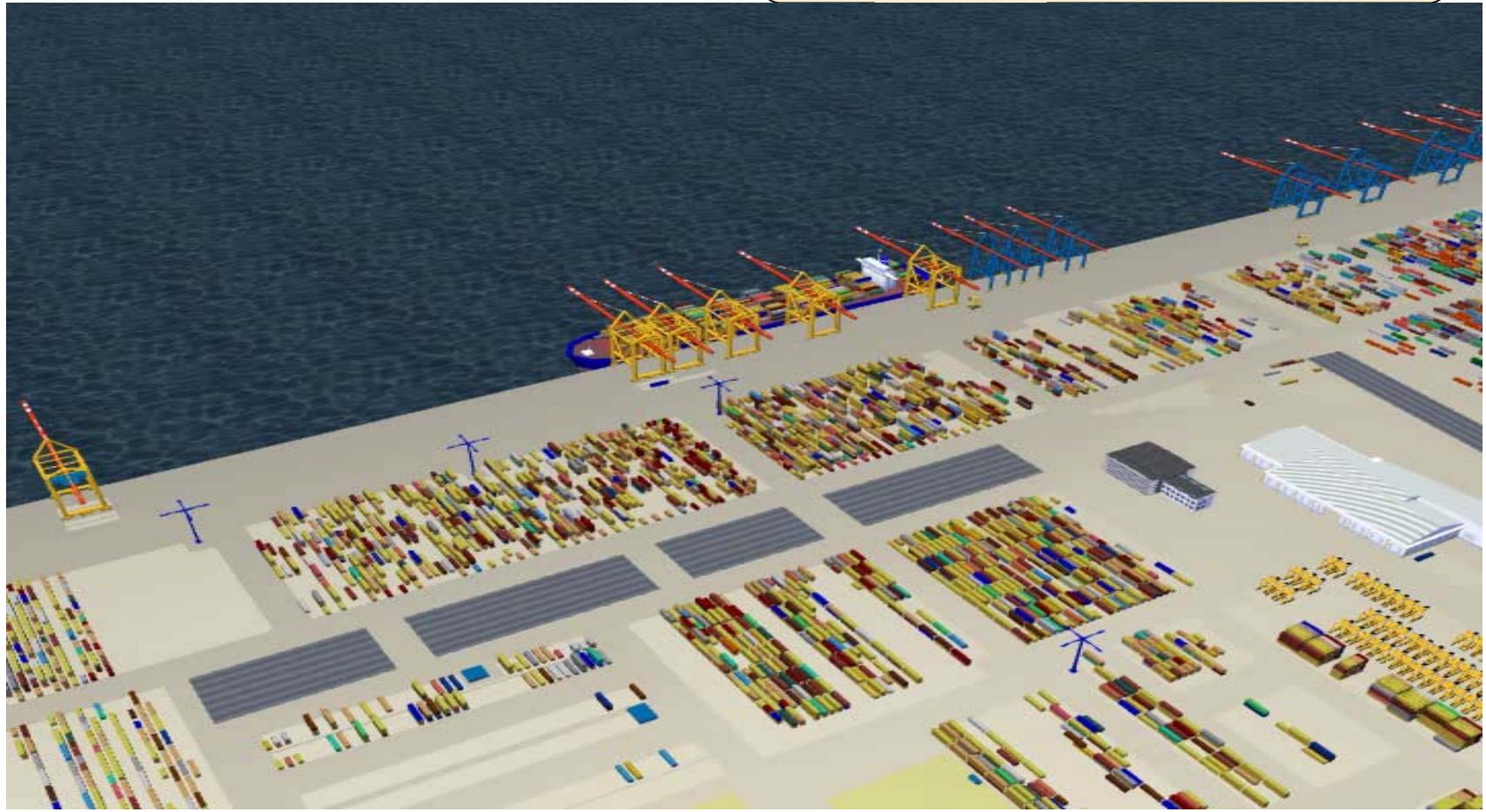
17G17
2nd step:
Import planning state
automatically



