



Interreg



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Best Practice Report on HR in Ports

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1 Objective and description of report

For the last few decades, the focus of the port sector has been very much on technological advances that make productivity less dependent on human effort, knowledge and skills. But recent years have witnessed a growing acknowledgement by the port industry that appropriate attention must also turn to performance improvement through skilled and motivated people. Ports should be seen as “socio-technical” systems because, in practice, operations in port terminals are carried out by a partnership between human beings and technology. This partnership, however, can only be successful if appropriate emphasis is given to human resource management and particularly the training component, an often overlooked area that can have a significant impact on port performance. For this reason activity 4.3 – “Human Resources Development” of the DAPhNE project will focus on stimulating capacity building for the ports resulting in a set of guidelines to ensure that the right people are working in the ports of the future.

In order to bring up best practice examples for HR methods and institutions templates has been sent to project partners in different countries. The project partners should fill in the best practice examples from their country and describe them according to the given criteria. Within the template there are 11 criteria in order to harmonize and structure the answers and to ease the reading.

2 General Overview

The report gives an overview of current examples of best practices regarding initial and continuing education in ports within Danube riparian countries as listed following:

- Austria
- Hungary
- Romania
- Bulgaria
- Croatia

Additional desk research has been used to search for best practice examples in countries others than those listed. There are examples from Germany, Netherlands, Belgium and not country related initiatives. Altogether they are combined under the mark “Europe”.

In total, there are 23 best practice examples whereas most of them are related to ‘Europe’ and ‘Romania’. The structure of the best practice examples is as follows:

1. Title of best practice

The first criteria represents the short title of the according best practice example or project acronym.

2. Description and objective

Within ‘Description and objective’ the best practice example is presented in a simple manner.

3. Type of training

Criteria three shows the training mode in terms of which type are the described best practice examples. This may be lectures, workshops, practical training, online training, etc.

4. Country

Criteria 'Country' shows from which country the best practice is coming from and for which countries they are.

5. Type of best practice

In 'Type of best practice' it is stated whether the initiative is an organisation, a company, an online tool, project, etc.

6. Target group description

This point shows for which target group the described best practice is. There may be companies or port authorities, lower-, middle- or general management, etc.

7. Key success factors

Criteria seven is about factors like network, available languages, etc.

8. Links and contacts for further information

'Links and contacts' relates to websites, mail-adresses, etc. with further information to the related best practice example

9. Dissemination of best practice

This point shows the dissemination activities like events, trade fairs, exhibitions, etc.

10. Free of charge?

Within 'free of charge' it is to be stated whether, there are fees necessary to use the services and if, in which way

11. Requirements for the implementation in (other) ports

Are there any prerequisites for a usage or implementation in (other) ports like memberships, local institutions, etc.

3 Europe

A desk research has been used in order to show best practice examples for port related HR initiatives within Europe. There nine best practices coming from Germany, the Netherlands, Belgium and consortia of several countries all over Europe. The best practice examples – namely Duisport, INeS Danube, EFIP, SPC, ISL, Port of Rotterdam, Quinwalo, Port of Antwerp and STC Rotterdam – are shown as follows.

3.1 Duisport

Title of best practice	Duisport
Description and objective	The Port of Duisburg is the largest inland port in the world and the leading logistics hub in Central Europe (also called Duisport). Within a radius of just 150 kilometers, 30 million consumers are located. More than 20,000 ships and 25,000 trains are handled each year. In total around 1150 people are employed at the Duisport and generate a turnover of around 230 Mio Euro.
Type of training	<ul style="list-style-type: none"> • Digital media and tools (e.g. Doodle, E-learning, Air Cargo Security Training via E-Learning) • Promoting young talents with the initiative "duisport talents" where trainees can work in projects on the topic of digitalisation, use of new media such as WhatsApp • Job and competence matching by using digital tools (e.g. new candidates fulfill 80% of required competence and get online training to fulfill 100% of required competences) • In addition, a new HR Software is used to have personal data of employees digital available - benefits for employees: employee-competence-matrix is recorder monitoring the competences and further training possibilities and reminding HR department if certificates expire (e.g. safety training has to be attended every two years).
County	Germany (Duisport)
Type of best practice	Educational
Target group description of the best practice	Various stakeholders can be named as target group: lower management, middle management and trainees
Key success factors	Size and relevance of ports - training is important to guarantee competitiveness,
Links and contacts for further information	Website: https://www.duisport.de/
Dissemination of best practice	None

Free of charge(s)?	Not defined
Requirements for the implementation in (other) ports?	Implementaiton of HR software (if possible), training by experts from Duisport (train-the-trainer)

3.2 INeS Danube

Title of best practice	INeS Danube
Description and objective	INeS Danube is an e-learning platform open to all interested at www.ines-danube.info . It provides a modern form of education in the field of logistics on inland waterways in the Danube region with particular reference to intermodality. The platform caters to the needs of different target groups, whether pupils or students of educational institutions focusing on logistics, practitioners like shipping companies or the manufacturing industry. Other INeS e-learning platforms focussing on other European regions can be found on http://www.ines-danube.info/ .
Type of training	Online courses
County	Europe
Type of best practice	E-learning platform
Target group description of the best practice	The target groups such as ports, manufacturing industry and shipping companies find materials relevant to their profession. Educational institutions and experts can create individual courses (within specific learning groups).
Key success factors	Available in German and English, available for different countries, easily usable
Links and contacts for further information	Website: http://www.ines-danube.info/
Dissemination of best practice	Mentioned on other websites
Free of charge(s)?	Free of charges
Requirements for the implementation in (other) ports?	None, available for different countries

