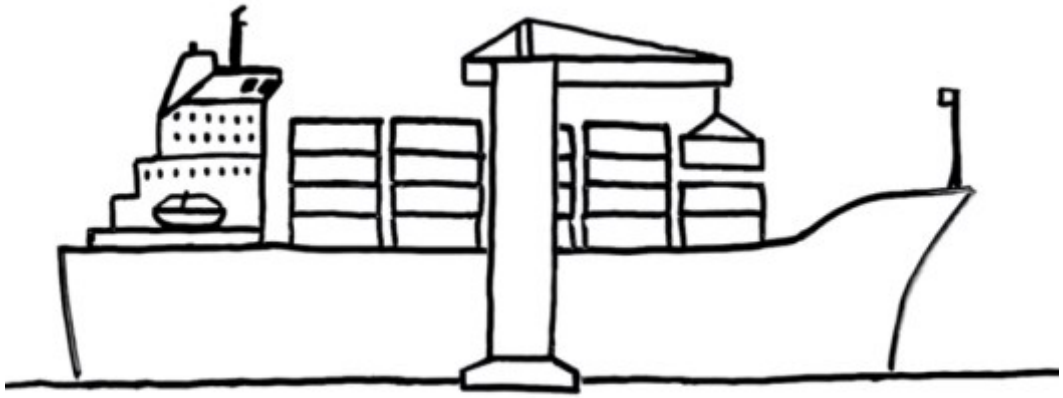

Games in Research and Training: Session design and set-up

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Photo: AV

Picture source ed.ted.com

Game session design and set-up

Part 1

- Welcome
- Introduction
- Pre-survey (optional)
- Game briefing and game play (keep score)

Break

Part 2

- Debrief
- Post-survey
- Prizes

Useful tips and tricks

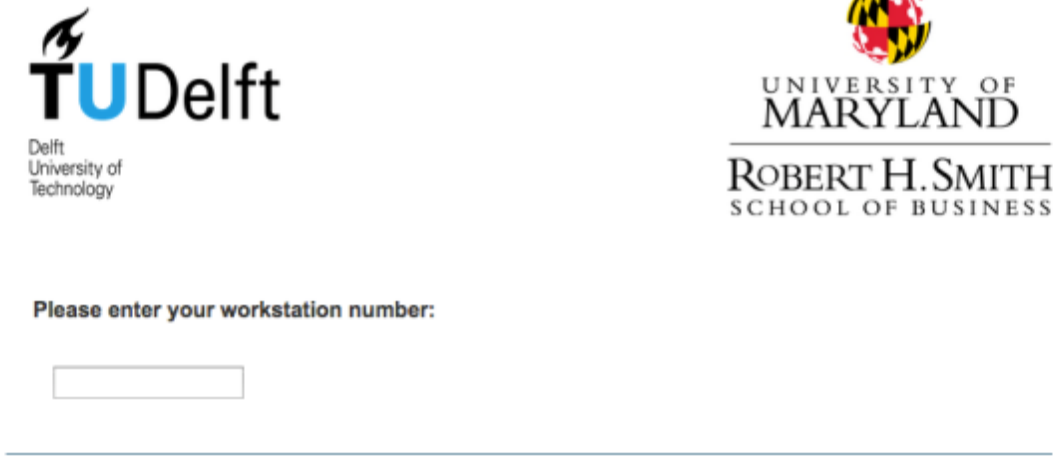
Introduction

- Welcome and introduction
- Motivation and objective
  - Why are you here
  - What can you expect?
  - Why this session (session and game objectives may differ)
- Know your audience (training, research, education)
- Briefing lecture based on your audience

