



# **New technology of dry bulk or packaged cargoes transportation in ICT containers**



## Problems in transportation of dry bulk cargo



### Hoppers:

- ✗ Cargo loss during transshipment up to 2%
- ✗ Need specialized terminals in seaports
- ✗ Difficulty of transportation by the railway with **different rail gauges**
- ✗ No backload



### Containers:

- ✗ Need to use **big-bags** for transportation of bulk cargo
- ✗ Bulk cargo loading/unloading from container needs:
  - **Lifting of container** from railway platform/truck
  - using **special mechanisms**
- ✗ Bulk cargoes are **difficult to unload** at **covered bunkers** for railway hoppers' unloading



**Our Innovative container solves all these problems!**



# ICT Innovative Container versus Hopper

Type	Variety of cargo			Technical			Logistics			
	Bulk cargo	Packaged cargo	Aggressive or sticking	Direct access to cargo	Complete clearance of cargo residues	Possibility of modular repair	Backload opportunities	Intermodal logistics	Safer for bulk cargo (less reloadings)	Transportation on railways of different gauges
ICT container	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hopper	✓	✗	✓✗	✗	✗	✗	✗	✗	✗	✗

Innovative container is loaded/unloaded by existing loading facilities of hopper through top hatches of container. No need to remove or lift the container from railway platform/truck.

The possibility of separating the body and crew parts of a transport unit (platform and container) during the repair/transportation.

Safety unloading within 1,5 min by one operator (without containers' removing from railway platform/truck)



## ICT Innovative Container versus standard dry container, container Innofreight GrainTainer Generation2

Type	Variety of cargo		Usage of additional mechanisms while loading/uploading bulk cargo				No need special place for unloading	Unloading in covered bunkers like hopper		
	Bulk cargo	Packaged cargo	Loading		Unloading					
			No lift from railway platform/truck	No need of additional mechanisms	No lift from railway platform/truck	No need of additional mechanisms				
Innovative container ICT (ISO)	✓	✓	✓	✓	✓	✓	✓	✓		
Standard dry container (ISO)	✓	✓	✗	✗	✗	✗	✗	✗		
Container Innofreight GrainTainer Generation 2	✓	✗	✓	✓	✗	✗	✗	✗		

The prototype Innovative Container ICT (ISO) 20' HC : Capacity 34 m3, Payload 34 tons.

According to our patented technology it is possible to produce the container the Capacity 41 m3, payload 28 tons (same parameters as Container Innofreight GrainTainer Generation 2).

Safety unloading within 1,5 min by one operator (without containers' removing from railway platform/truck)



## Specification

Our technology allows to produce ISO Containers:

20', 30', 40', 45

Standard Dry

HC

HC PW

Swap body

payload from 24 to 34 tons

Our containers are able to be adapted to wide rage of dry bulk cargo.