3.3 EFIP

Title of best practice	EFIP
Description and objective	<p>EFIP is acting as the unique voice of inland ports in Europe. It highlights and promotes the role of inland ports as nodal points for intermodal transport, combining road, rail, maritime and inland waterway transport.</p> <p>EFIP actively follows all developments in the field of EU transport and environmental policy of importance to inland ports and their environment, and represents the inland ports to the European institutions. EFIP also represents the inland ports to other national and international organisations that are dealing with transport, such as the Economic Commission of the United Nations for Europe, and the Central Commission for the Navigation on the Rhine and the Danube Commission. In this regard, EFIP presents common positions on European policy issues of importance for inland ports and their economic and business environment.</p>
Type of training	Publications, annual reports, facts& figures, Good News about ports
County	Members from the following countries: Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, France, Germany, Hungary, Italy, Luxemburg, Poland, Portugal Romania, Serbia, Slovakia, Spain, Sweden, Switzerland, The Netherlands, Ukraine
Type of best practice	Member organisation
Target group description of the best practice	The target group of EFIP are its members, ports and the European Union.
Key success factors	Members (The more inland ports EFIP represents, the more it can weigh on European decision making)
Links and contacts for further information	<p>Website: https://www.inlandports.eu/</p> <p>EFIP (The European Federation of Inland Ports)</p> <p>Treurenberg 6, 1000 Brussels</p> <p>T +32 2 219 82 07</p> <p>F +32 2 736 63 25</p> <p>E info@inlandports.be</p>
Dissemination of best practice	EFIP promotes inland ports, their activities and their role in the national and international economy. It aims at increasing the visibility of the inland ports towards the European transport, political and business environment.
Free of charge(s)?	Free of charges

Requirements for the implementation in (other) ports?	None / membership
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3.4 SPC

Title of best practice	ShortSeaShipping Inland Waterway Promotion Center
Description and objective	As a neutral, non-profit consultant, the SPC develops detailed, multi-modal logistics concepts on the traffic systems rail, waterway and short sea shipping. Our concepts can be implemented immediately. As a neutral supplier, we are happy to share our knowledge about multi-modal logistics concepts. The SPC supports you with expert information and education opportunities. The SPC welcomes every ally and actively supports you. We send our own speakers to your event or establish contact to other speakers, provide impulses and support you with expert information. Furthermore, we participate in trade fairs and exhibitions with our partners.
Type of training	Expert information (Agent directory (E/D), Port Directory (E/D), Info pool (E/D), Link List (E/D), Maritime statistics (E/D), Brochures (E/D), Map Material (E/D), Movies (E/D), timetables shortsea (D), timetables inland navigation (D), timetable train (D), sailing list (D)), educational offers
County	Germany
Type of best practice	Public Private Partnership, NPO
Target group description of the best practice	Student, lecturers, companies from the shipping industry as well as logistics service providers, universities and non-academic educational institutions
Key success factors	Available in English and German, network of companies and educational institutions
Links and contacts for further information	Website: https://www.shortseashipping.de/en/ ShortSeaShipping Inland Waterway Promotion Centre c/o Federal Ministry of Transport and Digital Infrastructure Robert-Schuman-Platz 1 53175 Bonn
Dissemination of best practice	Website, members, trade fairs, exhibitions
Free of charge(s)?	Free of charges, individual packages(?)

Requirements for the implementation in (other) ports?	Need local institutions, who offer information focused on the particular country
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3.5 ISL

Title of best practice	Institute of Shipping Economics and Logistics
Description and objective	<p>The ISL - Institute of Shipping Economics and Logistics founded in Bremen in 1954 combines tradition with modern science; we have since positioned ourselves as one of Europe's leading institutes in the area of maritime logistics research, consulting and knowledge transfer.</p> <p>On behalf of our project partners from the public and private sector, both on national and international level, we ensure that innovative ideas become solutions with practical applicability. At our offices in Bremen and Bremerhaven, we handle projects from all over the world in interdisciplinary teams.</p>
Type of training	Publications, databases, InfoCenter and library, courses at university level, videos
County	Germany
Type of best practice	Research institute
Target group description of the best practice	Public and private project partners/ customers of the logistics sector
Key success factors	High competence in maritime sector, diverse services, experience through completed projects
Links and contacts for further information	<p>Website: https://www.isl.org/de/start Institute of Shipping Economics and Logistics Universitätsallee 11 - 13 28359 Bremen Deutschland Tel.: +49/4 21/2 20 96-0 Fax: +49/4 21/2 20 96-55 E-Mail: info@isl.org</p>
Dissemination of best practice	Events, projects, website
Free of charge(s)?	Free of charges
Requirements for the implementation in (other) ports?	Need local institutions, who offer information focused on the particular country