3rd step:

fast simulation of the shift

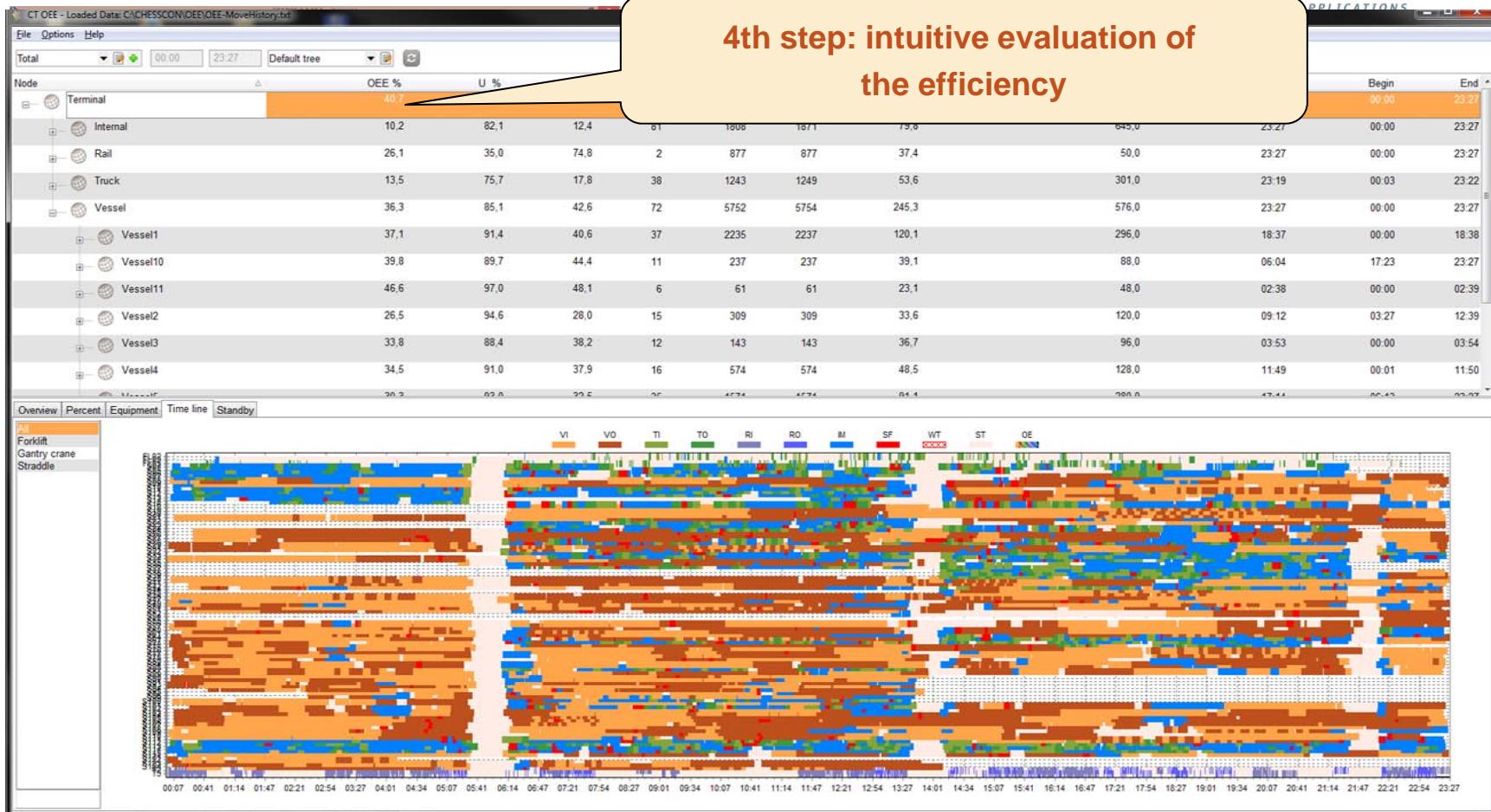
CHESSCON Shift Preview



CHESSCON Shift Preview

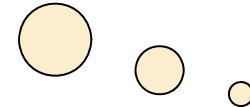
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4th step: intuitive evaluation of
the efficiency



