



Hungarian Federation of Danube Ports

Postal: H-1139 Budapest, Frangepán u. 7.

Phone: +36 1 210-9808

Fax: +36 1 210-9801

VAT Nr.: 18294011-2-07

E-mail: info@hfip.hu

Web: www.hfip.hu



The project is part-financed by the European Union.



# **SUMMARY OF THE TESTING RESULTS AND DESCRIPTION OF THE INDICATOR SYSTEM**

Title of the project:

**Danube ports in the light of numbers – Introducing the new level of Port Performance Indicator System for the inland waterway ports**

Project number:

**01\_PA1a-C1**

Project acronym:

**POPEI**

# Content

<b>1</b>	<b>Executive Summary.....</b>	<b>3</b>
<b>2</b>	<b>Summary of the testing results.....</b>	<b>4</b>
2.1	Hungary .....	5
2.2	Romania.....	11
2.3	Croatia .....	17
<b>3</b>	<b>Description of the indicator system .....</b>	<b>23</b>
3.1	KPIs of the Port operator sheet .....	23
3.1.1	INFRASTRUCTURE .....	23
3.1.2	TRAFFIC DATA .....	28
3.1.3	SERVICE .....	30
3.1.4	CAPACITY .....	32
3.2	KPIs of the Customer satisfaction sheet.....	34
3.2.1	Reliability.....	34
3.2.2	Attitude, approach .....	35
3.2.3	Flexibility .....	36
3.2.4	Quality of service.....	36
<b>4</b>	<b>Conclusions .....</b>	<b>38</b>

# 1 Executive Summary

## *Background*

The aim of the project POPEI is to increase competitiveness and efficient operation of inland waterway ports by:

- adjusting the KPIs to the ports' needs and specificities in order that they could use them in practice and provide their market by real information on their services and performance;
- transforming the KPIs to a performance indicator system applicable for (self) measurement for the ports and qualification of services.

In the first half of the project period, based on a comprehensive analysis and several interviews, a list of appropriate KPIs were defined and integrated to a performance measurement system. Then this excel-based system was consulted with further port operators in the three partner countries (Hungary, Romania and Croatia) in order to fine-tune the system and define the final, most relevant KPIs. This document summarises the testing phase, which took part right after the system had been finalised.

## *Testing*

The aim of this activity was testing the port performance indicator system in practice and check of its feasibility and usability, by:

- selecting ports to involve with the test (14 ports from Hungary, Romania and Croatia altogether), meaning asking them by the partners to take part in the measurements;
- carrying out self-measurements, meaning sending the participating ports the excel-based system to fill in;
- making quality assurance of the results with special regard to the suitability of the KPIs and the solidness of the data provided;
- checking the classifications the system generated in form of ratings for the respective functions of the ports participated in the test.

The testing has proved that the indicators are able to measure the port performance and service level transparently and are appropriate for self-measurement for the ports. It has also turned out that no significant changes should be done.

We experienced, that data given by the port operators were more concrete and strict; the ports got lower scores at this factor then by the customer satisfaction part. It brings up two questions: shall we reconsider the weighting of the port operator data (higher weight) or is the difference caused by the fact that most of the ports had involved only one client (shall more clients be involved in order to get more relevant results).

## *Content*

The first part of this study (Chapter 2) summarises the testing results by each of the participating ports, then in the second part (Chapter 3) we describe the indicator system. In Chapter 4 we summarise the conclusions of the testing and demonstrate the sustainability of the measurement system.

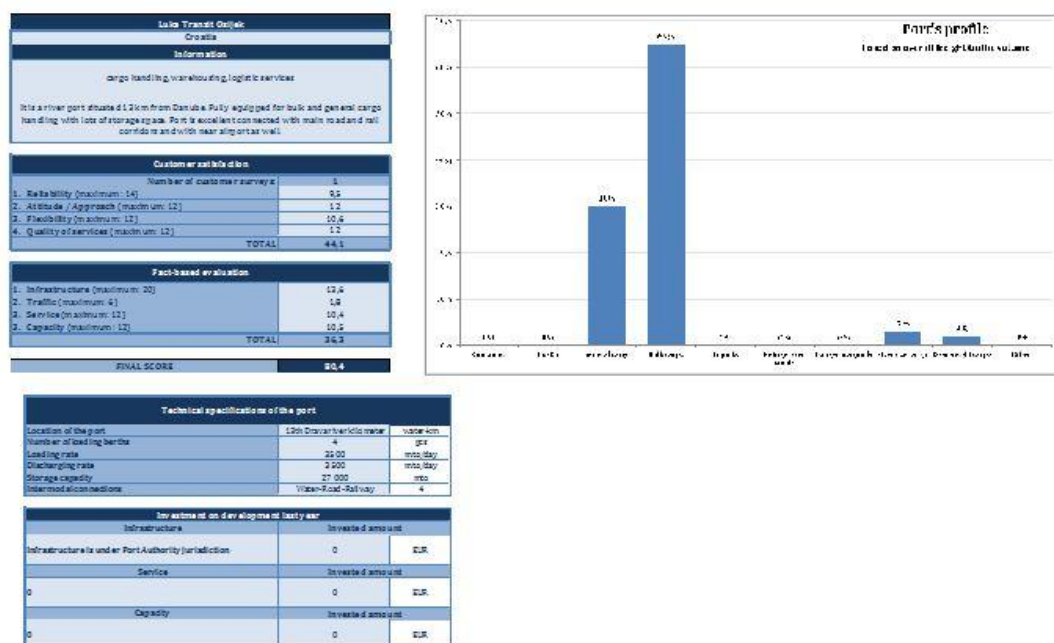
## 2 Summary of the testing results

During the testing phase, 14 (fourteen) port operators in Hungary, Romania and Croatia were asked to fill in the excel-based performance measurement system and also to ask at least one of their customers to answer the customer satisfaction survey.

The last sheet of the excel-based system is the Report sheet, which collects both the data given by the port operator and the answers given by the customers converted into certain scores, and summarises the results.

Besides the final scores, the Report sheet (Graph 1) also contains a short introduction of the port, a technical specification and a diagram showing the port's profile, based on the overall freight traffic volume.

Graph 1  
Report sheet



On the following pages, the reports from all of the participating ports will be introduced.



The scores gained during the evaluation were converted to “stars” which meaning that 90-100 points worth 5 stars, 80-89 points worth 4 stars, 70-79 points worth 3 stars, 60-69 points worth 2 stars and 50-59 points worth 1 star. Among the participating ports, there was only one which did not reach the 50 points, the rest of the participants got 3 or 4 stars. The fact, that no five-star port was found proves that there are areas to be developed by all ports.

Chapter 4 summarises the further conclusions of the testing and the quality assurance of the measurement system.

## 2.1 Hungary

In Hungary, five port operators participated in the testing phase. Each port operator involved one of their customers. The Hungarian ports gained points between 70,9 and 82,55. The best Hungarian measured port won the third place of all and got 4 in the end. The following pages summarise the results one by one.

