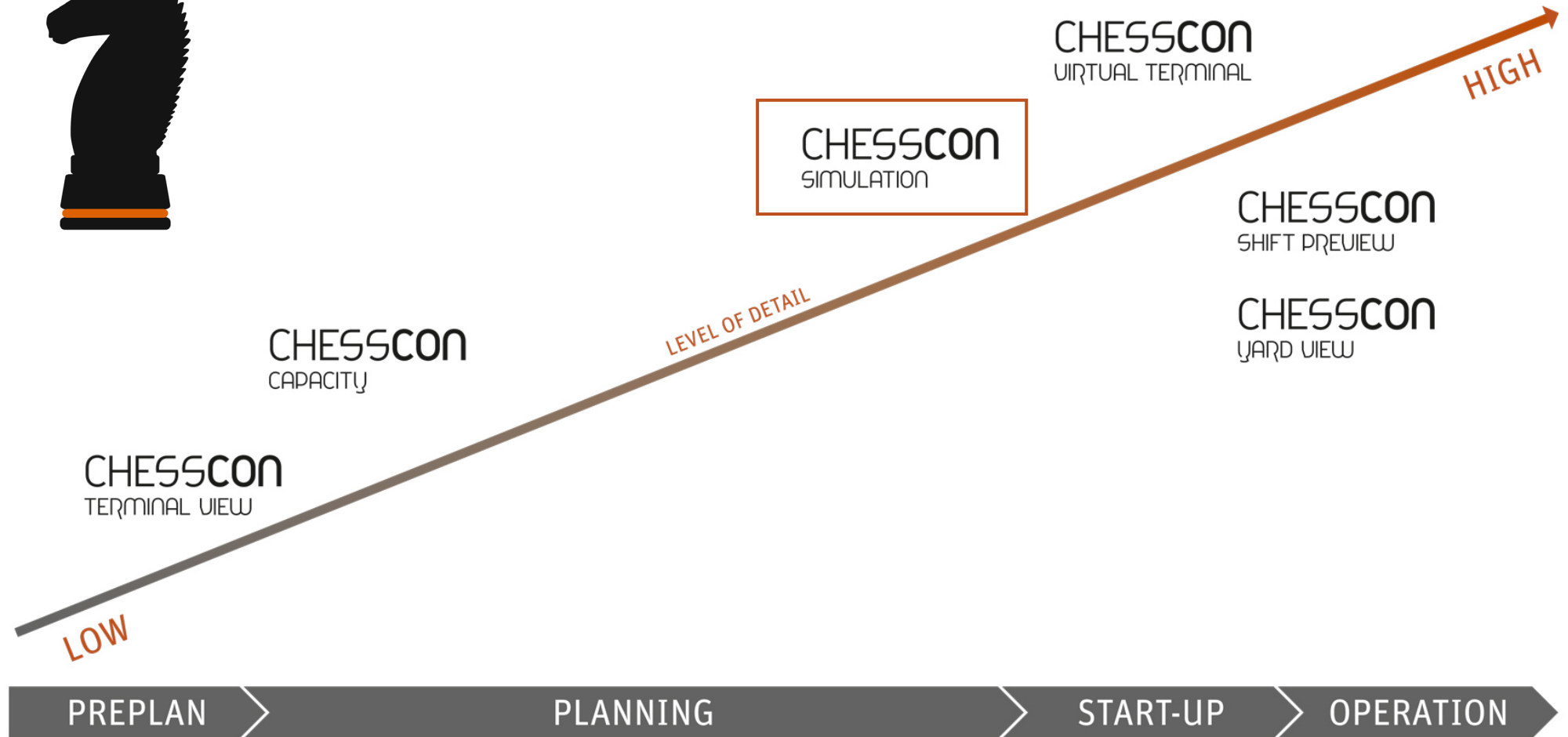




CHESSCON SIMULATION

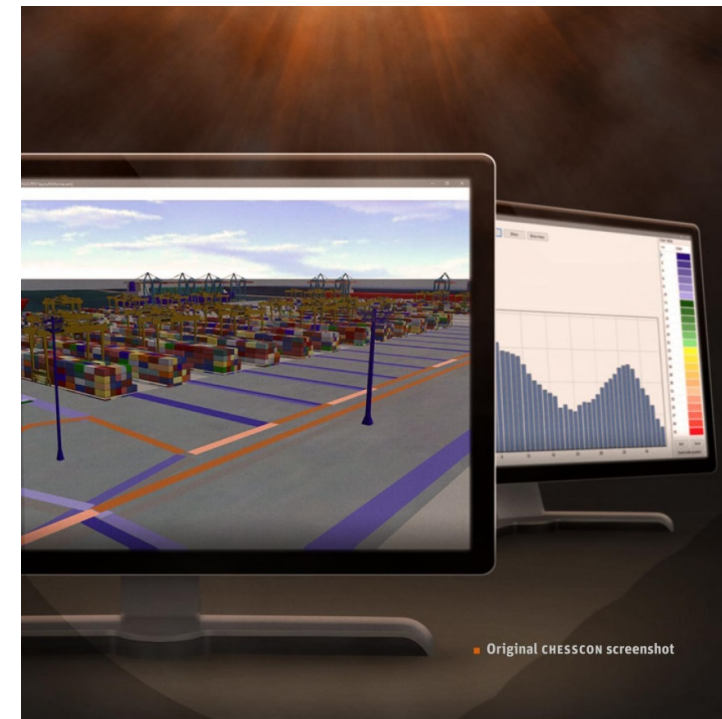
OPTIMIZATION SOFTWARE FOR CONTAINER TERMINALS



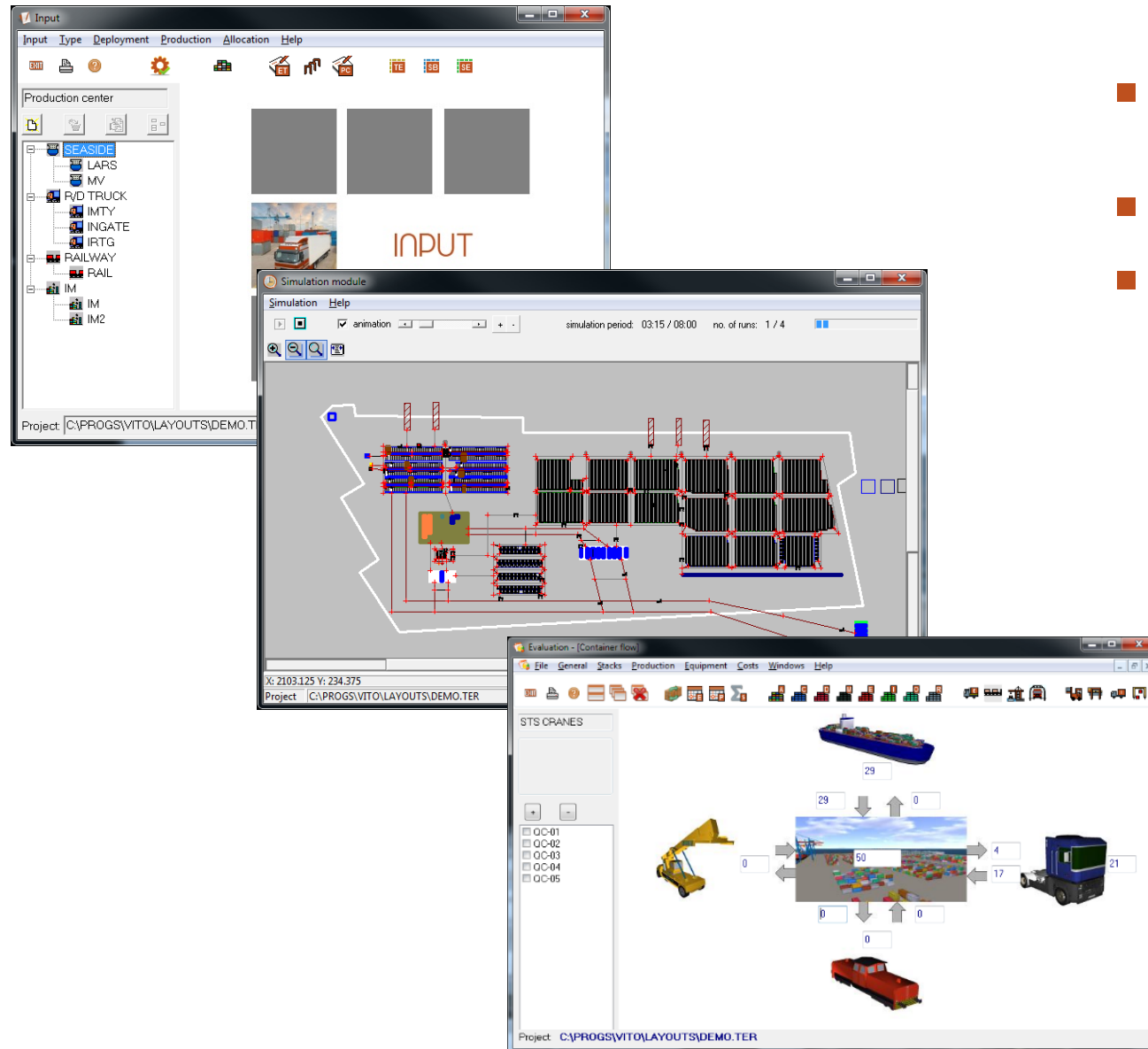
CHESSCON SIMULATION

- planning of new terminals
- reorganize your present terminals
- measure your equipment utilization
- evaluation of handling strategies
- easy-to-operate user interface