3.6 Port of Rotterdam

Title of best practice	Port of Rotterdam
Description and objective	The port of Rotterdam is Europe's largest sea port. The port owes its leading position to its outstanding accessibility for sea-going vessels. And to its intermodal connections and the 180,000 people working in and for Rotterdam's port and industrial area. A place where unlimited ambitions can become reality.
Type of training	<ul style="list-style-type: none"> • Learner Community port (project to introduce and interest students of the university of applied sciences Rotterdam to/in the port of Rotterdam) • RDM Centre of Expertise (education and research institutions and companies work together to improve technical education and to develop knowledge and innovations) • Partner of several educational institutions • Different activities (including materials) for children • EIC mainport Rotterdam is the educational information centre of the port of Rotterdam • FutureLand (workshops, tours/cruises, Drop the Box game,...)
County	Netherlands
Type of best practice	company
Target group description of the best practice	The target groups of the educational offers of the port of Rotterdam are children, students, educational institutes and teachers/lecturers.
Key success factors	Port is well-known, cooperation with educational and research institutions, support/interest of the local industry
Links and contacts for further information	<p>World Port Center (WPC) Wilhelminakade 909 3072 AP Rotterdam The Netherlands T +31 (0) 10 - 252 10 10</p> <p>Contact FutureLand Europaweg 902 3199 LC Maasvlakte Rotterdam Havennymer 8360 T +31 10-252 252 0 E info@futureland.nl</p>
Dissemination of best practice	Cooperations, website, workshops

Free of charge(s)?	Some of the offers, but not everything
Requirements for the implementation in (other) ports?	Adapt to the specific port, infrastructure is needed, cooperation with partners

3.7 Quinwalo

Title of best practice	Quinwalo - Qualification Inland Waterway Logistics
Description and objective	Quinwalo is a series of courses organised by the Schifferbörse Duisburg-Ruhrort e. V. The objective is to raise the awareness for the advantages and chances of the inland vessel. It focuses on the transfer of competences and skills regarding inland navigation and waterways in the training of merchants for forwarding and logistics services.
Type of training	Series of courses (3 moduls)
County	Germany
Type of best practice	Association
Target group description of the best practice	Trainees of the members of the Schifferbörse Duisburg-Ruhrort e. V.
Key success factors	Experienced and active representatives of the inland navigation as lecturers; certificate at the end of the moduls; interest and support of the members
Links and contacts for further information	Schifferbörse zu Duisburg-Ruhrort e.V. c/o Niederrheinische IHK Mercatorstraße 22-24 47051 Duisburg Tel.: +49 (0) 203/2821-277 Fax: +49 (0) 203/2821-302 E-Mail: info@schifferboerse.org; quinwalo@schifferboerse.org http://schifferboerse.org/quinwalo/ http://schifferboerse.org/res/uploads/2017/01/einladung_quinwalo_2018_v3.pdf
Dissemination of best practice	Website of the Schifferbörse
Free of charge(s)?	For member of the Schifferbörse Duisburg-Ruhrort e. V.

Requirements for the implementation in (other) ports?	Need lecturers, adapt the program to the particular country
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3.8 STC Rotterdam

Title of best practice	STC Rotterdam
Description and objective	The STC is an educational and reserach institute for the shipping, logistics, transport and port industries and operates worldwide. The STC offers business courses and training for professionals. STC Group participates in international activities and has offices in the Netherlands and abroad. The headqarter of STC is located in mainport Rotterdam.
Type of training	<ul style="list-style-type: none"> • Preparatory vocational education • Senior secondary vocational education • Higher professional education • Master's-level courses • Business courses • Training
County	Wordlwide, headquater Netherlands
Type of best practice	Educational and research institute
Target group description of the best practice	Pupils age 12-16, students age 16-22, students in general, professionals
Key success factors	Broad offer, operations worldwide
Links and contacts for further information	STC Group Lloydstraat 300 3024 EA Rotterdam, the Netherlands Telephone: 010 - 44 86 000 E-Mail: info@stc-group.nl website: https://stc-group.nl/en/
Dissemination of best practice	Website, brochures, word of mouth
Free of charge(s)?	No information
Requirements for the implementation in (other) ports?	STC operates worldwide, need to contact "local" offices

3.9 Port of Antwerp

Title of best practice	Port of Antwerp (Antwerp Port Training Centre – APEC)
Description and objective	<p>The Port of Antwerp has been an indispensable link in world trade since the Middle Ages. Today, 150,000 people contribute to this success story and there is a close co-operation between private enterprises, the authorities and the Port Authority. All these people and parties contribute to a prosperous and sustainable future for the Port of Antwerp and its surroundings!</p> <p>APEC is the port training centre of Antwerp and Flanders, offering short-term seminars to professionals from all over the world. The seminars not only facilitate an exchange of knowledge and best practices; they also provide a platform of discussion between participants, building a unique bond of friendship amongst them. While offering a fixed set of port courses on various subjects, APEC also provides tailored solutions upon request – in Belgium and abroad. In cooperation with OCHA, APEC also has the capacity to provide specific skill training seminars for dock workers. The Executive courses tend to the needs of the higher level management.</p> <p>OCHA is the training centre for blue-collar port workers in the port of Antwerp and belongs to CEPA, a cooperative organization of private port operators.</p> <p>OCHA has a long tradition in maritime port operations and skill training for port workers (“dockers”) in Belgium and provides over 450 training session in different disciplines annually. In collaboration with APEC, OCHA offers training activities at their Antwerp facilities, and at its clients’ premises in Belgium or abroad./source – webpage of APEC/</p>
Type of training	Courses and seminars in Belgium and abroad. Study visits in local ports.
County	Belgium and upon request - worldwide
Type of best practice	educational institution
Target group description of the best practice	Port workers, lower management/middle management/general management
Key success factors	international cooperation; strong cooperation between APEC, the port community of Antwerp and the city of Antwerp
Links and contacts for further information	APEC-Antwerp/Flanders Port Training Center n.p.o. Zaha Hadidplein 1 2030 Antwerp

	T: +32 3205 2322 E: apec@portofantwerp.com https://apecporttraining.com/
Dissemination of best practice	cooperation, website, invitations to ports and port related companies via e-mail
Free of charge(s)?	charge for higher level management (about 3500 euro/ course) and scholarships for lower level employees covering the course, meals and hotel stay
Requirements for the implementation in (other) ports?	financial assurance, cooperation between port and city/ region

4 Austria

Within Austria there is one Best Practice Example regarding HR-Development in Ports. REWWay offers knowledge in form of workshops, lectures and online training for different means in inland waterway transportation including ports.