Case Study (Just started)

 **Remote Operated RTG**





Test site with 15 RTG available (manned)

- ② How many drivers will be needed by an
Remote Operation of the RTG

Case Study - Remote Operated RTG

Base Scenario: Re-run the real shift

- 13 RTG have been in operation during the shift □ at least 13 RTG drivers

1. Scenario: Remote operated, semi-automated RTG

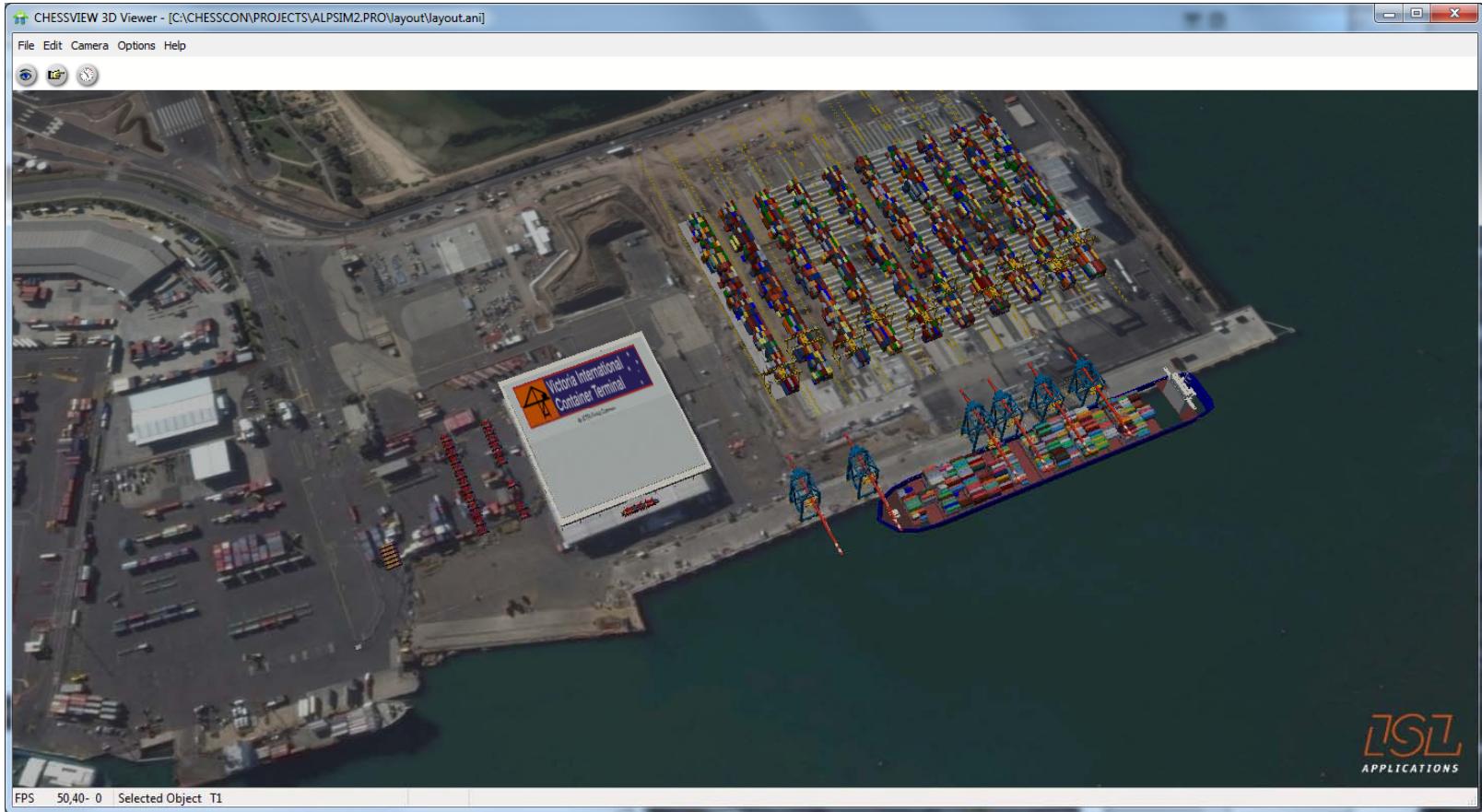
- Automated operation within the block
- Remote operated handshake for the truck operation
- Delay time for activating the Remote Operator some 10-20 sec. per move
- Max. 6 remote operators are required (max 6 requests in parallel) □ 6 RTG drivers