Pre-survey

Demographics, base line, expectations, game experience

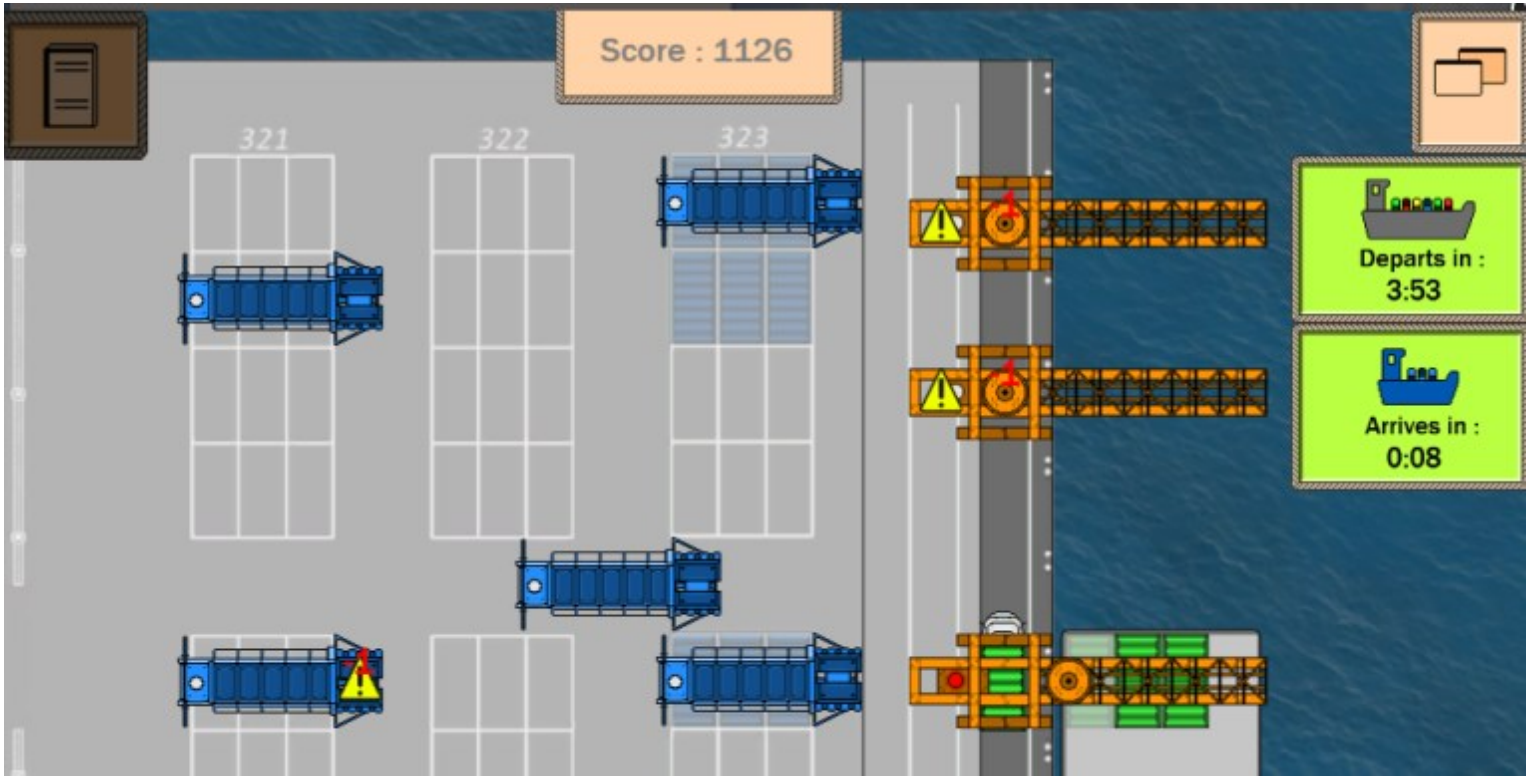
http://bit.ly/1wdyYY2



Game briefing and play

The YCS Game
Yard Crane Scheduler

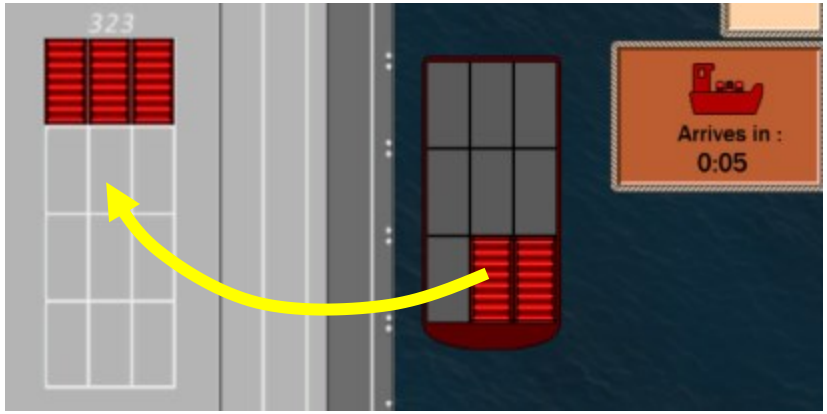
Goal: Plan container terminal operations and align activities



Make an unloading plan

During the game, various vessels will arrive carrying containers that have to be discharged.