4.1 REWWay

Title of best practice	REWWay (Research and Education in Inland Waterway Transport)
Description and objective	The competence center on inland navigation REWWay (Research and Education in Inland Waterway Logistics) is part of the Logistikum. The Logistikum in Steyr, Austria, is the research- and education institute of the Upper Austrian University of Applied Sciences in the field of logistics. Goal of REWWay is to integrate inland navigation (with a focus on Danube navigation) into logistics education and training to raise acceptance of the Danube as environmentally friendly way of transport. Interactive workshops are organized on national and international level including game elements (e.g. games on tablets) to teach participants about inland waterway transport and the important role of ports as facilitators for a modal shift towards this transport mode. In addition, on the REWWay website learning materials and exercises are available free of charge. The goal is to make the different stakeholders (e.g. students or stakeholders from industry) aware of the sustainable transport mode inland waterway in order to achieve a modal shift.
Type of training	workshops, lectures, online training
County	Austria/international (Germany, Hungary, Netherlands,...)
Type of best practice	Educational institution

Target group description of the best practice	The target group of REWWay includes forwarders, schools/lecturers and interested people in the topic of inland waterway transport/sustainable logistics. Concerning management level the workshops can be adopted for different stakeholders (e.g. managers or port workers) based on the requirements.
Key success factors	Use of game elements in workshops and education, workshop concept (including theoretical and practical information),
Links and contacts for further information	Logistikum – die Logistik-Kompetenz der FH OÖ Wehrgrabengasse 1-3, 4400 Steyr, Austria Telephone: +43 5 0804 33282 E-mail: rewway@fh-steyr.at Website: www.rewway.at/en
Dissemination of best practice	Workshops, projects, events, online materials/links
Free of charge(s)?	In general yes but depending on requirements or "customers"
Requirements for the implementation in (other) ports?	Defining requirements from other ports (country specific knowledge necessary?),

5 Hungary

Hungary has a Port Management Training for professionals offered by the Hungarian Federation of Danube Ports (HFIP) as best practice example within HR-development in ports.

5.1 Port Management Training

Title of best practice	Port Management Training
Description and objective	Main goal: Training for professionals to have a common level knowledge and skills to operate and manage ports. Before launching the training at the university, there had been no such studies at all in Hungary. The training program consisted of theory, polymedia and practice. Theoretical sessions were taken place at the University of Dunaújváros and the practical courses were at ports of Budapest, Dunaújváros and Baja.
Type of training	Practical training
County	Hungary
Type of best practice	Educational; contact + multimedia courses

Target group description of the best practice	Students are basically sent by Hungarian Danube port owner, management and operator companies. As graduated professionals, they return to their fulltime job to port operation and management along the Hungarian river section. Other target group: employees and experts from ministries and consulting companies which are dealing with ports and port-related topics, also students interested in working at ports.
Key success factors	Teachers should come from the practice; teachers can also be the potential employers for the students.
Links and contacts for further information	www.hfip.hu
Dissemination of best practice	Articles published online after the first successful training in 2017
Free of charge(s)?	Participation in the training costs 1000€ / person
Requirements for the implementation in (other) ports?	Professional teachers from the practice with practical knowledge of the sector; successful cooperation with an educational institution / university; support of ports, which welcome trainees during the course.

6 Romania

As Romania is also engaging in maritime navigation and has the highest amount of transported goods along the Danube also many best practice examples are coming from there. All over Romania there are seven best practice examples related to (marine and inland) HR-development in ports – namely ‘Mircea cel Batran’ Naval Academy, Constanza Maritime University, Maritime Ports Administration constanta, The Merchant Marine Training Centre, PSF, R.I.A, Ovidius University from Constanta Mechanical, Industrial and Marine Engineering Faculty – which are shown as follows.

6.1 ‘Mircea cel Batran’ Naval Academy

Title of best practice	”Mircea cel Batran” Naval Academy - Merchant Marine Faculty Faculty of Marine Engineering Faculty of Navigation and Naval Management
Description and objective	<ul style="list-style-type: none"> • Higher education institution having engineering & polytechnic profiles, who prepares officers - Engineers for the Naval Forces, Border Police and Commercial Navy, through bachelor and master studies • Research, Development and Innovation in Naval Engineering through Inter-institutional collaboration of teachers and students