CHESSCON
SIMULATION

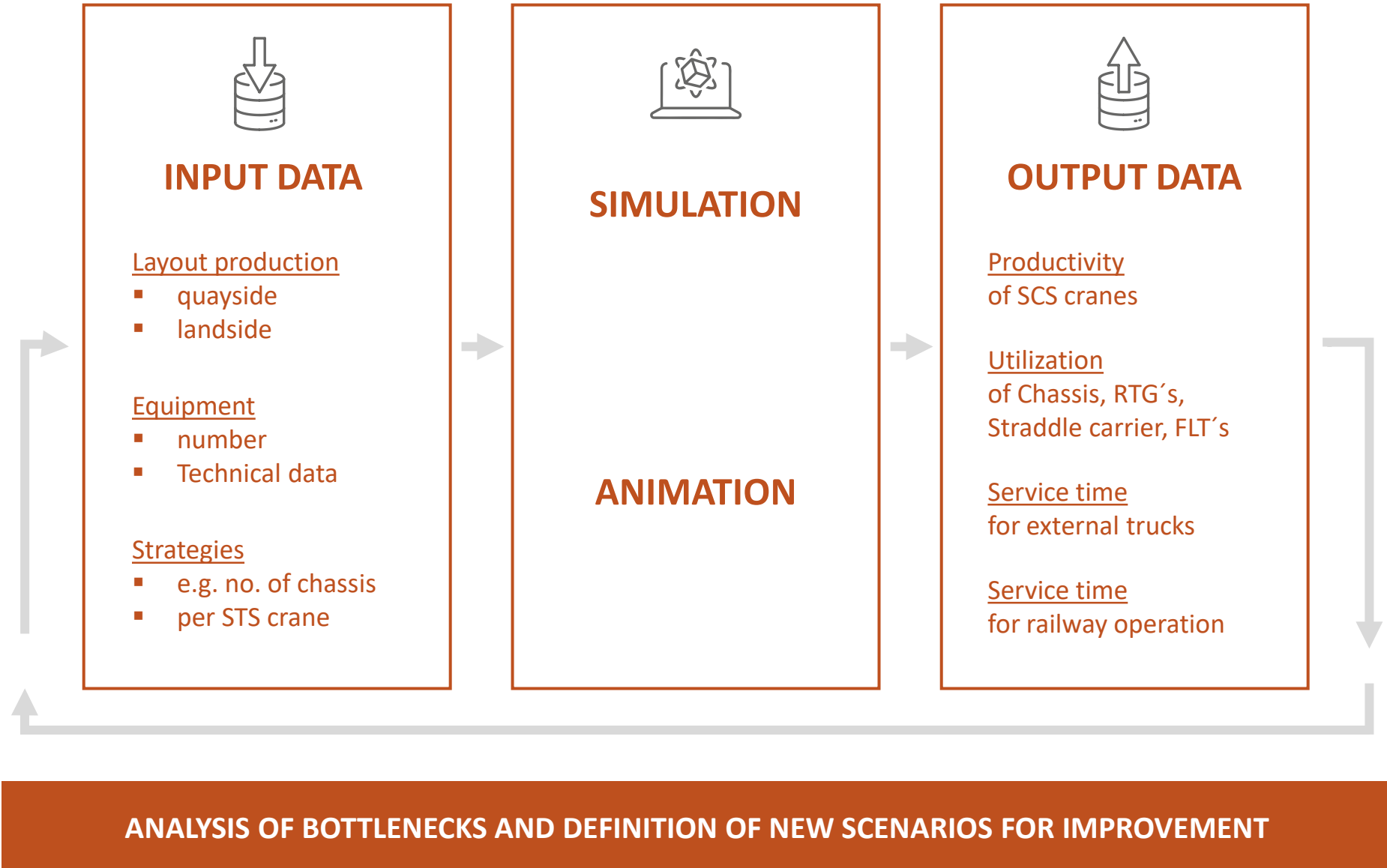


CHESSCON SIMULATION

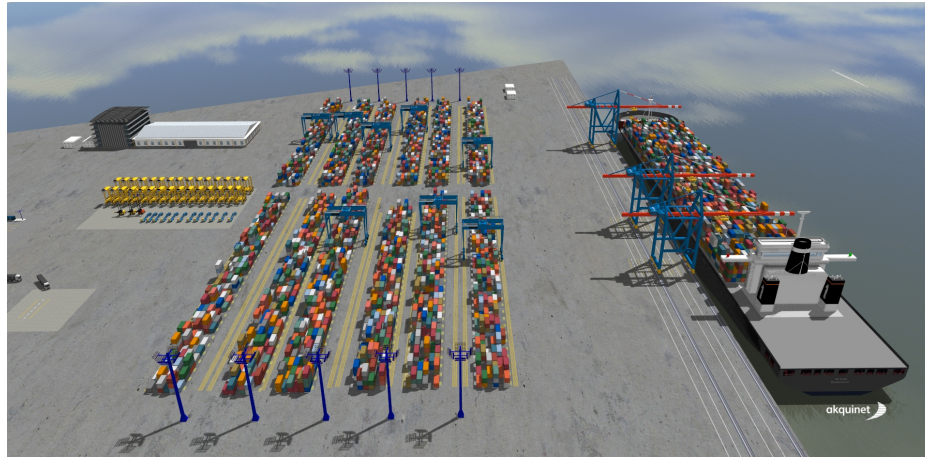


- See an online animation after simulating
- Find bottlenecks at your terminal
- Very detailed evaluation part
 - throughput container numbers
 - equipment distances
 - boxes per hour
 - waiting-, idle- and operating times
 - stack utilization
 - cost evaluation
 - traffic evaluation