The faster you do this, the better. Try to win as much time as possible, because performing better than the handling time targets gets you a bonus!

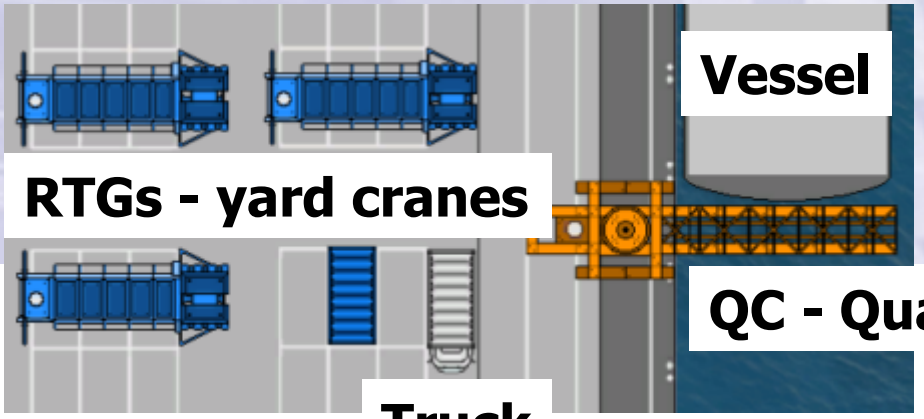


Click on an arriving ship to make an unloading plan. Drag each container to a position in the yard. The rectangle will be green if you completed the unloading plan. You do not have to make a loading plan.

Schedule the resources by moving cranes

The containers will be handled by QCs and RTGs and moved by trucks. Your responsibility is to allocate the discharge to yard positions, and then execute the operation by moving RTGs and QCs to the places where the work is generated.

Even idle cranes generate a constant cost on your score, so keep them busy to keep up your score!

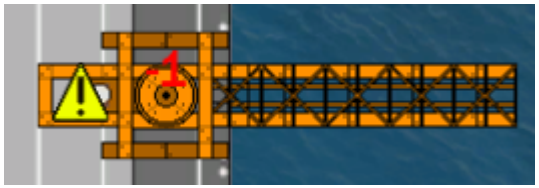


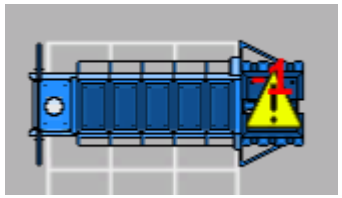
Extra points for hinterland handling

Also keep on eye on yellow import containers. Road trucks will arrive to pick up these boxes. This gives you points when you handle them in a timely manner.

Good luck in playing Yard Crane Scheduler!

Make sure you move the RTGs to the right places to handle the yellow containers!