More scenarios to come:

- use standard RTG instead of semi-automated ones
- High workload RTG (discharge/load operation) may get dedicated drivers (no remote control)
- ...

□ Results will be published soon

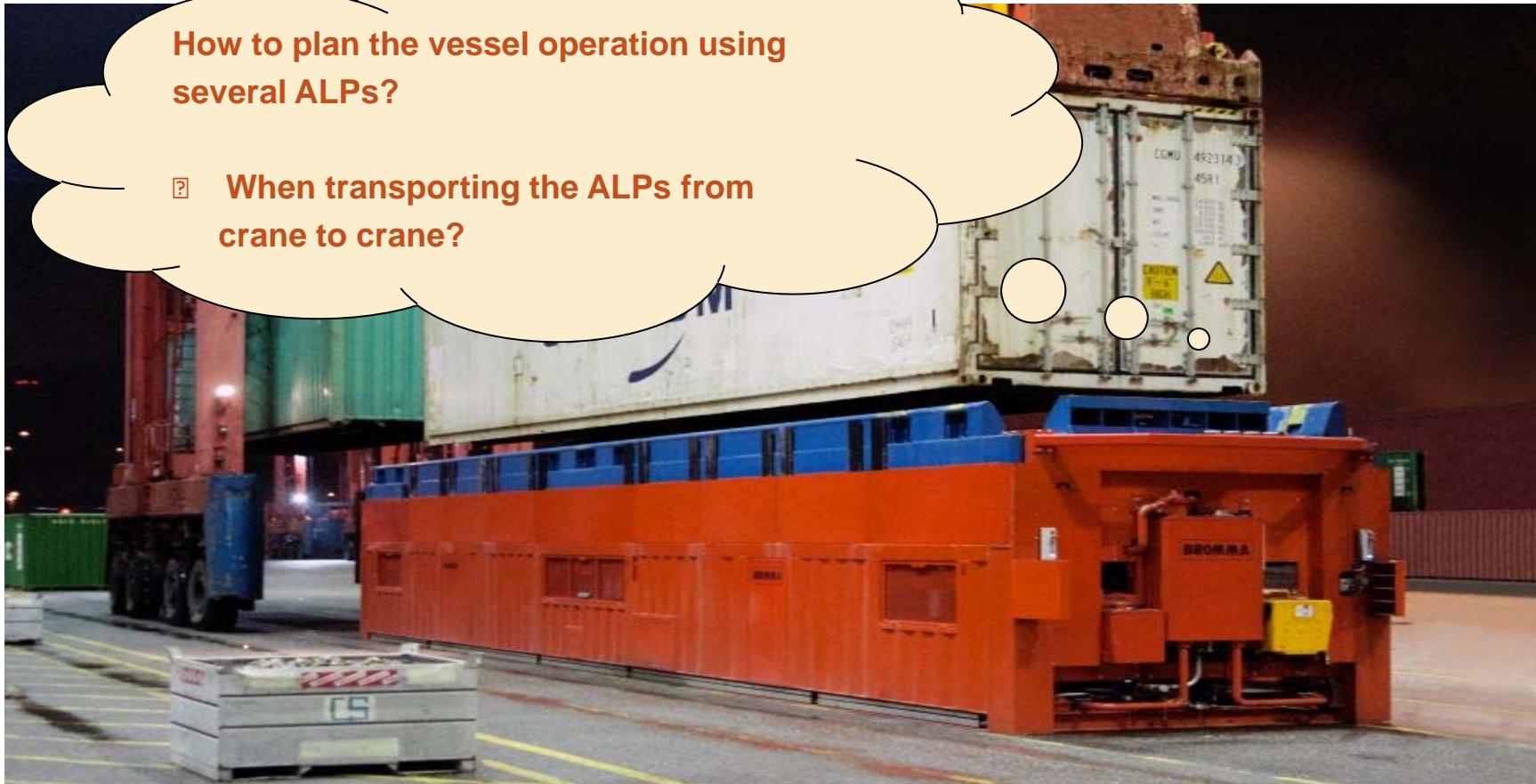
Case Study - ALP at Melbourne terminal



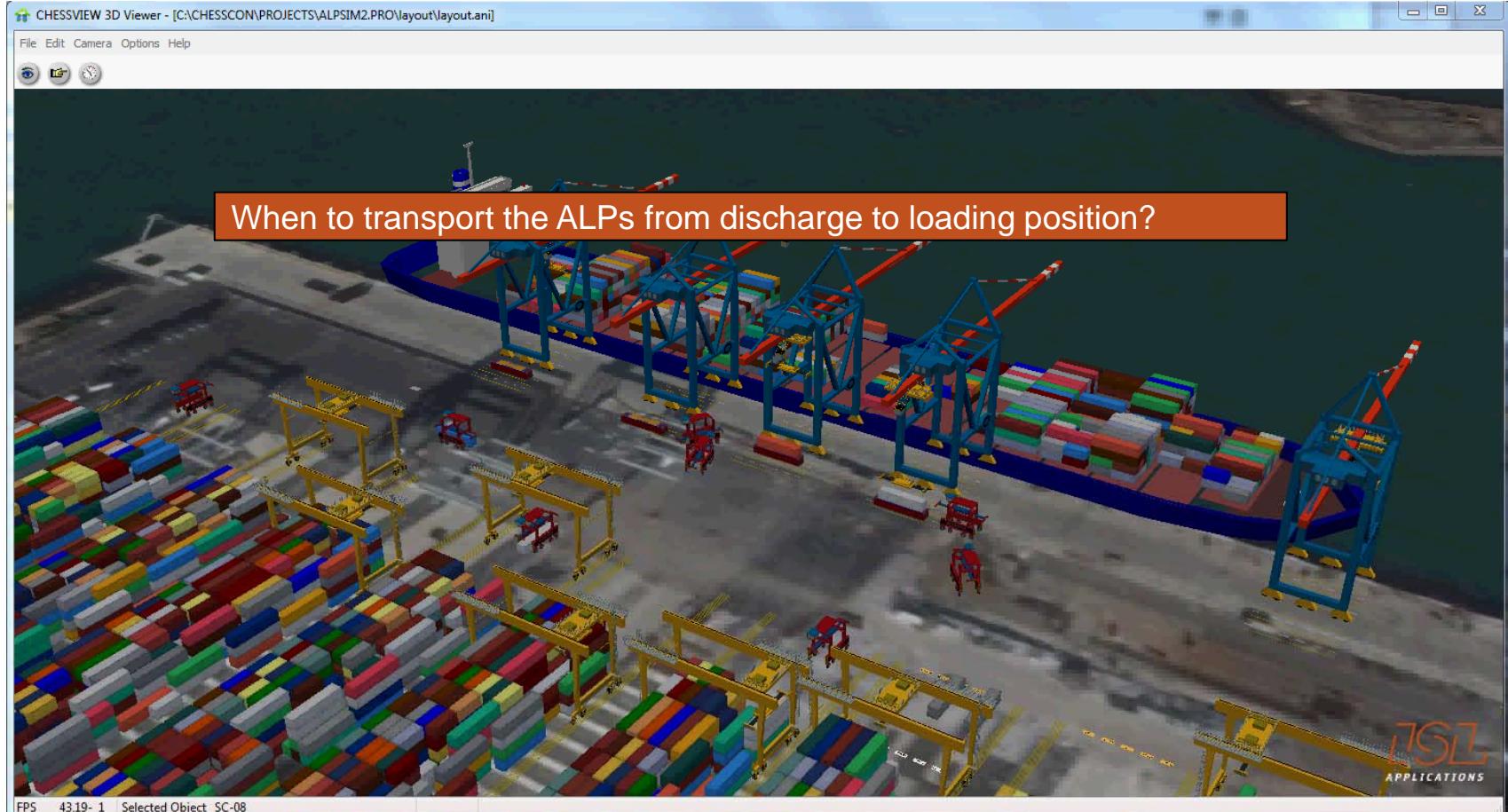
Bromma's ALP

How to plan the vessel operation using several ALPs?

- When transporting the ALPs from crane to crane?



ALP emulator



AOS calculating the utilisations

 Detail lashing platform

Logged in as user. 

ALP 1

VESSEL NAME: ILS009

MAGAZIN 1/2: 81

	1	81	11	3	5	11	81	7
	■ 1 ■ 2	■ 1 ■ 2		■ 3/5 ■ 4/6	■ 3/5 ■ 4/6		■ 7 ■ 8	■ 1 ■ 8
	2	81	11	4	6	11	81	8
		TYPE 3			TYPE 2			TYPE 3

 DISCHARGING_DECK

 Activate Transport Mode



TWIST LOCKS PER MAGAZINE

1	RAIL	TWL-TYPE	VESSEL	AMOUNT
1		3		10
2		3		10
3		2		10
4		3		10
5		3		10
6		2		1
7		3		10
8		3		10
9		3		10
10		3		10
11		3		1
12		3		0
13		3		0
14		3		0