### ÁTI DEPO ZRT

Basic information about the port:

ÁTI DEPO ZRT (Baja)		
Information		
warehousing of goods, port services (direct transshipment) (un)loading truck, barge, railcar)		
<p>The ÁTI Baja site is accessible from highway No. 51, or highway No. 55. It can be found at kilometre No. 1480 of Danube, and thus, as part of the complex service of logistics, it provides port services, too, and within the frame of which it can even serve three ships simultaneously. A huge advantage of the Baja site is that a portal and a bridge crane are available for the facilitation of (un)loading vessels. The site realises a large amount of turnover of goods in bulk (e.g. soya grits, wheat, barley, corn), which is supported also by a silo of 33,000 tons. The flat storage capacity is 10.000 m<sup>2</sup>.</p>		
Technical specifications of the port		
Location of the port	1480	water-km
Number of loading berths	3	pcs
Loading rate	1000	mto/day
Discharging rate	1 000	mto/day
Storage capacity	40 000	mto
Intermodal connections	Water-Road-Railway	3
Investment on development last year		
Infrastructure	Invested amount	
scale	30 000	EUR
Service	Invested amount	
-	0	EUR
Capacity	Invested amount	
grain loading system	400 000	EUR

The port's profile covers 99% Bulk cargo and 1% Oversize cargo.

Result of the performance measurement:

Customer satisfaction	
Number of customer surveys:	1
1. Reliability (maximum: 14)	13,1
2. Attitude / Approach (maximum: 12)	11,6
3. Flexibility (maximum: 12)	10,8
4. Quality of services (maximum: 12)	9,2
TOTAL	44,7
Port operator data	
1. Infrastructure (maximum: 20)	14,2
2. Traffic (maximum: 6)	1,4
3. Service (maximum: 12)	2
3. Capacity (maximum: 12)	8,5
TOTAL	26,1
FINAL SCORE	70,8

### Budapesti Szabadkikötő Logisztikai Zrt.

Basic information about the port:

Budapesti Szabadkikötő Logisztikai Zrt. (Budapest, Csepel)		
Information		
port services and lies of property		
150 hectare territory with 3 basins and 15 kilometres railway operations; On 18 quay berth are there possibilities of loading and unloading bulk cargo, cereals, general cargo, metals, container cargo as well as storing them. The port also has a Ro-Ro terminal.		
Technical specifications of the port		
Location of the port	1640,5 - 1639,5	water-km
Number of loading berths	3	pcs
Loading rate	1000	mto/day
Discharging rate	800	mto/day
Storage capacity	150 000	mto
Intermodal connections	Water-Road-Railway	3

Investment on development last year		
Infrastructure	Invested amount	
building interior road, strengthening river wall, renovation of railway, 25 000 m2 new coated open space	1 000 000	EUR
Service	Invested amount	
infrastructure and new storage	12 903 225	EUR
Capacity	Invested amount	
4000 m2 storage	3 225 800	EUR

The port's profile covers 30% Container, 25% General cargo, 19% Bulk cargo, 13% Liquids, 9% Ro-Ro, 2% Oversize cargo and 2% Overweight cargo.

Result of the performance measurement:

Customer satisfaction	
Number of customer surveys:	1
1. Reliability (maximum: 14)	10,8
2. Attitude / Approach (maximum: 12)	10
3. Flexibility (maximum: 12)	8,4
4. Quality of services (maximum: 12)	8,8
<b>TOTAL</b>	<b>38</b>
Port operator data	
1. Infrastructure (maximum: 20)	17,6
2. Traffic (maximum: 6)	5,4
3. Service (maximum: 12)	11
3. Capacity (maximum: 12)	8
<b>TOTAL</b>	<b>42</b>
<b>FINAL SCORE</b>	<b>80</b>

### Centroport Kft.

Basic information about the port:

Centroport Kft. (Dunaújváros)
Information
agro-logistic, river/rail/road, transhipments, covered /1600 sqm/ flat grain storage
Net sales revenues 2014: 500.000,- EUR, No of employees: 4, Last year's performance: 105.000 in mto

Technical specifications of the port		
Location of the port	1580-1579	water-km
Number of loading berths	1	pcs
Loading rate	2000	mto/day
Discharging rate	1 500	mto/day
Storage capacity	7 000	mto
Intermodal connections	Water-Road-Railway	3
Investment on development last year		
Infrastructure	Invested amount	
Technological pipes, PLC control, loading tube, LM telehandler, weigh-bridge, new office	287 000	EUR
Service	Invested amount	
-	0	EUR
Capacity	Invested amount	
-	0	EUR

Port's profile: 100% Bulk cargo.

Result of the performance measurement:

Customer satisfaction	
Number of customer surveys:	1
1. Reliability (maximum: 14)	12,6
2. Attitude / Approach (maximum: 12)	11,6
3. Flexibility (maximum: 12)	12
4. Quality of services (maximum: 12)	12
<b>TOTAL</b>	<b>48,2</b>
Port operator data	
1. Infrastructure (maximum: 20)	13,75
2. Traffic (maximum: 6)	1,2
3. Service (maximum: 12)	9,9
3. Capacity (maximum: 12)	9,5
<b>TOTAL</b>	<b>34,35</b>
<b>FINAL SCORE</b>	<b>82,55</b>

## Dunai Kikötő Kft.

General information about the port:

Dunai Kikötő Kft. (Budapest, Csepel) Information		
Loading and unloading of ships, storage, packaging		
Technical specifications of the port		
Location of the port	Danube km. 1639 left bank	water-km
Number of loading berths	2	pcs
Loading rate	1000	mto/day
Discharging rate	1 000	mto/day
Storage capacity	20 000	mto
Intermodal connections	Water-Road-Railway	3
Investment on development last year		
Infrastructure	Invested amount	
-	0	EUR
Service	Invested amount	
-	0	EUR
Capacity	Invested amount	
-	0	EUR

The port's profile covers 98% Bulk cargo and 2% General cargo.

Result of the performance measurement:

Customer satisfaction	
Number of customer surveys:	1
1. Reliability (maximum: 14)	10,7
2. Attitude / Approach (maximum: 12)	10,8
3. Flexibility (maximum: 12)	10,1
4. Quality of services (maximum: 12)	10,6
<b>TOTAL</b>	<b>42,2</b>
Port operator data	
1. Infrastructure (maximum: 20)	14,1
2. Traffic (maximum: 6)	2,6
3. Service (maximum: 12)	6
3. Capacity (maximum: 12)	7
<b>TOTAL</b>	<b>29,7</b>
<b>FINAL SCORE</b>	<b>71,9</b>

## ICGRAIN Zrt.

General information about the port:

ICGRAIN Zrt. (Baja) Information		
loading of barges, storages of bulk commodities, selling of cereals		
storage 5000 T , loading of barges		
Technical specifications of the port		
Location of the port	1479 + 500-650	water-km
Number of loading berths	1	pcs
Loading rate	2400	mto/day
Discharging rate	0	mto/day
Storage capacity	5 000	mto
Intermodal connections	Water-Road	2
Investment on development last year		
Infrastructure	Invested amount	
-	0	EUR
Service	Invested amount	
-	0	EUR
Capacity	Invested amount	
-	0	EUR

Port's profile: 100% Bulk cargo.

Result of the performance measurement:

Customer satisfaction	
Number of customer surveys:	1
1. Reliability (maximum: 14)	14
2. Attitude / Approach (maximum: 12)	12
3. Flexibility (maximum: 12)	12
4. Quality of services (maximum: 12)	10
<b>TOTAL</b>	<b>48</b>
Port operator data	
1. Infrastructure (maximum: 20)	11,7
2. Traffic (maximum: 6)	0,2
3. Service (maximum: 12)	5,4
3. Capacity (maximum: 12)	7,5
<b>TOTAL</b>	<b>24,8</b>
<b>FINAL SCORE</b>	<b>72,8</b>

## 2.2 Romania

There were five ports participating in the testing phase in Romania and each of them involved one of their customers. The scores were between 70 and 84,6. 84,6 points was the highest score among all the fourteen measured ports. Detailed results are as follows.