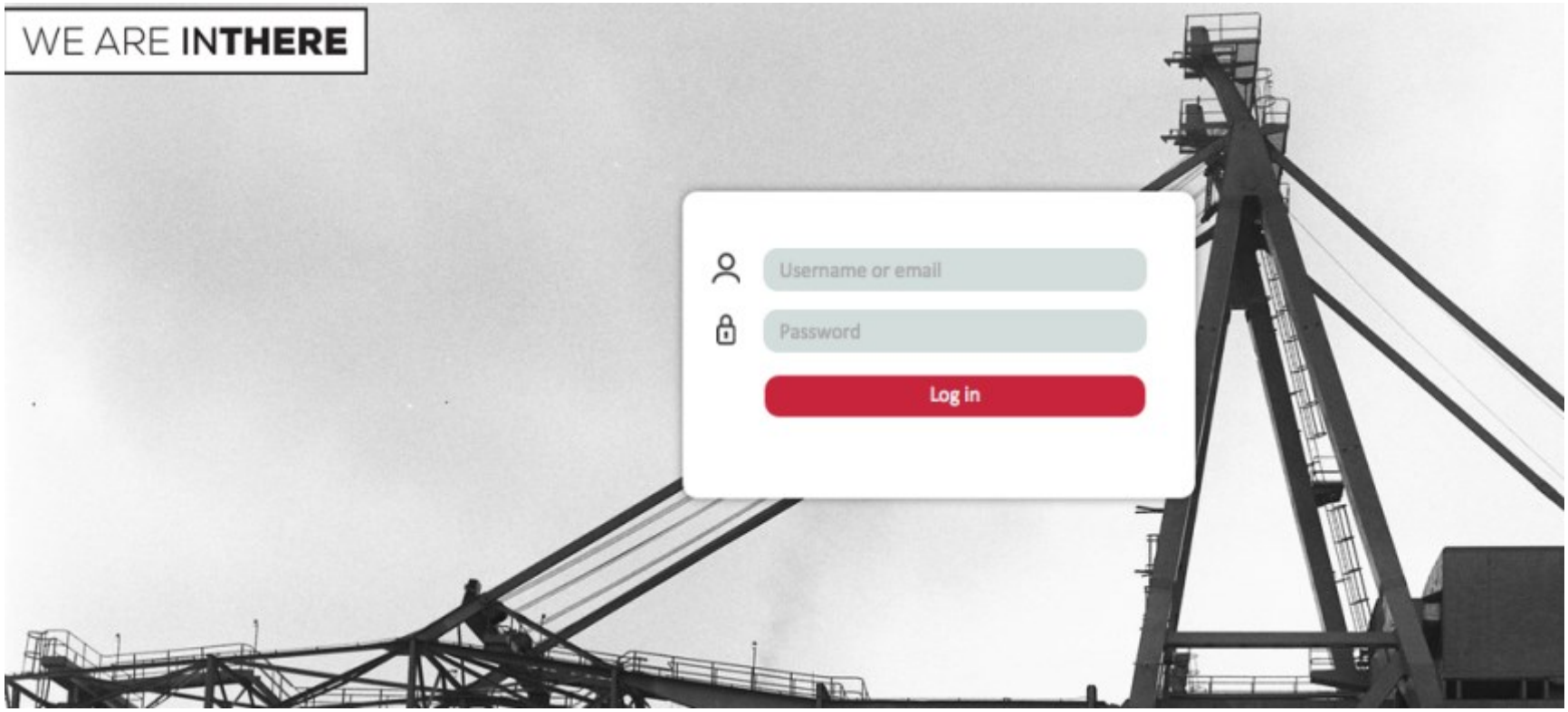


There can be disturbances and warnings for you - see the signs

Export containers are shown with a triangle. They are loaded automatically if cranes are positioned in the right place

Let's start playing!

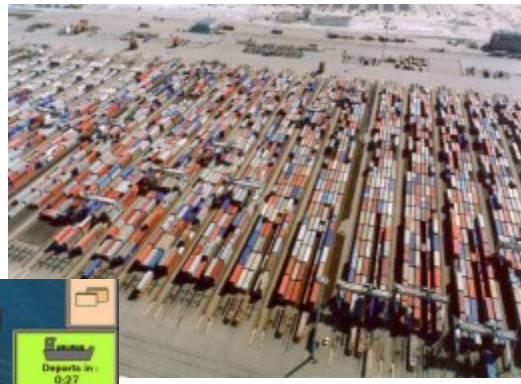
http://bit.ly/1vT5UDA, login with the info provided

