

# Changes and trends in storage solutions for dry bulk terminals



INTERNATIONAL  
**DRY BULK TERMINALS**  
GROUP

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POWERING LOGISTIC PERFORMANCE

- 1) LOC4U
- 2) Dry bulk As Is : what is happening ?
- 3) Challenge
- 4) Possible solutions
- 5) Best practice
- 6) Contact

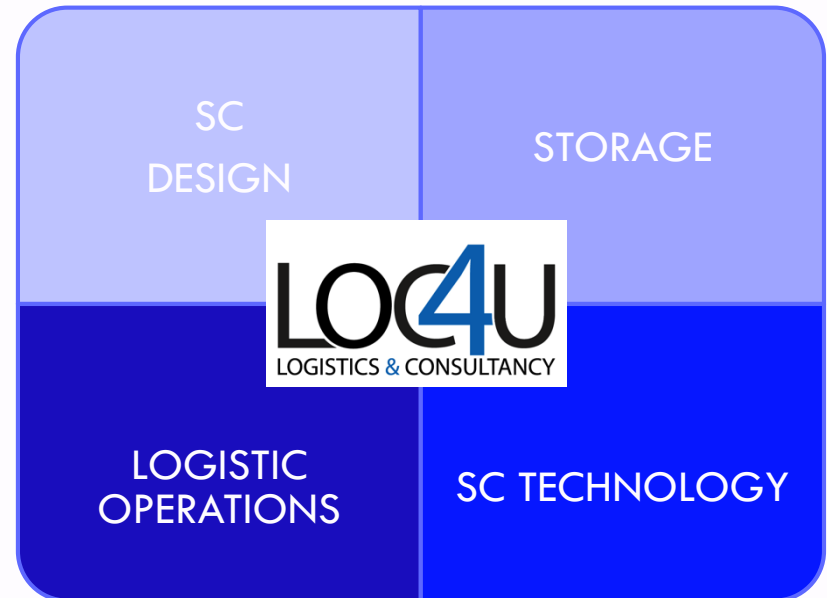
# 1. LOC4U

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## What we stand for :

- We are SC OPTIMIZERS
- We are a private company, founded in 2003
- We build solid partnerships with international customers on logistic projects
- We are proud to be a small company :
  - Fast & Agile
  - Flexible
  - Personal touch
  - Listen to the real problem/wish of the customer
  - Independent
  - Low overhead

## Services and realized projects :



## Our 5 core values :



SUPPLY CHAIN KNOW HOW  
NO NONSENSE  
CUSTOMER ORIENTED  
VALUE 4 MONEY  
RESULT DRIVEN

## 2) Dry bulk As Is : Storage = a lot in open air !



## 2) Dry bulk As Is : Process

### ■ Complexity :

- From mono product to multi product : separation, no blending, no contamination
- From mono customer to multi customer terminals
- From standard product to special product
- VAL services : bagging, debuggging, grinding, testing, weighting, sorting, crushing,...
- Track & Trace requirements : storage details, used equipment, involved staff, control results, temperature tracking, ...

### ■ Volume variations :

- Vessel size up : re-dimensioning of the stock yard (more land or better storage factor)
- FIFO applicable where possible : needs more space for batch management

### ■ Multi modality :

- Different ways of transport : connect the terminals to barge, train & truck
- Ship to ship, ship to train, train to truck, ship to truck, ...

## 2) Dry bulk As Is : legislation - permits - rules

- Environment :

- soil contamination
- water recycling system
- temperature control
- dehumidification systems
- filters

- Noise reduction :

- type of equipment
- maintenance of equipment

- Dust reduction – suppression :

- manage displaced air and dust
- registration and measuring of dust in the region
- truck wash
- avoid wind erosion

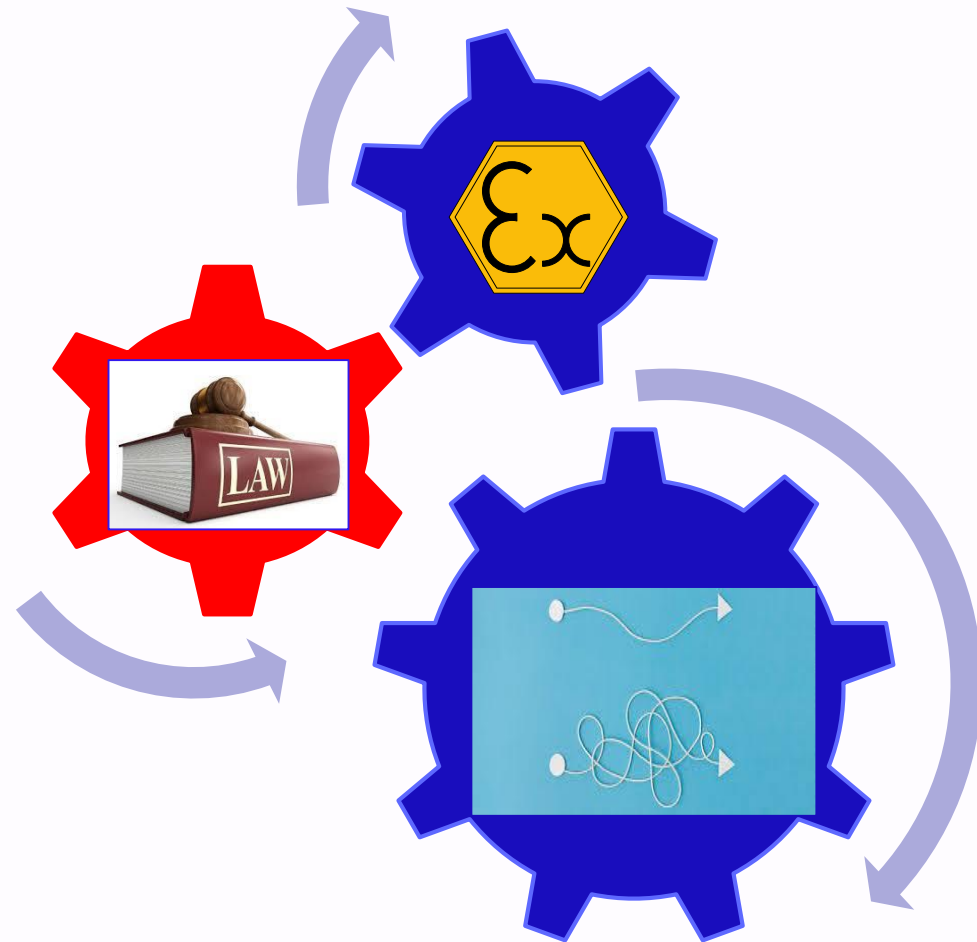
## 2) Dry bulk As Is : more demanding working environment