### Deltanav S.A - Tulcea Port

Basic information about the port:

Deltanav S.A - Tulcea Port (Tulcea)		
Information		
Loading / unloading bulk and packaged goods		
The port provide specialized operation such as supply of raw material for metal-lurgy by loading / unloading the river and sea vessels		
Technical specifications of the port		
Location of the port	The port is situated on the right bank of Danube, Mm 39,5	water-km
Number of loading berths	2	pcs
Loading rate	7500	mto/day
Discharging rate	8 700	mto/day
Storage capacity	20 000	mto
Intermodal connections	Water-Road	2
Investment on development last year		
Infrastructure	Invested amount	
Achievement concrete platforms, repair / maintenance of lifting equipment	854 000	EUR
Service	Invested amount	
-	0	EUR
Capacity	Invested amount	
Terminal for cereal loading	122 954	EUR

The port's profile covers 85% Bulk cargo and 15% General cargo.

Result of the performance measurement:

Customer satisfaction	
Number of customer surveys:	1
1. Reliability (maximum: 14)	13,1
2. Attitude / Approach (maximum: 12)	12

3. Flexibility (maximum: 12)	11,3
4. Quality of services (maximum: 12)	10,2
<b>TOTAL</b>	<b>46,6</b>
<b>Port operator data</b>	
1. Infrastructure (maximum: 20)	10,35
2. Traffic (maximum: 6)	4,4
3. Service (maximum: 12)	8,5
3. Capacity (maximum: 12)	10
<b>TOTAL</b>	<b>33,25</b>
<b>FINAL SCORE</b>	<b>79,85</b>

## DOCURI SA

Basic information about the port:

DOCURI SA (Galati)		
Information		
Port services for unloading , loading , handling and mooring of goods		
Port operations run for both packaged goods and bulk goods from/to the following transportation ways: automotive, railway, river and sea. We anchor carrying capacity of transported goods and we ensure the transport of oversized parts.		
Technical specifications of the port		
Location of the port	150	water-km
Number of loading berths	7	pcs
Loading rate	3500	mto/day
Discharging rate	3 500	mto/day
Storage capacity	37 000	mto
Intermodal connections	0	0
Investment on development last year		
Infrastructure	Invested amount	
Modernization of grain storage	N/A	EUR
Service	Invested amount	
Loading , unloading, handling and mooring of goods	N/A	EUR
Capacity	Invested amount	
Tools and devices	N/A	EUR

Port's profile: 90% Bulk cargo, 10% General cargo.

Result of the performance measurement:

Customer satisfaction	
Number of customer surveys:	1
1. Reliability (maximum: 14)	13,1
2. Attitude / Approach (maximum: 12)	11,2
3. Flexibility (maximum: 12)	10,1
4. Quality of services (maximum: 12)	10,4
<b>TOTAL</b>	<b>44,8</b>
Port operator data	
1. Infrastructure (maximum: 20)	9
2. Traffic (maximum: 6)	2,4
3. Service (maximum: 12)	2,3
3. Capacity (maximum: 12)	11,5
<b>TOTAL</b>	<b>25,2</b>
<b>FINAL SCORE</b>	<b>70</b>

## SC HERCULES SA

General information about the port:

SC HERCULES SA (Brailia)
Information
Loading, unloading ships , warehousing, inland waterway transport of goods
S.C. HERCULES S.A. is a firm with entirely private capital which develop it's activity in Braila harbour, as port services operator, loading/discharging in/from both maritime and river ships, storing general cargoes on platforms and warehouses of its own.
Located on km. 171, Braila Harbour has a basin with the length of 550m and width of 145m. On the length of 550m, the quay is vertical.
The harbour also has:
- 9 maritime berths;
- 29 river berths;
- 16 waiting berths, and so on
Braila Harbour has quay cranes of 5 tf and 16 tf, 2 bridge cranes, floating cranes, storage platforms, for goods on a surface of 246 000 m <sup>2</sup> , a grain silo of 6800 tons and floating cranes. Railways, roads, electricity, fresh water and fire-fighting water networks are available in Braila Harbour.
The minimum level insured in Braila Harbour is 23 feet (7 010 m) and at higher levels of the Danube, vessels up to 10,000 dwt have access (the minimum level depends on the Danube level)

S.C. HERCULES S.A., in its quality own transport capacities (schleps, barges cover and open), pushers and tugs from 600 HP up to 2700 HP		
<b>Technical specifications of the port</b>		
Location of the port	km 167 to km 173+800 m	water-km
Number of loading berths	6	pcs
Loading rate	1500	mto/day
Discharging rate	1 500	mto/day
Storage capacity	110 000	mto
Intermodal connections	Water-Road-Railway	3
<b>Investment on development last year</b>		
<b>Infrastructure</b>	<b>Invested amount</b>	
Silo - 25000 t , storage- 25000 t, drying Grain, reception / teaching grains equipment, Laboratory and auto / CF Scales	2 200 000	EUR
<b>Service</b>	<b>Invested amount</b>	
Grain delivery from storage and silo using conveyor belts directly to the ship	0	EUR
<b>Capacity</b>	<b>Invested amount</b>	
storage capacity	2 200 000	EUR

Port's profile: 32% Bulk cargo.

Result of the performance measurement:

<b>Customer satisfaction</b>	
<b>Number of customer surveys:</b>	<b>1</b>
<b>1. Reliability</b> (maximum: 14)	12,6
<b>2. Attitude / Approach</b> (maximum: 12)	12
<b>3. Flexibility</b> (maximum: 12)	11,3
<b>4. Quality of services</b> (maximum: 12)	10,6
<b>TOTAL</b>	<b>46,5</b>
<b>Port operator data</b>	
<b>1. Infrastructure</b> (maximum: 20)	15,5
<b>2. Traffic</b> (maximum: 6)	4,2
<b>3. Service</b> (maximum: 12)	6,4
<b>3. Capacity</b> (maximum: 12)	12
<b>TOTAL</b>	<b>38,1</b>
<b>FINAL SCORE</b>	<b>84,6</b>

## PORT BAZINUL NOU SA

Basic information about the port:

PORT BAZINUL NOU SA (Galati)		
Information		
Port services for unloading , loading , handling and mooring of goods		
Port operations run for both packaged goods and bulk goods from/to the following transportation ways: automotive, railway, river and sea. We anchor carrying capacity of transported goods and we ensure the transport of oversized parts.		
Technical specifications of the port		
Location of the port	150	water-km
Number of loading berths	7	pcs
Loading rate	3500	mto/day
Discharging rate	3 500	mto/day
Storage capacity	90 000	mto
Intermodal connections	0	0
Investment on development last year		
Infrastructure	Invested amount	
Truck scale - 60t	N/A	EUR
Service	Invested amount	
Loading , unloading, handling and mooring of goods	N/A	EUR
Capacity	Invested amount	
Tools and devices	N/A	EUR

Port's profile: 66% Bulk cargo, 29% General cargo, 3% Oversize cargo, 2% Container.