Type of training	Provides education and training for ship and naval engineers and specialists, during 4-year, both full-time and part-time study programs for the Navigation and Marine and River Shipping license, and Naval and Port Engineering and Management. Also, for Master's studies, 2-year study programs in marine science are provided; Naval and port engineering and management; (1.5 years) and Logistics Systems Management.
County	Romania/ international (non-EU/EEA/CH students and EU students)
Type of best practice	Educational institution
Target group description of the best practice	Management level (executive and commanding officers); master level
Key success factors	Students have the right to participate in all forms of didactic activity provided in the curriculum: theoretical sessions and practical sessions. The evaluation of the training of the students in a study discipline is done during the course of the study program (through testing in the seminars, the control works) and during the final examination sessions
Links and contacts for further information	https://www.anmb.ro/eng/
Dissemination of best practice	Workshops, projects, events, online materials/links
Free of charge(s)?	Both Bachelor and Master studies are subject to tuition fees, in average 1.000 euro/year; scholarship are possible
Requirements for the implementation in (other) ports?	None, available for different countries

6.2 Constanza Maritime University

Title of best practice	~Constantza Maritime University ~ - Navigation and Naval Transports Faculty -Marine Engineering Faculty
Description and objective	Navigation and Maritime and River Transport Faculty's objective is to ensure an educational and scientific environment which stimulates intellectual development and gaining certain professional competencies at international standards.

Type of training	The faculty offers training of deck officers for a career connected with navigation and ships' exploitation; training specialists in shipping, water transport management and logistics. Also offers training sessions on Dynamic Positioning Induction, Maintenance and Simulator.
County	Romania/ international (non-EU/EEA/CH students and EU students)
Type of best practice	Educational institution
Target group description of the best practice	Marine engineers for the off shore industry (exploration; design and construction; installation; operations and management)
Key success factors	Available in Romanian and English, available for different countries, easily usable
Links and contacts for further information	https://cmu-edu.eu/en/
Dissemination of best practice	Training courses, projects, online materials, simulators
Free of charge(s)?	All programs, except those in English benefit by free of charge (subsidized from the national education budget).The tuition fee for the Master's programmes in English is 2,800 Euro per each academic year and has to be paid in full upon matriculation
Requirements for the implementation in (other) ports?	None, available for different countries

6.3 Maritime Ports Administration Constanta

Title of best practice	Maritime Ports Administration Constanta
Description and objective	Port authority interested in adapting its employees to the requirements of each job carried out for the Port Administration, obtaining a professional qualification; updating the specific knowledge and skills of the post and the workplace and improving the vocational training for the basic occupation; acquiring advanced knowledge, modern methods and procedures necessary for carrying out professional activities etc.
Type of training	The company is offering training programs, attending courses organized by the employer or by the providers of vocational

	training services; professional adaptation stages to job; internships and specializations; individualized training a.s.o.
County	Romania
Type of best practice	National landlord company
Target group description of the best practice	Lower,middle, top management
Key success factors	Courses available in Romanian/ English; training is important to guarantee competitiveness,
Links and contacts for further information	http://www.portofconstantza.com
Dissemination of best practice	Cooperation, events, website, brochures
Free of charge(s)?	Free of charges for the employees
Requirements for the implementation in (other) ports?	Available for different jobs

6.4 The Merchant Marine Training Centre

Title of best practice	The Merchant Marine Training Centre (CCEMMP/ CERONAV)
Description and objective	The CCEMMP is established as a public institution offering vocational education and training requirements of merchant marine personnel, those certifying the highest level of trainings provided by CERONAV. The high training standards are supported by CERONAV's affiliation to following international professional organisations and associations: International Association for Safety and Survival Training; International Association of Ports and Harbours; International Maritime Lecturers' Association BIMCO; Intelligent Transport Systems; Romanian Intermodal Association; Nautical Institute; EDINNA – Education in Inland Navigation – Association of IWT Education and Training Institutions
Type of training	Trainees acquire practical skills in a lab, where they have access to late-generation simulators for navigation, communications, naval equipments and tanker cargo handling equipments. Theoretical skills are acquired on computer based training and assesment classroom.

County	CERONAV currently organizes about 2,000 training, specialization and qualification classes in 80 different specialties, for approximately 32,000 trainees per year.
Type of best practice	Public institution
Target group description of the best practice	International shipping companies
Key success factors	Courses available in Romanian/ English, available for different countries, easily usable
Links and contacts for further information	https://www.ceronav.ro/
Dissemination of best practice	Training courses, projects, online materials, simulators
Free of charge(s)?	Against payment, maximum course fee is up to 1,000 euro
Requirements for the implementation in (other) ports?	Adapt the program to the category of goods or kind of vessel from a particular flag

6.5 PSF

Title of best practice	Port School Foundation
Description and objective	The nonprofit institution which is supporting and organising profesional training, to assist port workers, unemployed, trade union members and other applicants by organizing training courses in port-specific jobs, as well as in jobs not related to the port.
Type of training	PSF is offering training courses upon request/ depending on the number of applications for the specific training as: berth operator, craner, stevedor, slide bridge operator a.s.o.
County	Romania
Type of best practice	Non-governmental, apolitical and nonprofit institution
Target group description of the best practice	Management, operational, vocational
Key success factors	Available in Romanian, easily usable
Links and contacts for further information	http://scoalaportuara.ro/

Dissemination of best practice	Training courses, online materials
Free of charge(s)?	Tuition fees are between 50 euro to 350 euro
Requirements for the implementation in (other) ports?	Adapted to the specific of port operator