- Safe operations :

- Protection of operators :
  - PPE (avoid electrostatic discharge, anti static footwear,...)
  - Working at height – fall protection
  - Explosion risks – heating up of cargoes – ventilation
  - Moving of vehicles - operating risks
  - Exposure to dusty cargoes and to hazardous substances (filter in cabin)
  
- Protection of handling equipment :
  - Protection of exhausts of rolling equipment
  - Atex Directive equipment (potential explosive atmospheres)
  - Engines and electrical light fittings can cause fire
  
- Quality of the goods / Protection of the goods :
  - Metal detection prior to sieving
  - Labo research on explosion risks of dust
  - Insects, rodents, pigeons and other vermin which may be present

#### 1) Is storage in open air the best solution ?

- Storage quality
- Material loss
- Volume variations
- Flexibility
- Opex
- Storage density
- Storage height



#### 2) Is storage in open air future proof ?

- Environment
- Neighbors
- Legislation



# 4) Possible covered storage solutions

Silo

Shed

Warehouse

Tent

Modifiable  
warehouse



Flexibility is limited  
Dedicated project

Flexible solution  
Product quality risk

Flexibility solution  
Product quality risk

Flexible solution

Flexible solution

LT building process

ST building process

MT building process

ST building process

ST building process

Lean & safe operation  
Highly automated

No/limited automation

No/limited automation

Lean & safe operation  
Automation is limited

Lean & safe operation  
Automation possible

Green project

Open air (noise, dust,  
smell, ..)

Open air (noise, dust,  
smell, ..)

Green project  
Noise possible

Green project

Good storage quality &  
density for specific goods

Low storage quality &  
density for specific goods

Low storage quality &  
density for specific goods

Medium storage quality &  
density for specific goods

Good storage quality &  
density for specific goods

High investment  
Rather long pay back

Low investment  
Good pay back

Medium investment  
Rather long pay back

Medium investment  
Limited life time

Medium investment  
Good pay back, long life

Specialized goods



Mass storage

## 5) Best practice : modifiable warehouse



BEST HALL- Sea Invest port of Antwerp (132m x 60m)

## 5) Best practice : modifiable port warehouses



### Flexible

- Versatile solution
- Easy compartments
- Optimized and customized surface : from 10 to 100 meter width
- The building can be modified according to the processed products and materials
- Fully open and column free space (max span width is 100 meter !)
- Modular system : can be dismantled and rebuilt
- Speed of construction : 10-12 weeks
- Installation of safety equipment is easy



### Storage Quality

- Big surfaces
- Multiple product storage with partition walls
- Good storage density (up to 20 meter high)
- Dust control
- Noise reduction
- Contamination
- Thermal insulation and temperature management
- Ventilation and dehumidification when needed
- Professional look and feel

## 5) Best practice : modifiable port warehouses



### Lean operations

- Efficient & flexible design : design the warehouse according to your operations (additional canopies, opening for transport belts, partition walls, cranes, doors...)
- Efficient operations : high & heavy equipment can enter the building, transport belts can be installed
- Compact storage : limited driving distances
- Translucent roofing material => natural light inside the building
- Safety investments on more dedicated area



### Green/safety

- Clean operations : dust & noise control
- All weather approved (snow, rain, wind)
- Suitable for humid oceanic climates
- Natural light via the roof
- Safe working environment –installation of safety equipment is easy and concentrated on smaller surface
- Sustainable development (80% recycle)
- Happy local authorities
- Happy neighbors



### Best fit

- Strong and solid building : life time up to 40 y.
- Resistant to the chemicals in the stored goods
- Good Fire classification
- Solid steel construction with PVC fabric cover that is fully airtight and in 1 piece
- Optional Inner liner to ensure minimum temperature inside
- No foundation needed : can be built on asphalt or concrete floor
- Happy neighbors



### Financials

- Best ROI
- Value for money
- LT solution
- Buy or Lease



## 5) Best practice : pictures



## 5) Best practice : pictures





# 5) Do you want to have your boat out there ?





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