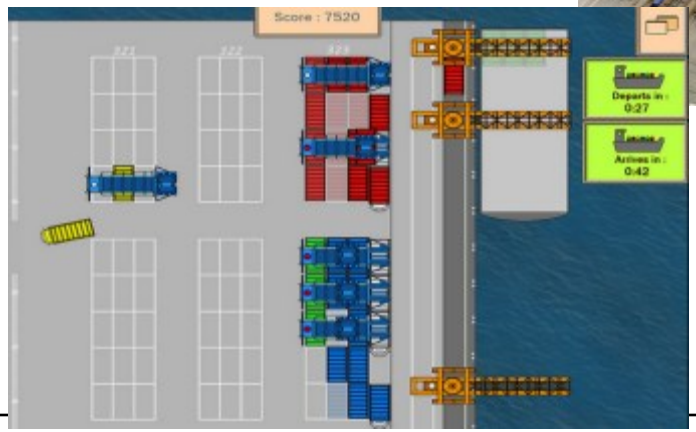


Break

Debriefing

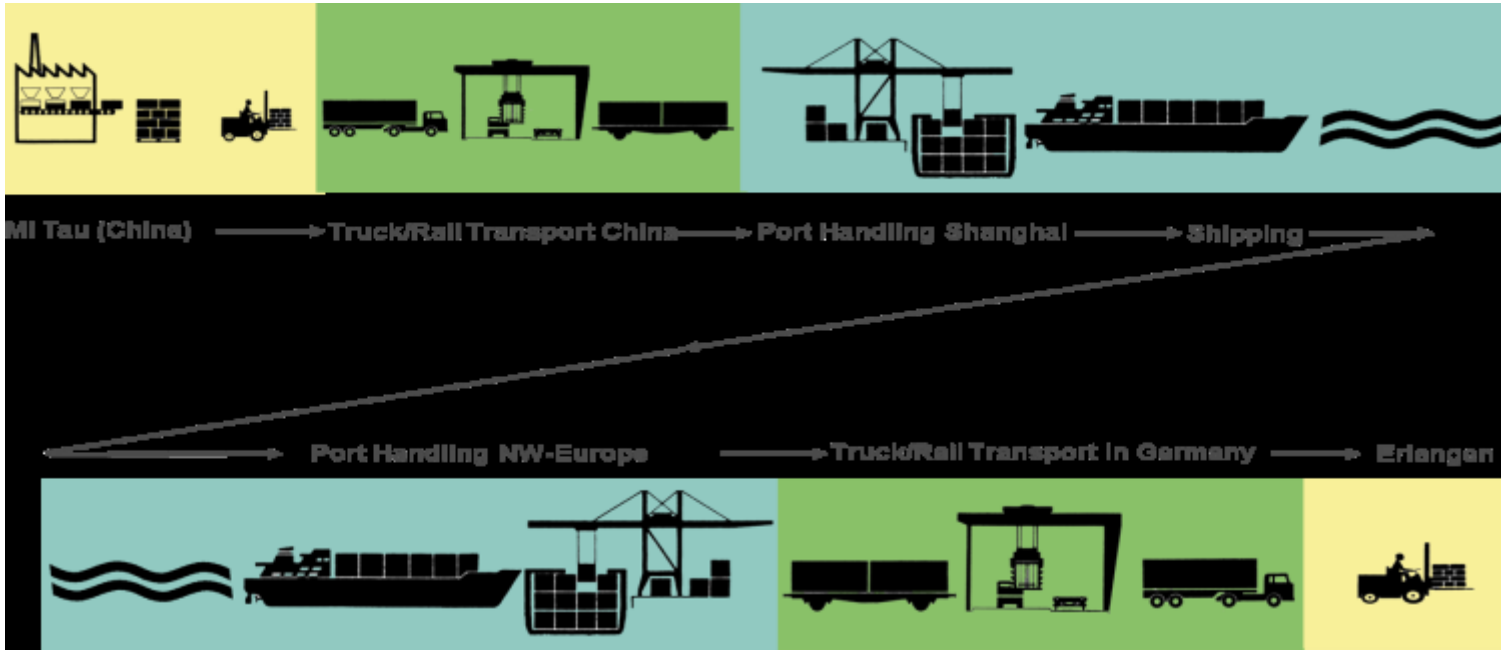
- Assess the opinion (how was it, did you like it, what is your strategy)
- High scorer, low scorers : Encourage to talk about their strategies and issues
- Relating game play to reality
- A pre-cursor to encourage discussion
- Post-session survey
- Prizes





Container Logistics

- Container terminal: A location for transshipment, import-export and temporary storage of containers
- Container Terminal is a **key interface** in the global transport network
- Sub-systems, operations and equipment
- Complex processes and procedures