6.6 R.I.A

Title of best practice	Romanian Intermodal Association
Description and objective	R.I.A. is a public professional association with legal personality, autonomous, non-political, non-governmental, non-profit
Type of training	Supporting the development of its members activity by representing, promoting, supporting and protecting the association members interests in relationships with the public authorities, the unions, physical and legal persons, and the relations between them; promotion centre within the European centres net of intermodal transport promotion, acting as a logistic centre between naval, highway and railway transports; proposing to competent authorities and sustaining laws, reglementations, technical and administrative measures in order to develop the intermodal transport; Encouraging and promoting the best standards of professional qualification, competence and knowledge for the personnel involved in the specific activities; etc.
County	Romania/ international
Type of best practice	Representative and non-profit association
Target group description of the best practice	Port authority, companies/ port operators
Key success factors	Courses available in Romanian/ English
Links and contacts for further information	http://www.ria.org.ro
Dissemination of best practice	Information exchange, research projects, professional training, social dialogue, members
Free of charge(s)?	Free of charges
Requirements for the implementation in (other) ports?	None / membership

6.7 Ovidius University from Constanta Mechanical, Industrial and Marine Engineering Faculty

Title of best practice	OVIDIUS University from Constanta Mechanical, Industrial and Marine Engineering Faculty
Description and objective	The bachelor (Naval Architecture-Ship systems and equipment, Port and Marine Installations and Equipment, Economic engineering in the mechanical domain) and master (Engineering of Advanced Naval Systems and Equipment, Optimization of Port Technology and Machine Operator, Engineering and management of production systems) programs offered are, each on a clearly defined specific basis, starting points for good professional training of the graduates, so that, through their knowledge, skills and abilities, they are able to respond successfully the severe conditions of preparation and performance required in the area of major economic agents, such any Shipyard in the world.
Type of training	Theoretical and practical training – 4 years for Bachelor programs and 1.5/2 years for Master programs.
County	Romania/ international (non-EU/EEA/CH students and EU students)
Type of best practice	Educational institution
Target group description of the best practice	Marine engineers for the on-shore and off-shore industry (Naval Architect; Naval systems and equipment designer; Naval Architecture Advisor; Specialist in marine systems and equipment; Inspection classification societies and naval authorities; port and plant engineer; machinery and lifting equipment engineer; designer plant and port equipment engineer; design engineer equipment and lifting equipment; plant and equipment engineer; design engineer marine equipment and installations; researcher in marine installations and equipment; research engineer in marine installations and equipment design and construction; installation; operations and management)
Key success factors	Continuous collaboration with key factors in the on-shore, off-shore field, conserved through internships, scholarships, laboratory and practices conducted in the main shipyards from the Black sea (Tulcea, Constanta, Mangalia). Continuous updating the curricula due to the change in knowledge, skills and abilities, required by the companies form the market.

Links and contacts for further information	http://imim.univ-ovidius.ro
Dissemination of best practice	Conferences, workshops, events, projects, online dissemination (results, curricula, courses)
Free of charge(s)?	The tuition fee for the Bachelor programmes 3200 ron per each academic year and has to be paid in 3 rate. The tuition fee for the Masters programmes is 1800 ron per semester (3/4 semesters) and has to be paid in 3 rate.
Requirements for the implementation in (other) ports?	None

7 Bulgaria

As listed in the Status-Quo Report on HR in the Danube Region, the main educational institutions for port related human resources are:

- Nikola Vaptsarov Naval Academy (<http://www.naval-acad.bg>) in Varna;
- Technical university in Varna (<http://www2.tu-varna.bg/tu-varna>);
- Vocational High School in River Shipbuilding and Navigation (<http://pgrkk-ruse-bg.net/>), Ruse;

Vocational Transport High School (<http://www.pgtransport-ruse.com/>) in Ruse.

All they ensure high quality education in the shipbuilding, navigation, engineering and other specific port thematic. The first two universities accept both local and foreign students. In addition to the institutions for professional education, Bulgaria has in total three best practice examples related to HR-development in ports. The examples – namely SAP ERP 6.0, Port Complex Ruse JSCo. and Training Center to the NSBS – are shown as follows.

7.1 SAP ERP 6.0

Title of best practice	Design and implementation of Integrated information system SAP ERP 6.0
Description and objective	Bulgarian Ports Infrastructure Company (BPI Co.) manages the port infrastructure of the public transport ports of national importance and provides traffic management and shipping information services. Object of activity and status of BPI Co. are regulated by the Law on Maritime Spaces, Inland Waterways and Ports of the Republic of Bulgaria. Elaboration and implementation of an integrated information system within BPI Co.
Type of training	Strong collaboration between the implementing company and BPI Co. for identification of the best solutions for the business process in the company and development of an HR module also. Included

	training management, business events, working meetings, conferences. Also included organizational development, HR administration, selection and recruitment, reward management, assessment.
County	Bulgaria
Type of best practice	A project that stimulated building and development of HR capacity in BPI Co.
Target group description of the best practice	BPI Co. - head office in Sofia and branches - territorial directorates in Ruse, Lom, Varna and Burgas
Key success factors	Real-time cooperation and improved coordination of activities. Better resource planning and management.
Links and contacts for further information	www.bgports.bg
Dissemination of best practice	ERP systems are known for their wide usage within developing companies both in production and services sphere.
Free of charge(s)?	Charge depends on the scope of the ERP implemented. Mainly benefits for human capital on company level.
Requirements for the implementation in (other) ports?	Appropriate effective management tool in each enterprise and ports also.