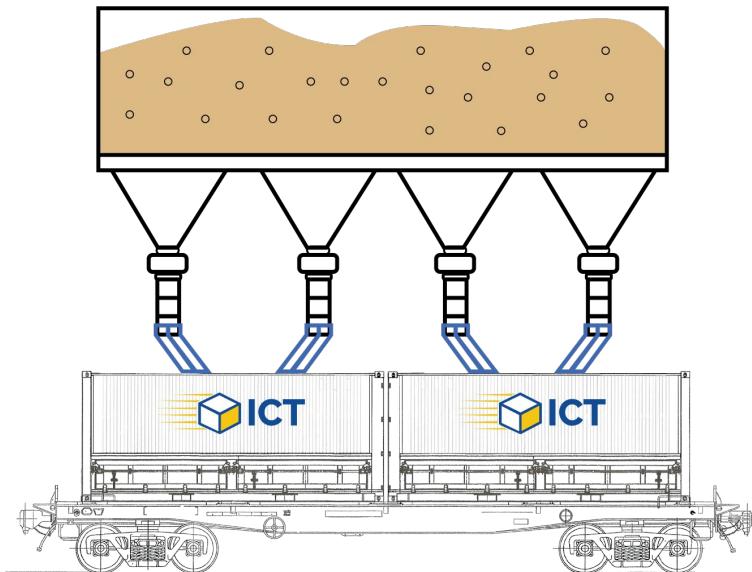


## Loading technology of ICT innovative container

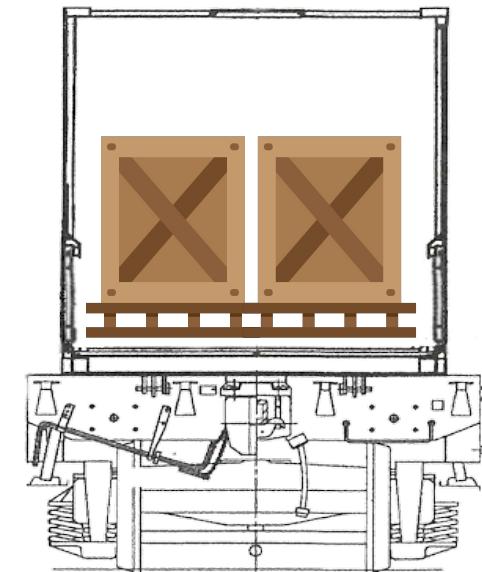
**Bulk cargo** is loaded by **existing loading facilities** through top hatches of container as is loaded into railway hopper. No need to remove/lift the container from railway platform/truck. Using container's vibrators during loading allows to **compact bulk cargo** in container and decrease bulk cargo's capacity.

**Packaged cargo** is loaded in container in **usual way** – through end doors of container using forklift (container has flat floor). It is possible to load **11 euro pallets** or **10 standard pallets**.

**Bulk Cargo**



**Packaged cargo**





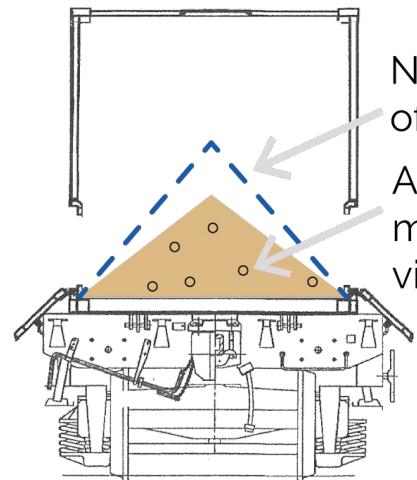
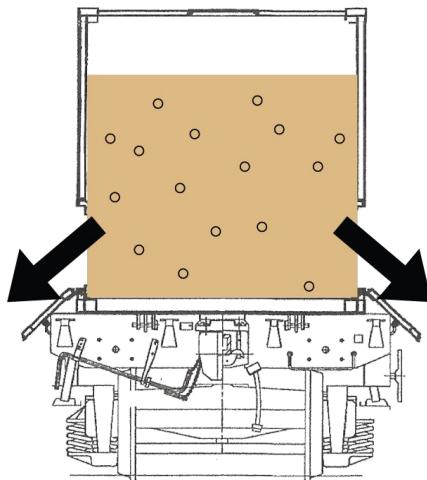
# Unloading technology of ICT innovative container

**Packaged Cargo** is unloaded in usual way – through end doors of container using forklift (container has flat floor).

**Bulk Cargo** is unloaded in two steps on current infrastructure:

## 1 step: Partial unloading

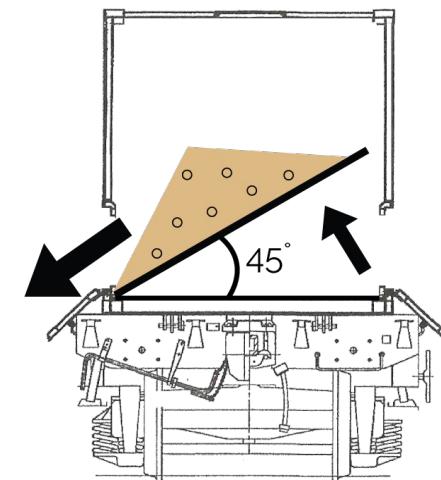
(by force of gravity + vibration mechanism)