ERROR TABLE

Severity	Error Description	Manipulator	State

 ALP 3

 DISCHARGING_HOLD

ILS009

/2	3/4	5/6	7/8
14	0	0	94
3	3	3	3



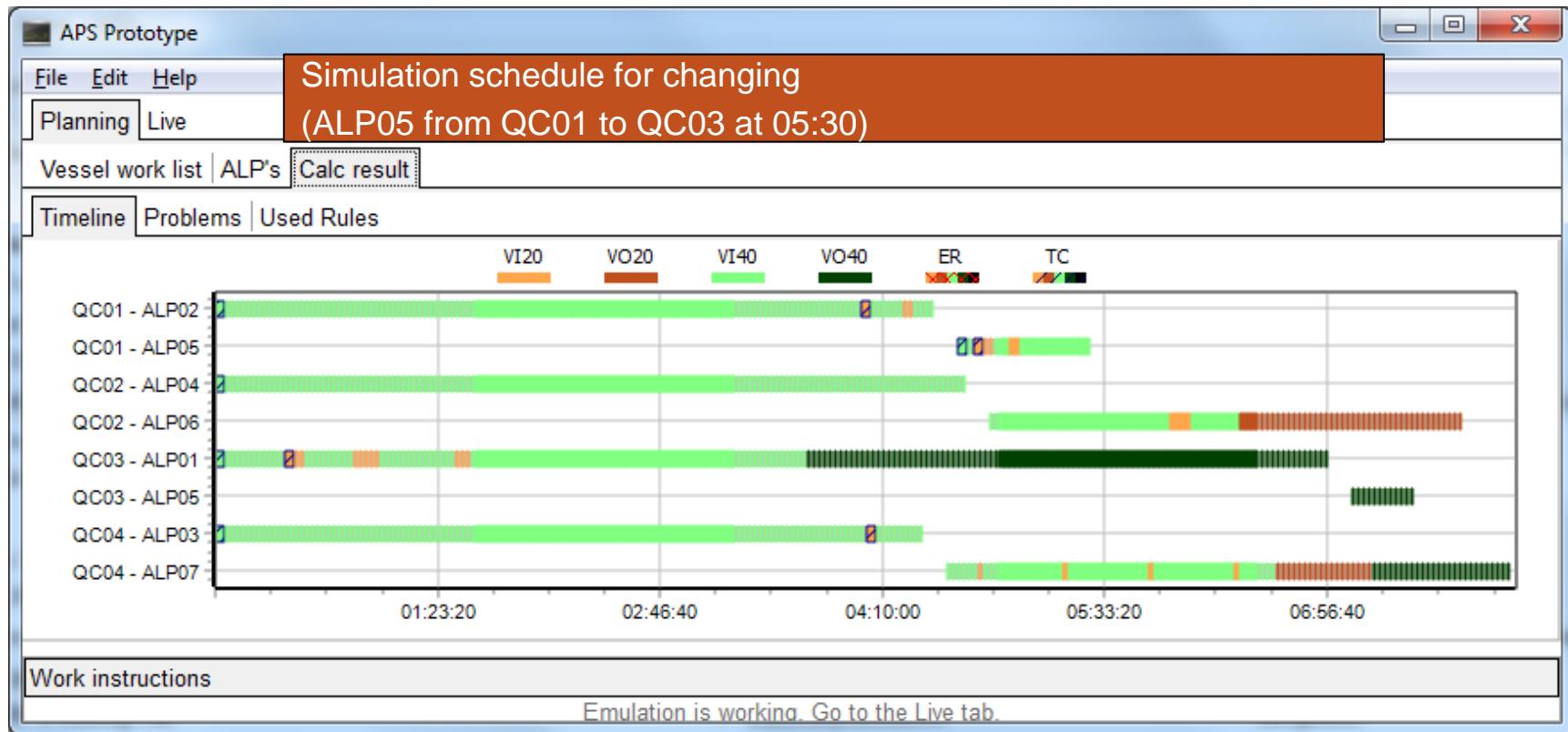
ALP 6

 OFFLINE

/2	3/4	5/6	7/8
1	-1	-1	-1
1	-1	-1	-1



AOS forecasting the operation





Cites from NTB – North Sea Terminal Bremerhaven



a joint venture of APM Terminals and the Eurogate group

- CHESSCON Shift Preview was developed out of our demands for a fast simulation of the current state of shift planning.
- Together we (NTB) and ISL Applications GmbH defined a module, which is based on operational as well as IT expertise.
- The result is easy to use and supports short term optimisation of the day-to-day shift planning.