Dobner et al,2001

Complexity of CT operations

	hinterland connection	storage	waterside horizontal transport	ship-to-Shore
terminal design	type of hinterland connections	equipment type	vehicle type	QC type
	equipment numbers	number of stacking machines	number of vehicles	number of QCs
		stack dimensions	size of transport area	quay length
operational planning	equipment scheduling	container stacking	horizontal-transport-vehicle dispatching	stowage planning
		scheduling of stacking machines	horizontal-transport-vehicle routing	berth allocation
				QC split

Classification of design and decision problems in container terminals

(N. Kemme, Design and Operation of Automated Container Storage Systems, Contributions to Management Science, DOI 10.1007/978-3-7908-2885-6 2

Theory vs. Practice in CT operations

Current approach towards complex CT planning:

- Decomposition of CT operations into sub-planning tasks
- Sub-tasks planned / solved sequentially
- Different departments for different tasks

In Reality:

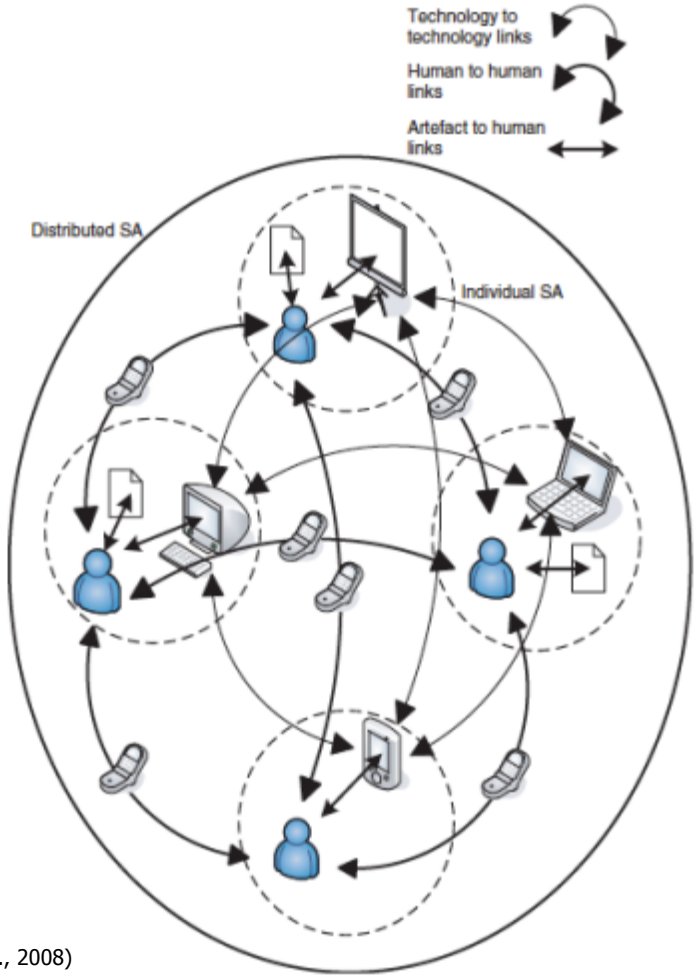
- Planning CT operations is a complex and interdependent process
- Sequential planning is based on assumptions, leads to undesirable and sub-optimal results
- Communication and coordination is often lacking or insufficient
- Highly vulnerable for disturbances
- Need for integrated planning approaches is highly desirable

Leif Meier, René Schumann, "Coordination of Interdependent Planning Systems, a Case Study", In Informatik 2007 (Rainer Koschke, Otthein Herzog, Karl-Heinz Rödiger, Marc Ronthaler, eds.), Gesellschaft für Informatik e.V. (GI), vol. P-109, Bremen, pp. 389 - 396, 2007.