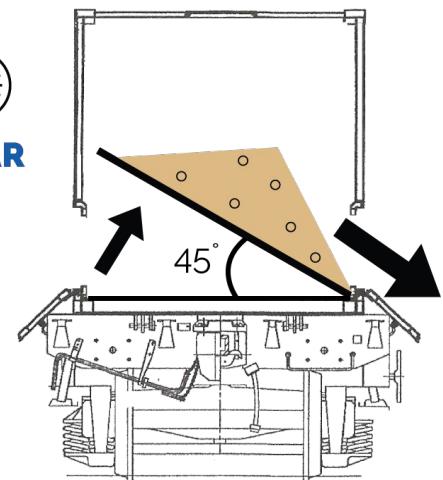
Natural angle  
of slope of cargo  
Angle of slope  
made after  
vibration

## 2 step: Full unloading

(pneumatic floor lifting mechanism by 45°)



6 BAR





## Current unloading infrastructure, where ICT container can be used

Receiving bunker for hoppers:



Unloading at warehouse:



Our container can be unloaded both at the hopper unloading infrastructure and at a regular warehouse.



## Loading/unloading of innovative container with corn or wet sand; truck with ICT modernization

Link to the video: <https://www.ict-containers.at/>



Standard truck with ICT modernization for dry bulk or packaged cargoes transportation

NEW!



Loading and unloading of corn from ICT Innovative container



Loading and unloading of wet sand from ICT Innovative container



## Analysis of dry bulk cargo markets in which ICT containers can be used



Grain, corn, soy, rape, barley, green coffee, cocoa beans, sunflower seeds, oil palm fruit, animal nutrition



Mineral fertilizers (incl potassium chloride, phosphates), compound fertilizers and raw materials for their productions



Chemical products incl. granular polymers, raw materials for ceramic production, quartz sand, cement, pirovskites.



Aluminum, alumina, bauxite, can be transported in round trip



Ores, ore concentrates and ferroalloys



# Door-to-door Intermodal transportation of dry bulk cargo

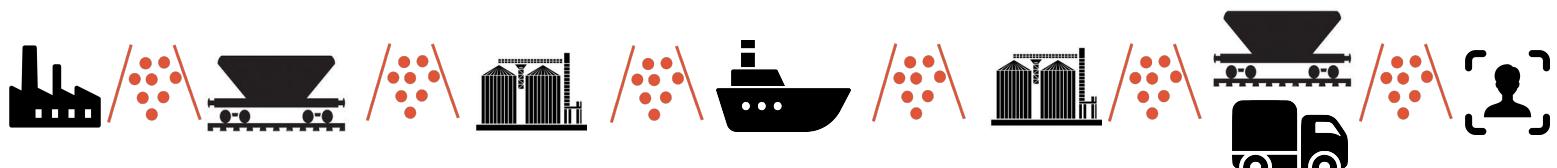
## ICT Innovative containers

- ✓ Safer for cargo (no intermediate reloading; no cargo loss; granules of cargo are not broken)
- ✓ Any port that has container terminal can be used
- ✓ Possibility of transportation by the railway with **different rail gauges**
- ✓ Backload opportunities

## Hoppers

- ✗ Cargo loss and deterioration
- ✗ Transshipment of bulk cargo could be made only through specialized terminals (silos or special warehouses) in seaports
- ✗ No backload

Current logistics in hoppers:

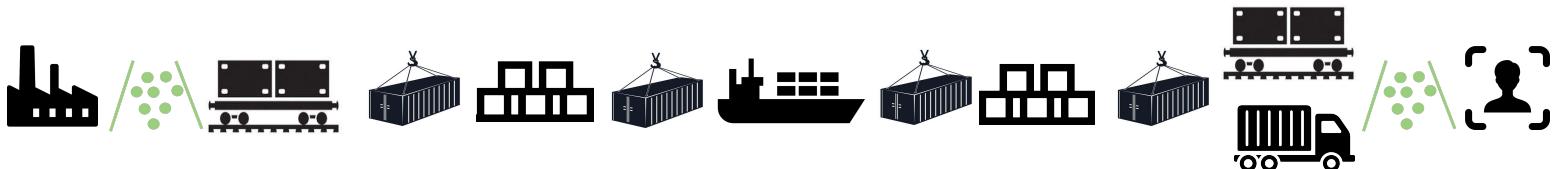


6 reloadings

'Door-to-door'