7.2 Port Complex Ruse JSCo.

Title of best practice	Port Complex Ruse JSCo.
Description and objective	Port Complex Ruse is the operator of the biggest river cargo port in BG - Ruse-east. The company assures constant training of its own personnel and collaborates with the educational institutions by providing internships and study visits for students.
Type of training	Practical training
County	Bulgaria
Type of best practice	Port Complex Ruse has regular training courses for the personnel that is directly involved in cargo handling operations. Where certificates for competency are required - corresponding training is organized with external organizations if needed. In addition, students from the Ruse University and the Professional High

	School of Shipbuilding and Navigation are welcome for their internships and study visits.
Target group description of the best practice	Personnel of Port Complex Ruse JSCo, students
Key success factors	HR department to follow and organize training courses, technical and managerial experts to provide appropriate training, good cooperation level with educational institutions
Links and contacts for further information	www.port-ruse-bg.com
Dissemination of best practice	Most of the Bulgarian ports work with educational institutions and welcome students for practical training. Internal training in bigger ports in also a fact.
Free of charge(s)?	Depends on the training
Requirements for the implementation in (other) ports?	Capacity to organize internal training, scope of the port - the bigger the port and the greater variety of port professions, the bigger the need for training.

7.3 Training Center to the NSBS

Title of best practice	Training centre to the NSBS (Bulgarian Association for freight forwarding, transport and logistics)
Description and objective	NSBS provides educational courses to all interested parties. Their objective is to implement national and international standards and good practices for all modes of transport.
Type of training	The training is based on approved and validated programs at national and international level and covers the full aspect of knowledge of the freight forwarding profession. Training includes usage of virtual learning environment
County	Bulgaria
Type of best practice	Online courses, seminars, e-books available through the website
Target group description of the best practice	All specialists dealing with freight forwarding, customs procedures, handling cargo in maritime and river ports, transport of dangerous cargo, logistics, etc.
Key success factors	Certificates obtained which are acknowledged at national and international level

Links and contacts for further information	http://nsbs-learning.bg/courses/special/Morska-i-rechna-speditiq---9
Dissemination of best practice	Training centres exist where the need for unification of procedures (like in transport) is a fact. In Bulgaria there are a lot of training centres offering courses for seafarers, river related issues - like dangerous cargo handling, obtaining certificates for competency, etc.
Free of charge(s)?	Paid
Requirements for the implementation in (other) ports?	Creation of rules on national level for the aim of approving which companies/ centres could organize training centres in the field of ports

8 Croatia

In Croatia two best practice examples are mentioned, the Institute for Waterway Transport at the Faculty of Transport Sciences and the Inland Port Authorities Association. Both are shown as follows.

8.1 Faculty of Transport Sciences, Institute for Waterway Transport

Title of best practice	Faculty of Transport Sciences, Zagreb, Institute for Waterway Transport
Description and objective	Department for technics and technology of water transport
Type of training	University Graduate and Post-graduate Programme
County	Croatia
Type of best practice	Educational institution
Target group description of the best practice	Students
Key success factors	
Links and contacts for further information	http://www.fpz.unizg.hr/en/organizational-units.asp
Dissemination of best practice	
Free of charge(s)?	Free for regular students, and chargeable for other

Requirements for the implementation in (other) ports?	n/a
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8.2 Inland Port Authorities Association

Title of best practice	Inland Port Authorities Association
Description and objective	Association of inland ports authorities in Croatia
Type of training	Workshops
County	Croatia
Type of best practice	Workshops regarding EU projects application possibilities and implementation experiences
Target group description of the best practice	Port authorities employees, port operator employees
Key success factors	Up to date information regarding funding possibilities and know how transferring
Links and contacts for further information	n/a
Dissemination of best practice	n/a
Free of charge(s)?	Yes, for port authorities
Requirements for the implementation in (other) ports?	n/a

9 Study visit NL/BE

During a study visit to the Netherlands and Belgium from 25.04. - 02.05.2018 FHOO was able to gain insights into the current research topics of research institutions (TU Delft, smartfreightcenter) as well as ports (port of Rotterdam and Amsterdam) and to get more information about their ambitions in terms of human resources. In the following, the main results are summarized.

TU Delft

The Faculty Technology, Policy and Management (<https://www.tudelft.nl/en/tpm/about-the-faculty/>) was visited at the TU Delft. The Technical University in Delft has been dealing with the topic of synchronomodality for quite some time now and is always considering the topic

of gamification. Game applications have been developed for different target groups. As shown in Figure 1, a distinction is made between 4 levels for which an individual game application has been developed. The following games were developed:

- The Shipper's Game
- Synchronia
- The MasterShipper Game
- You've got Freight
- Rail Cargo Challenge Rotterdam (RCCA)
- The Modal Manager
- ALLOY

Each of the games developed aims to prepare the various stakeholders for the concept of synchronomodality and thus create awareness of it. In addition, possible obstacles for a successful implementation should be identified and prevented at an early stage. These game approaches may also be used in the port environment and could for example help to build awareness for the topic of sustainability in the port.