Integrated planning

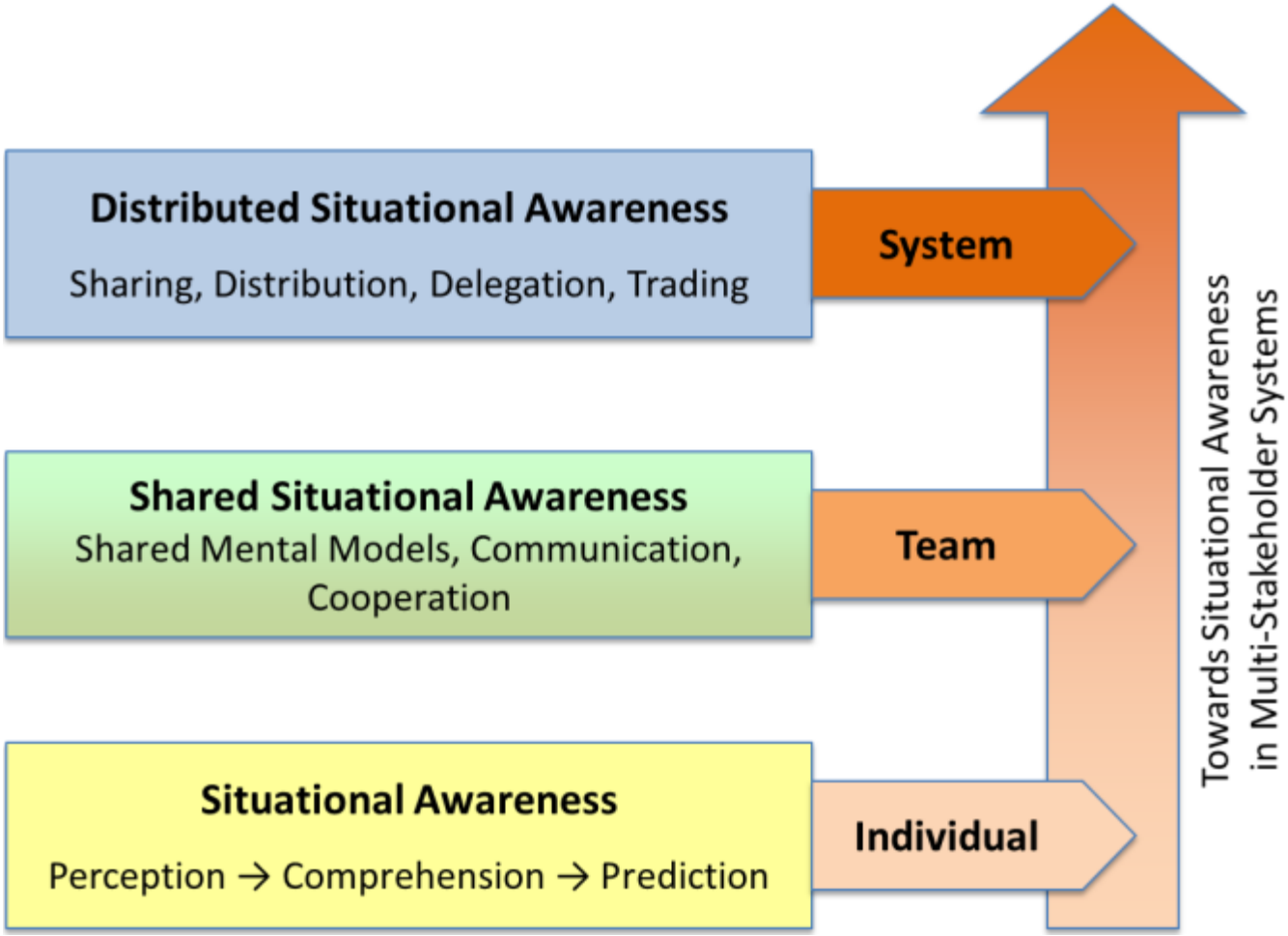
Key requirements

- Systems thinking
- Shared / Distributed Situational Awareness
- Communication and Coordination



(Staton et al., 2008)

Situation Awareness and Integrated Planning



Gaming to train professionals to move towards Integrated Planning

- Platform to understand the importance of integrated planning
- Concepts of systems thinking and SSA embedded in game
- Training towards systems thinking
- Users can learn from experience
- Training both for situational awareness as well as integrated planning
- Gaming as tool for prediction of operator performance

Integrated Planning in the Terminal and in the Supply / Transport Chain

- Coordination and alignment problems are **similar**
- The same issues we observed on a small scale, also apply on a larger scale:
  - difficult to align plans
  - difficult to communicate at the right time
  - no shared situational awareness
  - disturbances have a ripple effect
  - when there are disturbances, no time for communication / coordination
- Supply Chain Management and Transportation Management professionals have to design better coordination and provide for situational awareness among nodes in the network!

Prizes and Wrap-up