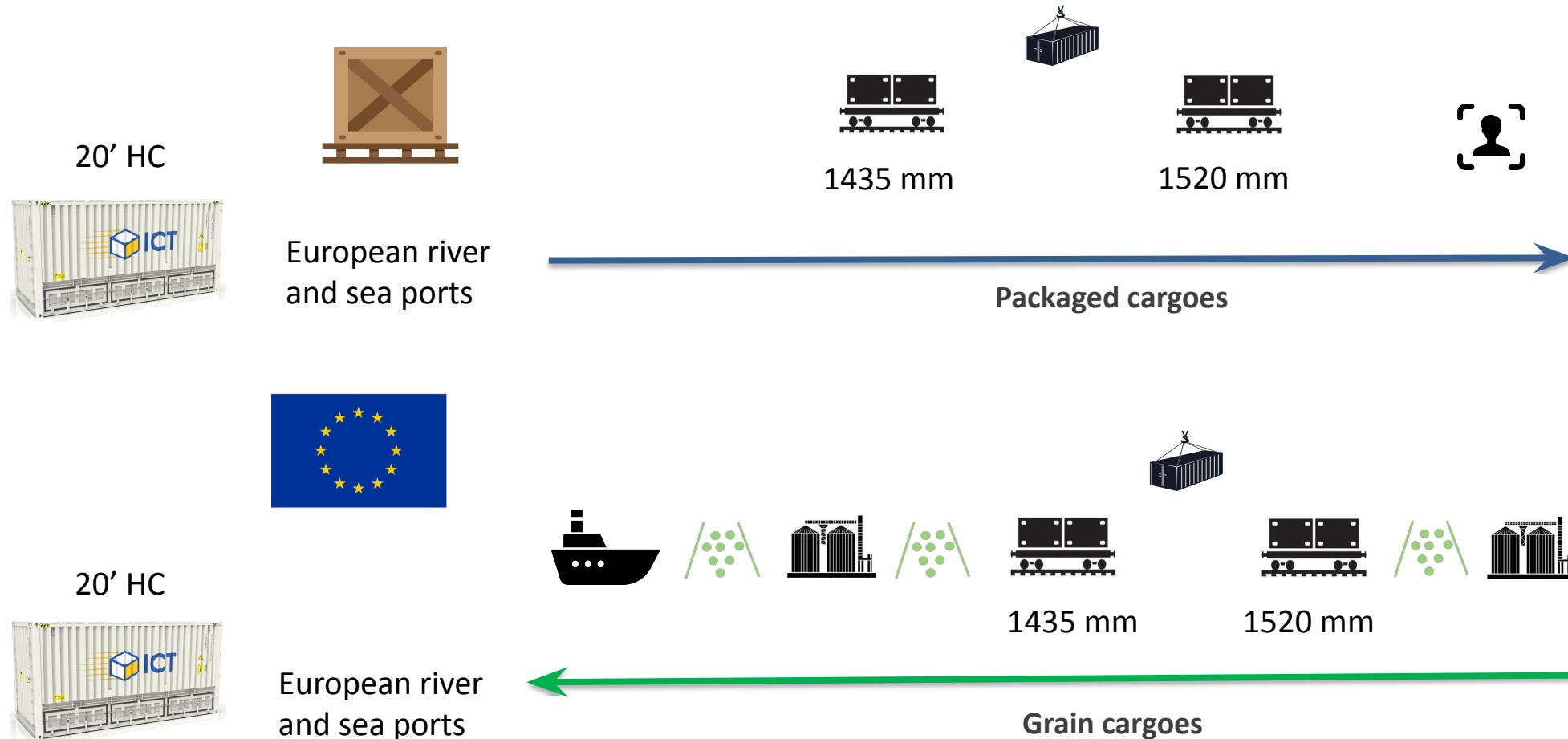
Logistic with ICT Containers:

2 reloadings



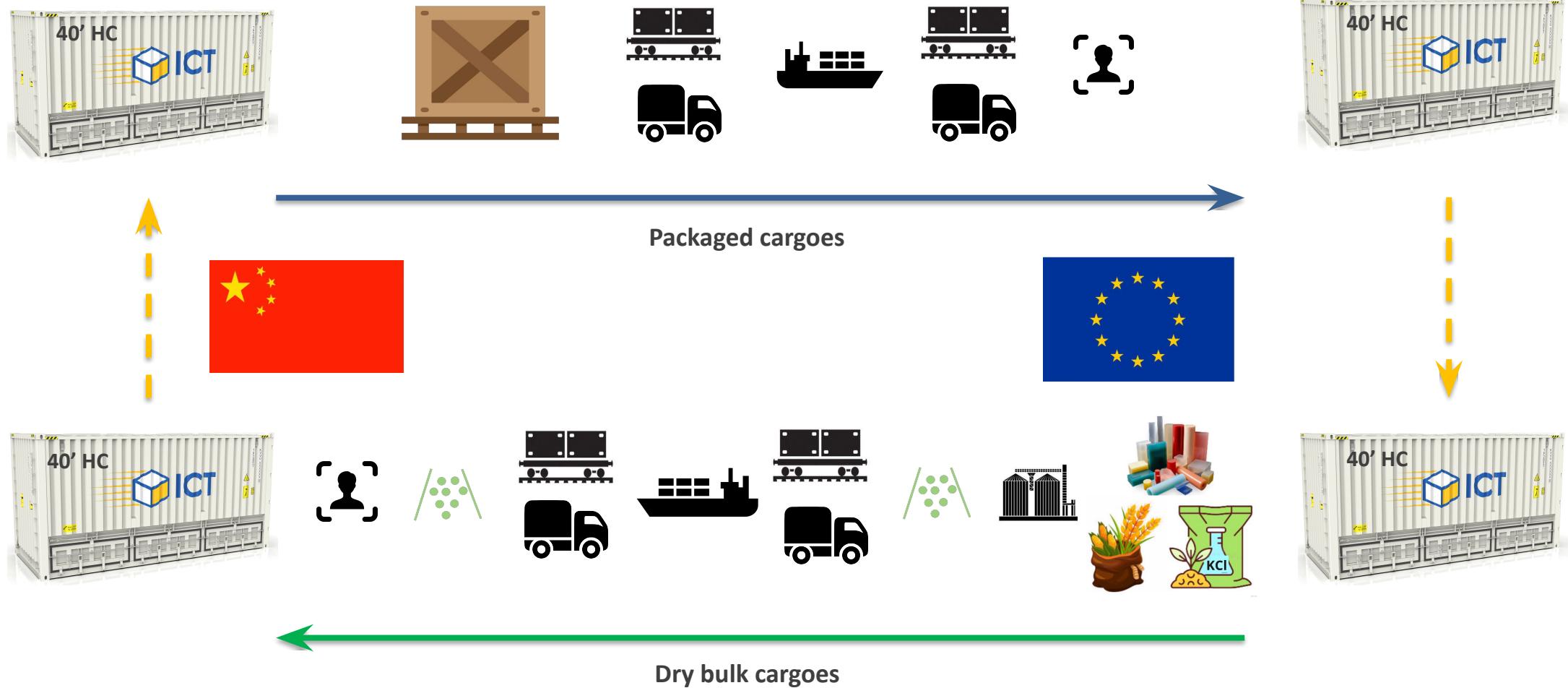


## Using ICT containers for intermodal transportation of grain to EU





# Effective logistics in ICT containers for One Belt One Road (New Silk Road)





**We are ready for cooperation**

**“Our Innovative container is a step forward in the development of intermodal transportation.”**

**We are ready for cooperation!**



ict-containers.at  
[office@ict-containers.at](mailto:office@ict-containers.at)

Österreich, 3423, St. Andrä-Wördern, Eduard Klinger Straße 19  
tel.: +436801156381 (Austria)