MAIN MODULES OF SIMULATION

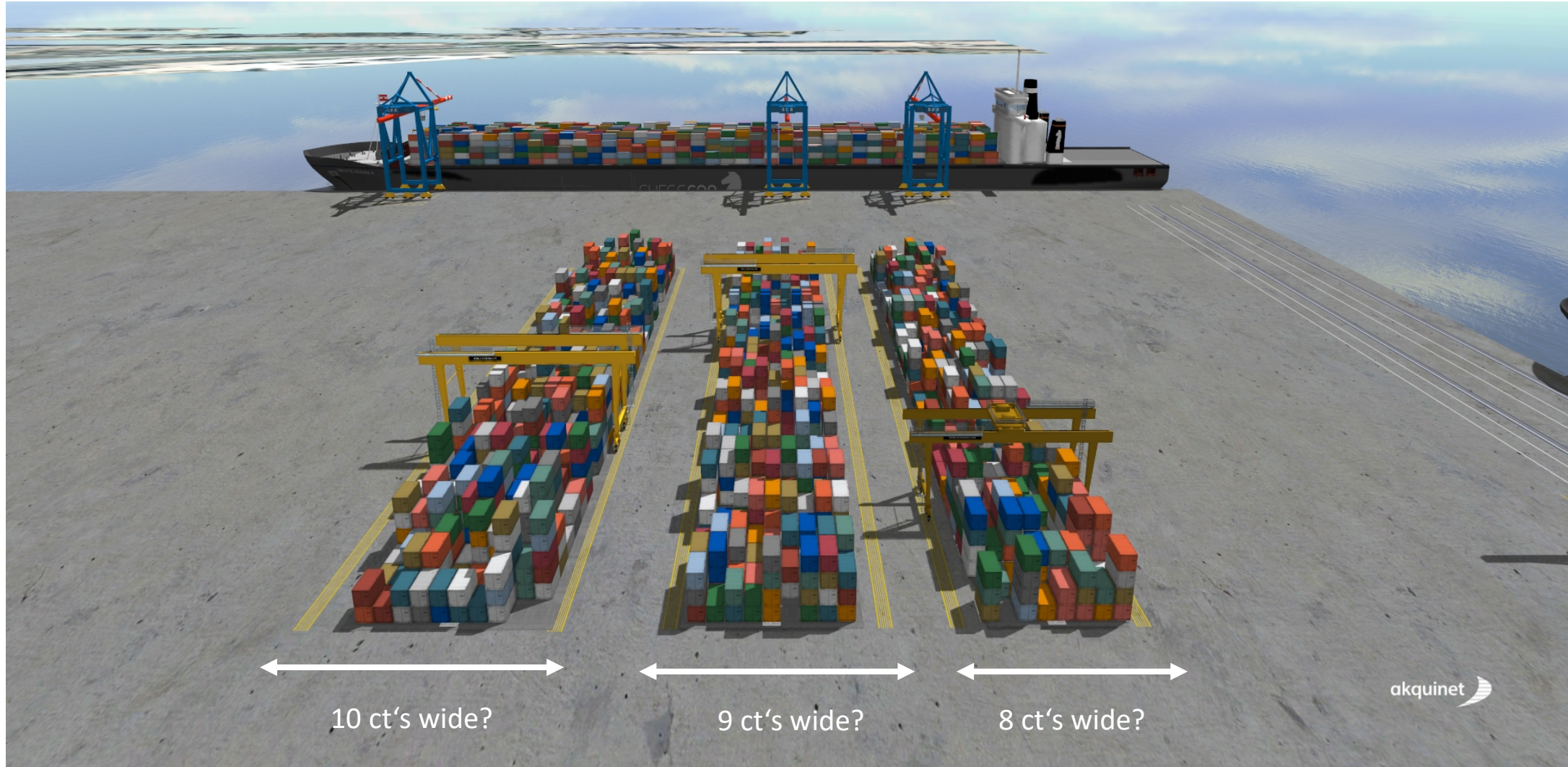


CHESSCON SIMULATION – VARIOUS LAYOUTS, WHICH ONE IS THE BEST?



Stacking blocks perpendicular
or parallel to the quay
depending on yard technology

FIND THE OPTIMAL STACK WIDTH



LAYOUT DEFINITION WITH OUR CHESSCON EDITOR



The screenshot displays the CHESSCON Layout Editor interface. The main