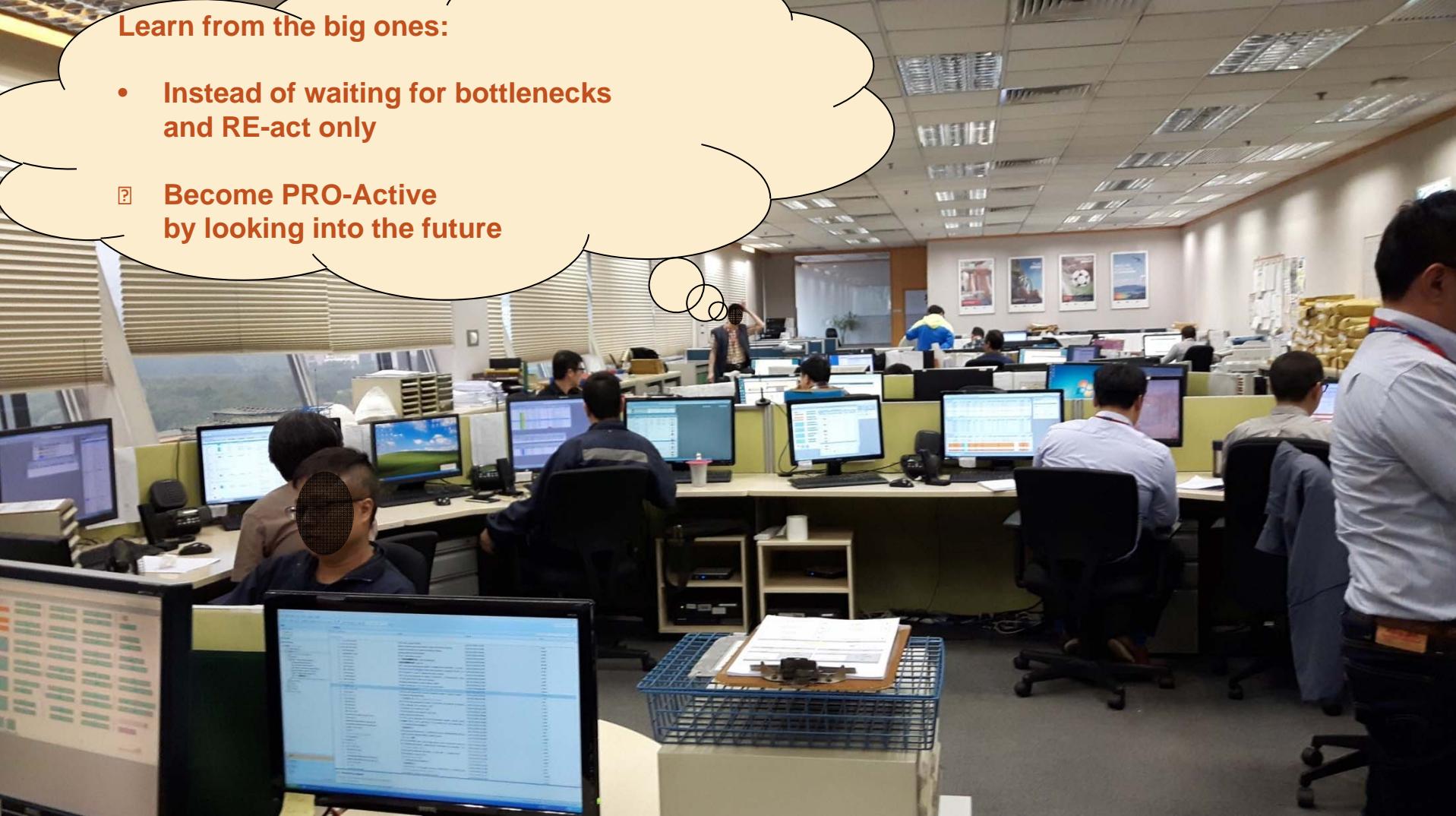
Why Shift Preview ?

■ Terminals,
which today are not in the position to analyse their operation predictively,
are living yesterday

Marc Dieterich, Operations Manager at NTB

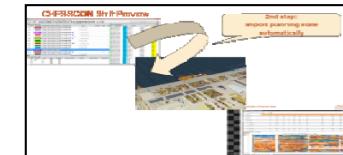
Learn from the big ones:

- Instead of waiting for bottlenecks and RE-act only
- ☒ Become PRO-Active by looking into the future



Conclusion

- ② Train your staff with Virtual Terminals