Result of the performance measurement:

Customer satisfaction	
Number of customer surveys:	1
1. Reliability (maximum: 14)	13,1
2. Attitude / Approach (maximum: 12)	11,2
3. Flexibility (maximum: 12)	10,6
4. Quality of services (maximum: 12)	10,2
<b>TOTAL</b>	<b>45,1</b>
Port operator data	
1. Infrastructure (maximum: 20)	9
2. Traffic (maximum: 6)	4,8
3. Service (maximum: 12)	2,3

<b>3. Capacity</b> (maximum: 12)	11
<b>TOTAL</b>	<b>27,1</b>
<b>FINAL SCORE</b>	<b>72,2</b>

## ROMPORTMET S.A.

Basic information about the port:

ROMPORTMET S.A. (Galati)		
Information		
Download bulk raw materials for Arcelor Mittal Galati , loading / shipment of finished rolled products for Arcelor Mittal , the operation of other bulk materials to third companies		
ARCELORMITTAL principal shareholder ; Activities especially for ARCELORMITTAL		
Technical specifications of the port		
Location of the port	Km 156, on the left side of Danube	water-km
Number of loading berths	3	pcs
Loading rate	5000	mto/day
Discharging rate	20 000	mto/day
Storage capacity	39 780	mto
Intermodal connections	Water-Road-Railway	3
Investment on development last year		
Infrastructure	Invested amount	
-	0	EUR
Service	Invested amount	
-	0	EUR
Capacity	Invested amount	
-	0	EUR

Port's profile: 72% Bulk cargo, 28% General cargo.

Result of the performance measurement:

Customer satisfaction	
Number of customer surveys:	<b>1</b>
<b>1. Reliability</b> (maximum: 14)	14
<b>2. Attitude / Approach</b> (maximum: 12)	12
<b>3. Flexibility</b> (maximum: 12)	12
<b>4. Quality of services</b> (maximum: 12)	11
<b>TOTAL</b>	<b>49</b>

Port operator data	
1. <b>Infrastructure</b> (maximum: 20)	13,9
2. <b>Traffic</b> (maximum: 6)	1,4
3. <b>Service</b> (maximum: 12)	1
3. <b>Capacity</b> (maximum: 12)	10,5
<b>TOTAL</b>	<b>26,8</b>
<b>FINAL SCORE</b>	<b>75,8</b>

## 2.3 Croatia

Four port operators participated in the testing phase from Croatia. Most of the scores were around 80, except one port which did not reach the 50. This chapter contains the results in details.

### Luka Tranzit Osijek D.O.O.

Basic information about the port:

Luka Tranzit Osijek (Osijek)		
Information		
cargo handling, warehousing, logistic services		
It is a river port situated 13 km from Danube. Fully equipped for bulk and general cargo handling with lots of storage space. Port is excellent connected with main road and rail corridors and with near airport as well.		
Technical specifications of the port		
Location of the port	13th Drava river kilometre	water-km
Number of loading berths	4	pcs
Loading rate	3500	mto/day
Discharging rate	3 500	mto/day
Storage capacity	27 000	mto
Intermodal connections	Water-Road-Railway	3
Investment on development last year		
Infrastructure	Invested amount	
Infrastructure is under Port Authority jurisdiction	0	EUR
Service	Invested amount	
-	0	EUR
Capacity	Invested amount	
-	0	EUR

The port's profile covers 65% Bulk cargo, 30% General cargo, 3% Oversize cargo and 2% Overweight cargo.

Result of the performance measurement:

Customer satisfaction	
Number of customer surveys:	1
1. Reliability (maximum: 14)	9,5
2. Attitude / Approach (maximum: 12)	12
3. Flexibility (maximum: 12)	10,6
4. Quality of services (maximum: 12)	12
<b>TOTAL</b>	<b>44,1</b>
Port operator data	
1. Infrastructure (maximum: 20)	13,6
2. Traffic (maximum: 6)	1,8
3. Service (maximum: 12)	10,4
3. Capacity (maximum: 12)	10,5
<b>TOTAL</b>	<b>36,3</b>
<b>FINAL SCORE</b>	<b>80,4</b>

## LUKA-VUKOVAR d.o.o.

Basic information about the port:

LUKA-VUKOVAR d.o.o. (Vukovar)		
Information		
Transshipment, storage, agency services		
The only river port in Croatia on Danube.		
Technical specifications of the port		
Location of the port	1335 rkm	water-km
Number of loading berths	5	pcs
Loading rate	3000	mto/day
Discharging rate	3 000	mto/day
Storage capacity	24 000	mto
Intermodal connections	Water-Road-Railway	3
Investment on development last year		
Infrastructure	Invested amount	
none	0	EUR

Service	Invested amount	
1. crane repairs, 2. new computers, 3. various tools	110 000	EUR
Capacity	Invested amount	
none	0	EUR

Port's profile: 83% Bulk cargo, 13% General cargo, 1% Overweight cargo.

Result of the performance measurement:

Customer satisfaction	
Number of customer surveys:	1
1. Reliability (maximum: 14)	14
2. Attitude / Approach (maximum: 12)	12
3. Flexibility (maximum: 12)	12
4. Quality of services (maximum: 12)	12
<b>TOTAL</b>	<b>50</b>
Port operator data	
1. Infrastructure (maximum: 20)	12
2. Traffic (maximum: 6)	0,6
3. Service (maximum: 12)	11,4
3. Capacity (maximum: 12)	10
<b>TOTAL</b>	<b>34</b>
<b>FINAL SCORE</b>	<b>84</b>

## TERMINAL DUNAV VUKOVAR

Basic information about the port:

TERMINAL DUNAV VUKOVAR (Vukovar)		
Information		
Storage and handling of petroleum products		
The only Croatian port of the Danube.		
Technical specifications of the port		
Location of the port	Danube 1336 rkm	water-km
Number of loading berths	1	pcs
Loading rate	1500	mto/day
Discharging rate	1 000	mto/day
Storage capacity	48 000	mto
Intermodal connections	Water-Road-Railway	3

Investment on development last year		
Infrastructure	Invested amount	
Loader	50 000	EUR
Service	Invested amount	
Repair service	10 000	EUR
Capacity	Invested amount	
Floor storage (in development)	4 000 000	EUR

Port's profile: 100% liquid.

Result of the performance measurement:

Customer satisfaction	
Number of customer surveys:	1
1. Reliability (maximum: 14)	10,3
2. Attitude / Approach (maximum: 12)	9,6
3. Flexibility (maximum: 12)	8,4
4. Quality of services (maximum: 12)	8
<b>TOTAL</b>	<b>36,3</b>
Port operator data	
1. Infrastructure (maximum: 20)	8,45
2. Traffic (maximum: 6)	0,2
3. Service (maximum: 12)	1,6
3. Capacity (maximum: 12)	2
<b>TOTAL</b>	<b>12,25</b>
<b>FINAL SCORE</b>	<b>48,55</b>

## PC Reloading Port VUPIK

Basic information about the port:

PC Reloading Port VUPIK (Vukovar) Information		
Reloading of grains and oilseeds		
SAFETY-TRUST-SPEED-QUALITY		
Technical specifications of the port		
Location of the port	Danube 1336 rkm	water-km
Number of loading berths	1	pcs
Loading rate	1500	mto/day
Discharging rate	1 000	mto/day
Storage capacity	48 000	mto
Intermodal connections	Water-Road-Railway	3