workspace shows a 3D layout of a port terminal with various equipment and structures. The interface includes a menu bar (File, Edit, Help), a toolbar with standard editing tools, and a coordinate system (X and Y axes in meters). The right side of the interface features a Properties panel and a Layer panel.

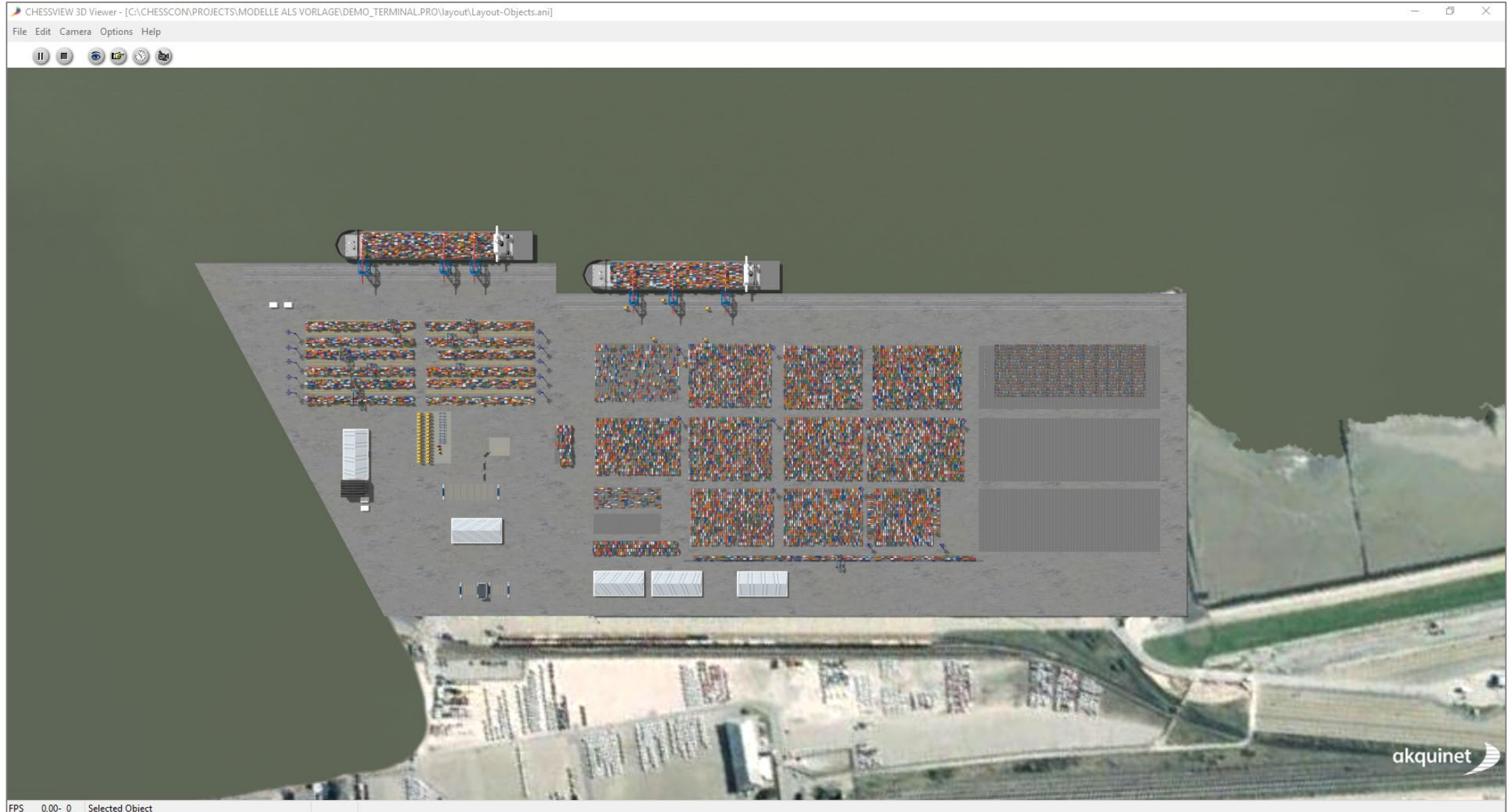
Properties Panel:

Property	Value
ID	A05
Type of stack	Import
Type of stack equip.	Straddle carrier
Stacking height	3
No of rows	42
TEU in row	18
Slots for dangerous boxes	0
Not usable slots	0
Distance between rows [m]	1
Distance between slots [m]	0,1
Util. before simulation [%]	20
Max. utilization [%]	80
TEU in buffer	0
% for next level	30
Row alignment [angle]	90
YG interface	Landside
Max. no YGs	0
Z	0
40' Unit extends	Ascending
Unit Ids	
Unit Ids definition	
Unit level ids	1,2,3
Free slot finding	<input type="checkbox"/>
Unique 3D Unit	<input type="checkbox"/>
Visible in 3D	<input checked="" type="checkbox"/>
Texture	RoadLane00.jpg
Texture repeat	15
Transparency [%]	60
Show to	0
Show from	0
Color	█
Align Index	-1
Layer	Stacks

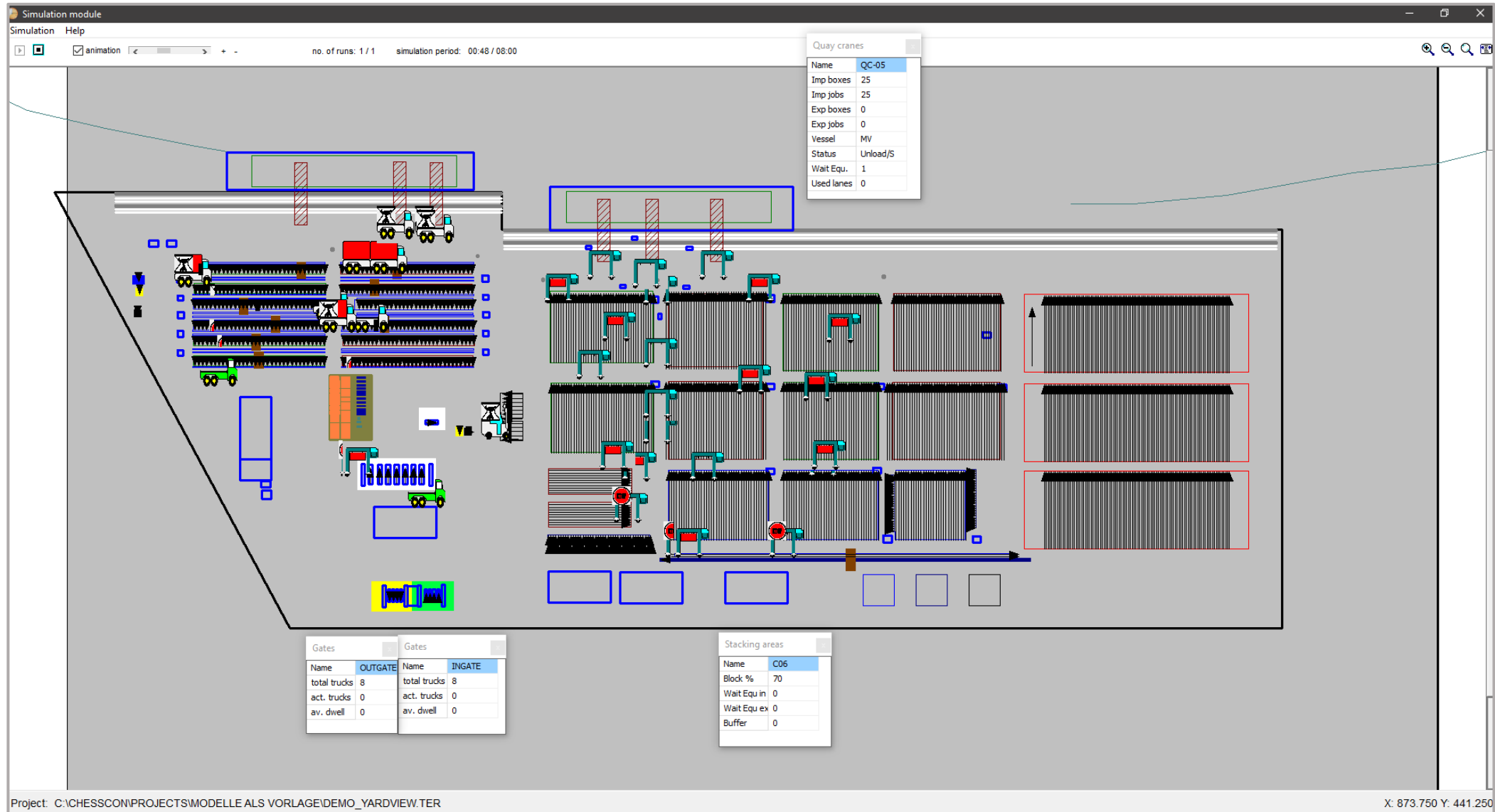
Layer Panel:

Layer	Count	Value
Base	8	0
Stacks	40	1
Gate	10	0
Railway	1	0
Seaside	8	0
TrafficNetwork	167	0
Objects3D	98	0
Equipment	54	0
Buffers	1325	0
GuideLines	16	0
Terrain	1	0

ONE CLICK 3D EXPORT OF YOUR LAYOUT



FOLLOW YOUR SIMULATION DETAILS IN AN ANIMATION MODE



The simulation interface displays a detailed view of a port yard. At the top, the window title is "Simulation module" and the menu bar includes "Simulation" and "Help". The status bar shows "no. of runs: 1 / 1" and "simulation period: 00:48 / 08:00". The main area shows a 3D perspective view of the yard with various elements like cranes, trucks, and containers. Three data tables are overlaid on the interface:

Quay cranes

Name	QC-05
Imp boxes	25
Imp jobs	25
Exp boxes	0
Exp jobs	0
Vessel	MV
Status	Unload/S
Wait Equ.	1
Used lanes	0

Gates

Name	OUTGATE	Name	INGATE
total trucks	8	total trucks	8
act. trucks	0	act. trucks	0
av. dwell	0	av. dwell	0

Stacking areas

Name	C06
Block %	70
Wait Equ in	0
Wait Equ ex	0
Buffer	0

Project: C:\CHESSCON\PROJECTS\MODELLE ALS VORLAGE\DEMO_YARDVIEW.TER

X: 873.750 Y: 441.250

CASE STUDY



COMPARISON OF OPERATION SYSTEMS SELECTED

...but what are the ecological impacts of the terminal?

EQUIPMENT USE

	SC 1 over 3	RTG/TC	TMG/AGV auto
No. of STSCS	12	12	12
No. of SCs	45	X	X
No. of TCs/AGVs	X	53	56
No. of RTGs/RMGs	X	25	17
STSC operation hours	1130	1074	1057
SC operation hours	5016	X	X
TC/AGV operation hours	X	5683	5300
RTG/RMG operation hours	X	3141	2737
aver. service time external trucks	20 min	8 min	4 min