- ② Fine-tune your Terminal Operating System
- ② Look into the future operation

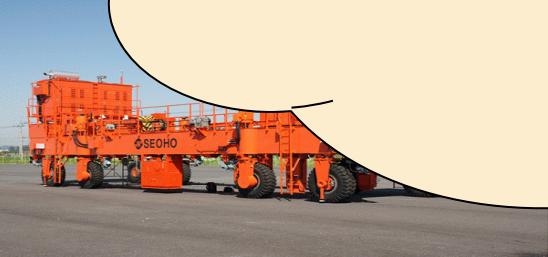


How to improve terminal's efficiency

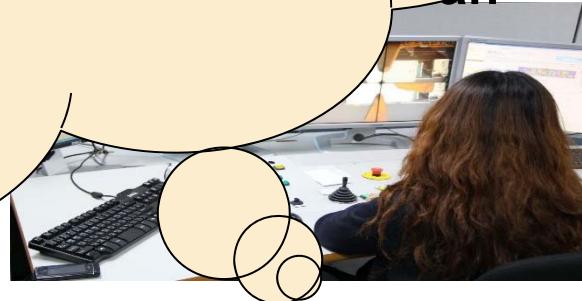


Instead of investing in more and more man and machines:

Get more out of your existing resources



The first ALV of KMI





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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