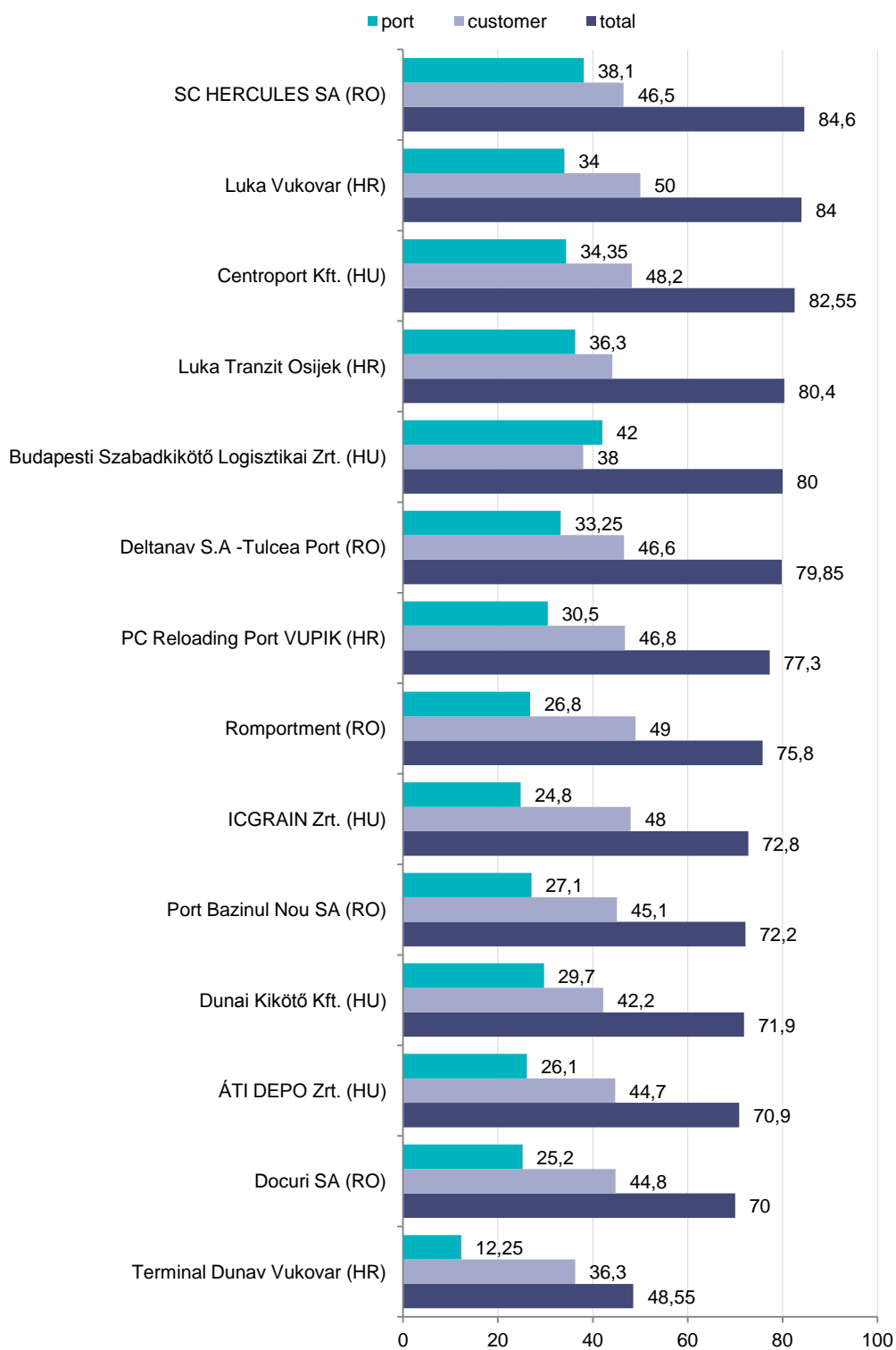
Investment on development last year		
Infrastructure	Invested amount	
Loader	50 000	EUR
Service	Invested amount	
Repair service	10 000	EUR
Capacity	Invested amount	
Floor storage (in development)	4 000 000	EUR

Port's profile: 100% Bulk cargo

Result of the performance measurement:

Customer satisfaction	
Number of customer surveys:	1
1. Reliability (maximum: 14)	13,1
2. Attitude / Approach (maximum: 12)	11,2
3. Flexibility (maximum: 12)	10,9
4. Quality of services (maximum: 12)	11,6
TOTAL	46,8
Port operator data	
1. Infrastructure (maximum: 20)	14
2. Traffic (maximum: 6)	0,2
3. Service (maximum: 12)	6,3
3. Capacity (maximum: 12)	10
TOTAL	30,5
FINAL SCORE	77,3

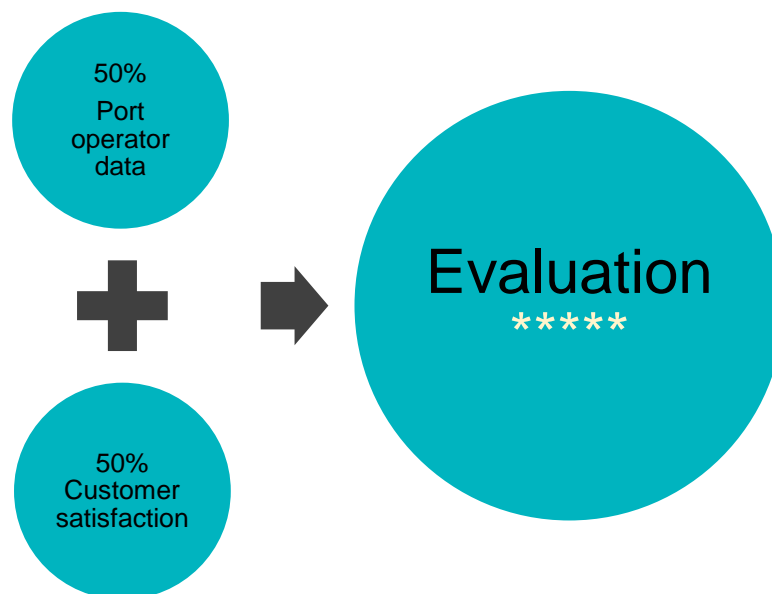
Graph 2  
Result of the testing (final scores of the participating ports)



### 3 Description of the indicator system

The key performance indicators were defined containing two categories: one is based on data given by the port operators and the other one is based on answers given by the port's customers on a customer satisfaction survey. Therefore, the excel-based measurement system consists of two sheets to fill in: "Port operator" sheet and "Customer satisfaction" sheet. The summary of the results appear on the "Report" sheet.

Maximum 100 points can be given on the indicators, 50 on the Port operator data and 50 by the customers.



In this chapter, we describe the indicator system and the weighting methodology.

#### 3.1 KPIs of the Port operator sheet

KPIs on the Port operator sheet were divided into four groups: Infrastructure, Traffic, Service and Capacity.

##### 3.1.1 INFRASTRUCTURE

The first category on the Port operator sheet is connected to the infrastructural facilities of the port. Maximum 20 points from the 50 can be gained in this part, and all data is given (filled in) by the port operator. The components of this category and their weightings are as follows.

### 1. Number of loading berths

This indicator means the number of possibilities for the ships to carry out loading at the port. The data is measured in pieces. The maximum score for this indicator is 1,5 points from the 20, calculation is shown in the table.