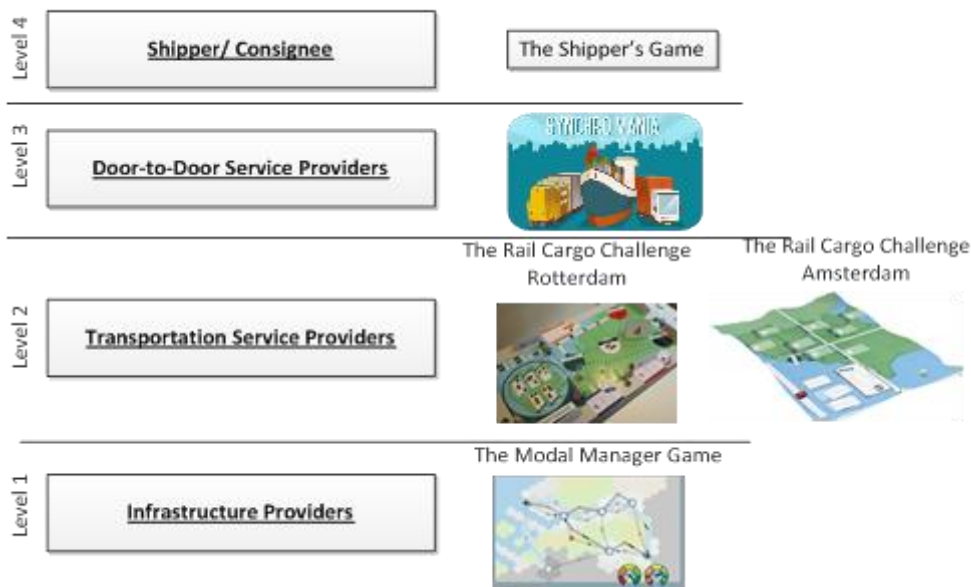


Figure 1: Games for different user groups (TU Delft)

Port of Rotterdam, Education and Information Centre Mainport Rotterdam

The Port of Rotterdam was also visited during the study visit. The visit included a trip to Maasvlakte 2, Future Land as well as the Education and Information Centre Mainport Rotterdam. The main findings of the visit are summarized below:

- **Future Land:** This information centre is located with a view to the automated container terminal and offers a comprehensive exhibition about the port of Rotterdam and sustainability, digitization and other important trends and information. In addition to a seminar room, various interactive stations are available for learning and experiencing and can be explored by visitors on their own or with a guide

during excursions. Interactive stations allow visitors to look back into the past of the port of Rotterdam or into the future (with the help of VR glasses).

Link: <https://futureland.nl/en/>



Figure 2: Interactive map with ship location (FutureLand Rotterdam)



Figure 3: Interactive port map - including building of Maasvlakte (FutureLand Rotterdam)



Figure 4: Simulation of a portal crane (FutureLand Rotterdam)

- **Education and Information Centre Mainport Rotterdam (EIC):** This training centre in the port of Rotterdam pursues a similar strategy to the REWWay team with its Transport School Labs. The centre is equipped with various interactive stations and has a lecture room. Pupils and other interested groups can book a workshop here for a participation fee and are informed about the most important developments in the port of Rotterdam and possible professions in the future. The effects of increasing digitalisation on the port of Rotterdam and the job profiles in the port will also be shown. Unfortunately, the content used and the stations in the centre are currently only available in Dutch. A future cooperation is planned on the part of the Logistikum - on the part of the EIC a cooperation is only possible with payment.

Link: <http://www.eic-mainport.nl/xeng-home/>



Figure 5: Simplified version of inland vessel (EIC Rotterdam)



Figure 6: Transshipment simulator (EIC Rotterdam)

As can be learned from the study visit, in the big sea ports training and education are important topics and gamification plays an important role. The seaports are aware that in the future, the role of ports and thus also the jobs (including tasks and functions) in ports may change and have to adapt to new trends. Thus, the EIC Rotterdam for example elaborated a brochure with an extensive overview of potential jobs in the port of the future (unfortunately currently only available in Dutch). This may also be a learning for Danube inland ports: to prepare the different stakeholders for changes in the transport sector by applying game

elements and to promote the port as an attractive work place in the future and to show the various job opportunities which may emerge in the future.

10 Conclusion and Outlook

The aim of this report was to summarize best practice examples on human resources in ports. As the results show, a lot of financial resources are especially invested in bigger ports and seaports with a higher number of employees and on European level. This result is also reflected by the results of the status-quo analysis and the study visit in the Netherlands. Few measures are integrated in inland ports since not as many employees can be found in inland ports. Within the project it was evident that often a 'buddy system' is applied in inland ports – new employees are trained by colleagues. This may also be due to the fact that each inland port has other prerequisites which have to be taken into account by the employees. Thus, standardized training measures for all port employees in Danube inland ports may be difficult to realize and implement. Nevertheless, as the results of the survey conducted during the status-quo analysis of human resources in Danube inland ports shows, an exchange between Danube inland ports and the industry as well is desired by respondents in terms of workshops for example. This result may indicate that even though no standardized training can be realized on Danube level, an exchange between inland ports and the different approaches concerning human resources training may be valuable to learn from others. In addition, new learning measures such as digital learning and gamification may be used in the future to train port employees. For example, a transshipment simulator can be used to prepare employees for the job or to show potential employees the profession. In addition, games such as those elaborated by TU Delft can be used to prepare the different management levels (e.g. CEO, administrative employees or operative employees) for new trends such as digitalization. Another issue is, that the majority of people working in inland ports are older than 36 years and young employees are missing. This result may also indicate that measures are necessary to attract new people to work in inland ports and to bring innovative spirit into the business. As a next step, the results of this report will also be used to elaborate guidelines for human resources development. These guidelines can then be used as a basis for follow up projects and to derive concrete measures to ensure that inland ports are attractive works places in the future.