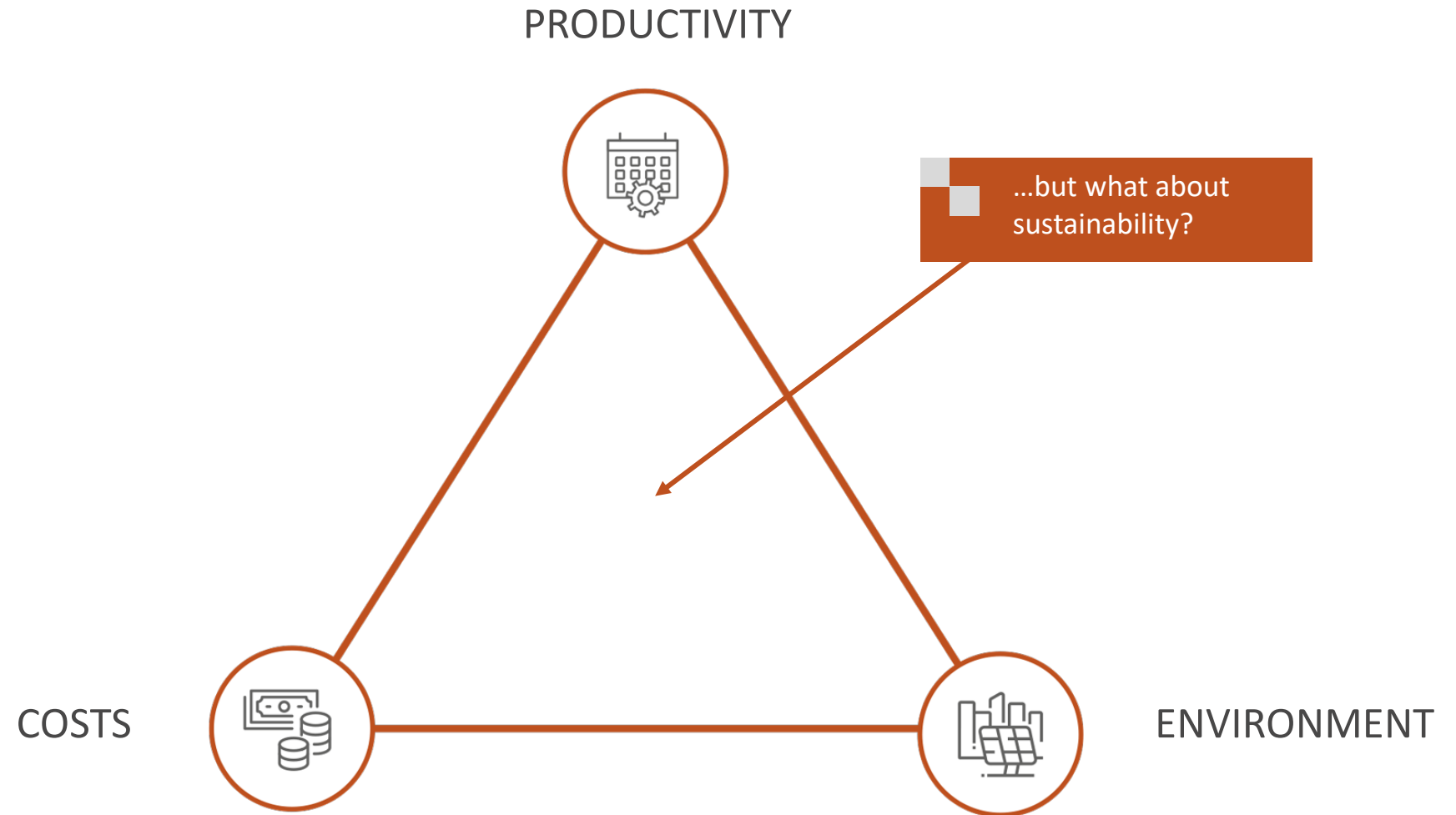
The decision from an economical view is supported based on operational costs and investment

EVALUATION PRODUCTION CENTERS

	average service time	12.6	12	11.7
DS1000	aver. moves/hr (total)	147.0	167.0	171.0
	aver. moves/hr per STSC	29.5	32.3	33.4
Ds800	average service time	12.5	10.5	10.1
	aver. moves/hr (total)	128.0	152.0	158.0
	aver. moves/hr per STSC	29.3	31.5	32.9
F120	average service time	4.5	4.3	4.1
	aver. moves/hr (total)	53.0	56.0	59.0
	aver. moves/hr per STSC	21.3	21.6	22.83
F250	average service time	8.8	8.0	7.8
	aver. moves/hr (total)	57.0	62.33	64.0
	aver. moves/hr per STSC	20.4	21.5	22.6
total berth operation time		218.0	195.0	189.0
costs per move (€)				

COSTS

USE CHESSCON SIMULATION FOR ECONOMIC AND ECOLOGIC ASPECTS



CHESSCON SIMULATION

TOOL FOR DECISION MAKING PROCESSES ON THE STRATEGIC AND DESIGN LEVEL

- **planning** of new terminals
- **expansion** or **reorganization** of existing terminals

SUPPORT AND INFORMATION CONCERNING THE QUESTIONS

- best **type** of equipment
- no. of **facilities**
- changes in **layout**
- test of different **strategies** for operation

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