Answer	Value <sup>1</sup>	Weighting <sup>2</sup>	Score
1	1	1 x 0,5	0,5
2	2	2 x 0,5	1
3 ≤	3	3 x 0,5	1,5

### 2. Number of intermodal connections

This indicator shows how many intermodal connections (water, road and railway) the port has. According to the research and consultations, this indicator has relatively high importance, therefore got higher weight and maximum 4 points from the 20.

Answer	Value	Weighting	Score
1	1	1 x 1	1
2	2	2 x 1	2
3	4	4 x 1	4

### 3. Fuelling services

This indicator shows if the port offers fuelling services for the ships. It is a yes/no indicator which consists of two parts and worth in all 1 point from the 20.

#### 3.a Diesel

Diesel fuelling services for ships are available at the port.

Answer	Value	Weighting	Score
Yes	1	1 x 0,75	0,75
No	0	0 x 0,75	0

#### 3.b LNG, LPG, CGL

There are other fuelling services are available at the port.

Answer	Value	Weighting	Score
Yes	1	1 x 0,25	0,25
No	0	0 x 0,25	0

### 4. Quality Assurance

This indicator shows if the port has quality assurance and which type. It is a yes/no indicator which consists of four parts and worth 2 in all points from the 20.

<sup>1</sup> The Excel converts the answers into a „Value“ which is the basis of the weighting

<sup>2</sup> Value x Weight

#### 4.a ISO

The port has ISO certificate(s).

Answer	Value	Weighting	Score
Yes	1	1 x 0,4	0,4
No	0	0 x 0,4	0

#### 4.b HACCP

The port has HACCP certificate(s).

Answer	Value	Weighting	Score
Yes	1	1 x 0,6	0,6
No	0	0 x 0,6	0

#### 4.c GMP

The port has GMP certificate(s).

Answer	Value	Weighting	Score
Yes	1	1 x 6	0,6
No	0	0 x 0,6	0

#### 4.d other

The port has other Quality Assurance certificate(s).

Answer	Value	Weighting	Score
Yes	1	1 x 0,4	0,4
No	0	0 x 0,4	0

### 5. Insurance

This indicator shows if the port has insurance and which type. It is a yes/no indicator which consists of seven parts and worth in all 3 points from the 20.

#### 5.a liability insurance

The port has liability insurance.

Answer	Value	Weighting	Score
Yes	1	1 x 0,5	0,5
No	0	0 x 0,5	0

#### 5.b property insurance

The port is insured against property damage.

Answer	Value	Weighting	Score
Yes	1	1 x 0,4	0,4
No	0	0 x 0,4	0

### 5.c against business disruption

The port is insured against business disruption (when loading is impossible).

Answer	Value	Weighting	Score
Yes	1	1 x 0,5	0,5
No	0	0 x 0,5	0

### 5.d against fire

The port is insured against fire damage.

Answer	Value	Weighting	Score
Yes	1	1 x 0,4	0,4
No	0	0 x 0,4	0

### 5.e against theft

The port is insured against loss caused by theft.

Answer	Value	Weighting	Score
Yes	1	1 x 0,4	0,4
No	0	0 x 0,4	0

### 5.f against water damage

The port is insured against flood damage.

Answer	Value	Weighting	Score
Yes	1	1 x 0,4	0,4
No	0	0 x 0,4	0

### 5.g other

The port is insured against something else not listed above.

Answer	Value	Weighting	Score
Yes	1	1 x 0,4	0,4
No	0	0 x 0,4	0

## 6. Investment on infrastructure

This is a yes/no indicator which shows if the port made infrastructural investment during the last year and is actually not scored. This information appears on the Report sheet as a part of the overview of the port.

### 6.a List of infrastructural investments

The port shall provide here a list of the developed infrastructure and the data appears on the Report sheet as additional information.

### 6.b Amount spent on infrastructural investments last year

This indicator means the total net amount that the port spent on infrastructural development in the last business year. The port shall provide a sum here which appears on the Report sheet as additional information.

## 7. Service complexity

This indicator shows how complex services the port provides and contains a list of services dependent on infrastructure available at the port. It is a yes/no indicator which consists of nine parts and worth in all 8 points from the 20.

### 7.a Being integrated into a logistic chain

The port is part of a complex logistic chain therefore it can provide better organised, more complex and flexible services.

Answer	Value	Weighting	Score
Yes	1	1 x 1	1
No	0	0 x 1	0

### 7.b Own ship

The port possesses own ship available for freight transportation.

Answer	Value	Weighting	Score
Yes	1	1 x 0,5	0,5
No	0	0 x 0,5	0

### 7.c Own transportation facilities

The port possesses own vehicles available for freight transportation.

Answer	Value	Weighting	Score
Yes	1	1 x 0,5	0,5
No	0	0 x 0,5	0

### 7.d Availability of logistic services

The port offers logistic services.

Answer	Value	Weighting	Score
Yes	1	1 x 1	1
No	0	0 x 1	0

### 7.e Covered transshipment possibility

There is an area at the port covered by a roof for the loading of goods.

Answer	Value	Weighting	Score
Yes	1	1 x 1,5	1,5
No	0	0 x 1,5	0

### 7.f Warehousing, storing

Warehousing possibilities are available directly at the port.

Answer	Value	Weighting	Score
Yes	1	1 x 2	2
No	0	0 x 2	0

### 7.g Transhipment of containers

The port offers possibility of transhipment of containers.

Answer	Value	Weighting	Score
Yes	1	1 x 0,5	0,5
No	0	0 x 0,5	0

### 7.h Ro-Ro services

The port has a Ro-Ro terminal.

Answer	Value	Weighting	Score
Yes	1	1 x 0,5	0,5
No	0	0 x 0,5	0

### 7.i Other services

The port provides any other services not mentioned above.

Answer	Value	Weighting	Score
Yes	1	1 x 0,5	0,5
No	0	0 x 0,5	0

## 3.1.2 TRAFFIC DATA

The second category on the Port operator sheet is connected to the annual traffic data of the port. Maximum 6 points from the 50 can be gained in this part, and all data is given (filled in) by the port operator. The components of this category and their weightings are as follows.

### 8. Annual turnover

Here the port operators shall provide their total annual turnover (net sales) generated from the transportation of goods (measured in metric tonnes) of the preceding business year. Here the ports can get maximum 3 points from the 6.

Answer	Value	Weighting	Score
< 200 000	0	0 x 1	0
200 000 ≤ and < 400 000	1	1 x 1	1

Answer	Value	Weighting	Score
$400\,000 \leq$ and $< 600\,000$	2	2 x 1	2
$600\,000 \leq$	3	3 x 1	3

#### 9. Liner service

This KPI means the number of customers who send contractually bound periodic shipments to the port. The maximum score for this indicator is 1 from the 6 points.

Answer	Value	Weighting	Score
0	0	0 x 1	0
$0 <$	1	1 x 1	1

#### 10. Overall freight traffic volume

This indicator shows the port's profile. It contains a list of types of cargo which the ports may deal with. Here the ports shall provide the percentage of their overall freight traffic covered by the certain cargo types. This indicator may not score high points but has important role on the Report sheet, where the port's profile is viewed on a graph generated from the data given here.

The maximum points here are in all 2 from the 6. The calculation methodology is the same for all the 10 components:

Answer	Value	Weighting	Score
0 %	0	0 x 0,2	0
$0 \% <$	1	1 x 0,2	0,2

##### 10.a Container

Percentage of transferred container cargo compared to the total annual turnover generated from the transportation of all goods in the preceding year.

##### 10.b Ro-Ro

Percentage of transferred Ro-Ro cargo compared to the total annual turnover generated from the transportation of all goods in the preceding year.

##### 10.c General cargo

Percentage of transferred general cargo compared to the total annual turnover generated from the transportation of all goods in the preceding year.

##### 10.d Bulk cargo

Percentage of transferred bulk cargo compared to the total annual turnover generated from the transportation of all goods in the preceding year.

##### 10.e Liquids

Percentage of transferred liquids compared to the total annual turnover generated from the transportation of all goods in the preceding year.

*10.f Refrigerated goods*

Percentage of transferred refrigerated goods compared to the total annual turnover generated from the transportation of all goods in the preceding year.

*10.g Dangerous goods*

Percentage of transferred dangerous goods compared to the total annual turnover generated from the transportation of all goods in the preceding year.

*10.h Oversized cargo*

Percentage of transferred oversized cargo compared to the total annual turnover generated from the transportation of all goods in the preceding year.

*10.i Overweight cargo*

Percentage of transferred overweight cargo compared to the total annual turnover generated from the transportation of all goods in the preceding year.

*10.j Other*

Percentage of any other type of goods transferred but not listed above and characteristic of the ports portfolio.

**3.1.3 SERVICE**

The third category on the Port operator sheet describes the services of the port. Maximum 12 points from the 50 can be gained in this part, and all data is given (filled in) by the port operator. The components of this category and their weightings are as follows.

*11. Demurrage guarantee*

This indicator shows if the port guarantees the reimbursement of expenses caused by exceeding the undertaken loading time. It is a yes/no indicator which was identified a very important factor, therefore it worth maximum 3 points from the 12.

Answer	Value	Weighting	Score
Yes	1	1 x 3	3
No	0	0 x 3	0

*12. Tugboat service*

The indicator means that the port offers tugboat (or push boat) service. It is a yes/no indicator which worth maximum 2 points from the 12.

Answer	Value	Weighting	Score
Yes	1	1 x 2	2
No	0	0 x 2	0

*13. Waste service (green port)*

The port provides selective waste services and is a green port in any other relation.

Answer	Value	Weighting	Score
Yes	1	1 x 1	1
No	0	0 x 1	0

#### 14. Customs services

The port offers customs administration services.

Answer	Value	Weighting	Score
Yes	1	1 x 1	1
No	0	0 x 1	0

#### 15. Possibility of long-term warehousing

The port ensures possibility for long-term warehousing of the transported goods.

Answer	Value	Weighting	Score
Yes	1	1 x 1	1
No	0	0 x 1	0

#### 16. Repair service

The port offers small repair services for the ships and containers.

Answer	Value	Weighting	Score
Yes	1	1 x 1	1
No	0	0 x 1	0

#### 17. Cleaning possibility

Container and vehicle (ship and other) cleaning services are available at the port.

Answer	Value	Weighting	Score
Yes	1	1 x 0,5	0,5
No	0	0 x 0,5	0

#### 18. Electricity and drink water supply

The port provides electricity and drinking water.

Answer	Value	Weighting	Score
Yes	1	1 x 0,8	0,8
No	0	0 x 0,8	0

#### 19. Wi-Fi

The ports offers free Wi-Fi for the customers.

Answer	Value	Weighting	Score
Yes	1	1 x 0,6	0,6
No	0	0 x 0,6	0

## 20. Catering

The port offers catering services at the port.

Answer	Value	Weighting	Score
Yes	1	1 x 0,6	0,6
No	0	0 x 0,6	0

## 21. Investment on service development

This is a yes/no indicator which shows if the port made investments on service development during the last year and is actually not scored. This information appears on the Report sheet as a part of the overview of the port.

### 21.a List of developed services

The port shall provide here a list of the developed services and the data appears on the Report sheet as additional information.

### 21.b Amount spent on service development last year

This indicator means the total net amount that the port spent on service development in the last business year. The port shall provide a sum (in EUR) here which appears on the Report sheet as additional information.

## 3.1.4 CAPACITY

The third category on the Port operator sheet describes the capacity of the port. Maximum 12 points from the 50 can be gained in this part, and all data is given (filled in) by the port operator. The components of this category and their weightings are as follows.

### 22. Loading rate

This indicator shows the contractual daily loading rate of the port in metric tonnes. The maximum score here is 5 points from the 12 as this KPI was proved to be weighty. Calculation of the scores is shown in the table.

Answer	Value	Weighting	Score
< 1000	0	0 x 1	0
1000 ≤ and < 1200	2	2 x 1	1
1200 ≤ and < 1500	3	3 x 1	3
1500 ≤	5	5 x 1	5

### 23. Discharging rate

This indicator shows the contractual daily discharging rate of the port in metric tonnes. The maximum score here is 2 points from the 12 as the KPI was proved to be almost as weighty as the loading rate.

Answer	Value	Weighting	Score
< 800	0	0 x 1	0

Answer	Value	Weighting	Score
$800 \leq$ and $< 1000$	1	$1 \times 1$	1
$1000 \leq$	2	$2 \times 1$	2

#### 24. Possible number of ships to be loaded simultaneously

This means the maximum number of ships that can be loaded parallel at the port.

Answer	Value	Weighting	Score
0	0	$0 \times 1$	0
$1 \leq$ and $< 3$	1	$1 \times 0,5$	0,5
$3 \leq$ and $< 5$	2	$2 \times 0,5$	1
$5 \leq$	3	$3 \times 0,5$	1,5

#### 25. Storage capacity

This shows the total possible storage capacity of the port in metric tonnes. The port gets one point from the 12 if they have storage capacity.

Answer	Value	Weighting	Score
0	0	$0 \times 1$	0
$0 <$	1	$1 \times 1$	1

##### 25.a Open storage capacity

This shows the open-air storage capacity in metric tonnes.

Answer	Value	Weighting	Score
0	0	$0 \times 0,5$	0
$0 <$	1	$1 \times 0,5$	0,5

##### 25.b Covered flat storage with technology

The KPI shows the total covered flat storage capacity (concerning only flat storage equipped with technology suitable for handling and loading of goods).

Answer	Value	Weighting	Score
0	0	$0 \times 0,5$	0
$0 <$	1	$1 \times 0,5$	0,5

##### 25.c Covered flat storage capacity

Total covered flat storage capacity in metric tonnes.

Answer	Value	Weighting	Score
0	0	$0 \times 0,5$	0
$0 <$	1	$1 \times 0,5$	0,5

### 25.d Silo capacity

Total silo capacity of the port in metric tonnes.

Answer	Value	Weighting	Score
0	0	0 x 0,5	0
0 <	1	1 x 0,5	0,5

### 26. Investment on capacity development

This is a yes/no indicator which shows if the port made investments on capacity development during the last year and is actually not scored. This information appears on the Report sheet as a part of the overview of the port.

#### 26.a List of developments related to the capacity

The port shall provide here a list of the developments related to the capacity and the data appears on the Report sheet as additional information.

#### 26.b Amount spent on service development last year

This indicator means the total net amount that the port spent on capacity development in the last business year. The port shall provide a sum (in EUR) here which appears on the Report sheet as additional information.

## 3.2 KPIs of the Customer satisfaction sheet

Values of the Customer satisfaction sheet are given by one or more customers of the port. To measure this component, the ports shall ask their customers to answer the customer satisfaction survey. Then, the average values of the summarised answers shall be filled in the Customer satisfaction sheet.

In order to have as objective result as possible, it is recommended to ask at least 5 or more customers. These answers are very useful for the ports too, as they can use them for self measurement and as an input to their development strategy.

The Customer satisfaction component, as well as the Port operator data, has 50 points in the evaluation from the maximum 100 points.

The component is divided to four categories, such as *Reliability*, *Attitude*, *approach*, *Flexibility* and *Quality of service*.

### 3.2.1 Reliability

Reliability of the port is measured by three questions which the customers answer with numbers on a 1-10 scale, depending on how reliable they find the port regarding the mentioned factors. The answers (numbers) are equal with the Values and the weights were defined according to the proven importance of each factor. For the Reliability, the maximum score that a port can get is 14 points from the 50. The three factors are as follows.

*1. The port operates at a standard, organised level as the customers would expect.*

Answers can be 1 to 10 depending on how they evaluate and the weight here is 0,4. The table shows an example for the calculation.

Answer	Value	Weighting	Score
10	10	0 x 0,4	4

*2. The port keeps the promised timeslots.*

Answers can be 1 to 10 and the weight here is 0,5. See example in the table.

Answer	Value	Weighting	Score
10	10	0 x 0,5	5

*3. Accuracy of prepared documents concerning the cargo, precise administration.*

Answers can be 1 to 10 and the weight here is 0,5. See example in the table.

Answer	Value	Weighting	Score
10	10	0 x 0,5	5

### **3.2.2 Attitude, approach**

Attitude, approach refers to the way the staff of the port handles client cases. It is measured by three questions which the customers answer with a number on a 1-10 scale, depending on how accurate they find the port regarding the mentioned factors and how pleased they are with the port's approach. The answers (numbers) are equal with the Values and the weights were defined according to the proven importance of each factor. For the Attitude, approach, the maximum score that a port can get is 12 points from the 50. The three factors are as follows.

*1. Quality of provided information.*

Answers can be 1 to 10 and the weight here is 0,4. See example in the table.

Answer	Value	Weighting	Score
10	10	0 x 0,4	4

*2. Behaviour, communication of the port's staff.*

Answers can be 1 to 10 and the weight here is 0,4. See example in the table.

Answer	Value	Weighting	Score
10	10	0 x 0,4	4

*3. Short reaction time on customers' needs and questions.*

Answers can be 1 to 10 and the weight here is 0,4. See example in the table.

Answer	Value	Weighting	Score
10	10	0 x 0,4	4

### 3.2.3 Flexibility

Flexibility shows how flexible the port can adjust to the customers' various needs. It is measured by three questions which the customers answer with a number on a 1-10 scale, depending on how flexible they find the port regarding the mentioned factors. The answers (numbers) are equal with the Values and the weights were defined according to the proven importance of each factor. For the Flexibility, the maximum score that a port can get is 12 points from the 50. The three factors are as follows.

#### 1. Possibility to have custom made departure time. 1-10 scale

Answers can be 1 to 10 and the weight here is 0,2. See example in the table.

Answer	Value	Weighting	Score
10	10	0 x 0,2	2

#### 2. Ability to adjust to various customers' needs and special requirements.

Answers can be 1 to 10 and the weight here is 0,5. See example in the table.

Answer	Value	Weighting	Score
10	10	0 x 0,5	5

#### 3. Flexibility regarding the fulfilment of customers loading needs after operating hours.

Answers can be 1 to 10 and the weight here is 0,5. See example in the table.

Answer	Value	Weighting	Score
0	0	0 x 0,5	5

### 3.2.4 Quality of service

Quality of service refers to the content of the provided services and also to the way the port provides them. It is measured by four questions which the customers answer with a number on a 1-10 scale. The answers (numbers) are equal with the Values and the weights were defined according to the proven importance of each factor. For the Quality of service, the maximum score that a port can get is 12 points from the 50.

#### 4.1. Offered services at the port are well maintained, clear and well taken care of.

Answers can be 1 to 10 and the weight here is 0,2. See example in the table.

Answer	Value	Weighting	Score
10	10	0 x 0,2	2

*4.2. Satisfaction with the infrastructure and facility level of the port.*

Answers can be 1 to 10 and the weight here is 0,4. See example in the table.

Answer	Value	Weighting	Score
10	10	$0 \times 0,4$	4

*4.3. Speed of service.*

Answers can be 1 to 10 and the weight here is 0,2. See example in the table.

Answer	Value	Weighting	Score
10	10	$0 \times 0,2$	2

*4. Quality/price ratio of the port's services. 1-10 scale*

Answers can be 1 to 10 and the weight here is 0,5. See example in the table.

Answer	Value	Weighting	Score
10	10	$0 \times 0,4$	4

## 4 Conclusions

The testing phase was overall successful; the results of the evaluation are well comparable, which proves the transparency and usability of the system. No further comments or suggestions for changes were received from the participants.

The main lesson learned from the testing is that there is something to be done with the customer satisfaction part.

We experienced, that data given by the port operators were more concrete and strict; the ports got lower scores at this factor than by the customer satisfaction part. It brought up two questions, namely: shall we reconsider the weighting of the port operator data (higher weight) or shall more clients be involved in order to get more relevant results.

We tested by one port what happens after asking more customers. The following two tables demonstrate the difference.

During the first test, only one customer was chosen to fill in the customer satisfaction survey which resulted in almost maximum score for the factor.

Customer satisfaction (1 <sup>st</sup> phase)	
<b>Number of customer surveys:</b>	<b>1</b>
1. <b>Reliability</b> (maximum: 14)	12,6
2. <b>Attitude / Approach</b> (maximum: 12)	11,6
3. <b>Flexibility</b> (maximum: 12)	12
4. <b>Quality of services</b> (maximum: 12)	12
<b>TOTAL</b>	<b>48,2</b>

After involving 2 more customers in the customer satisfaction survey, the result has changed as follows.

Customer satisfaction (2 <sup>nd</sup> phase)	
<b>Number of customer surveys:</b>	<b>3</b>
1. <b>Reliability</b> (maximum: 14)	12,28
2. <b>Attitude / Approach</b> (maximum: 12)	10,68
3. <b>Flexibility</b> (maximum: 12)	10,36
4. <b>Quality of services</b> (maximum: 12)	10,86
<b>TOTAL</b>	<b>44,18</b>

The difference between the two results proves the importance of involving as many clients as possible. The port might get fewer points and less “stars”, but in the same time, weak points become visible and the results can provide an input to the port’s development strategy.

Another lesson learned is that timing of the evaluation is very important. When we carried out the testing phase (starting in October), it was a very busy period for the Danube ports and their customers; therefore they had difficulties with completing the deadline and involving customers. Evaluation shall be done in periods when the traffic of the ports is lower and it's also important to give them enough time for collecting the customers' feedback.

The sustainability of the measurement system can be ensured by the following terms:

- Setting up the KPI system at as many Danube ports as possible;
- Further fine-tuning of the KPI system by involving more ports in consultation and reconsidering the indicators or the weighting if necessary;
- Creating an IT system, an online platform for the self-measurement and for the customer satisfaction surveys to enable an easier use;
- Measuring the ports regularly (yearly);
- The standardized communication of the qualifications ("stars") makes the system easy to overview and easy to use for comparison;
- This output can be a good basis of a further EU project where – extending the measurement and involving all Danube ports, further development of the system would be possible.