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Source Documents

Name	Date	Authorised
National report on port management models Austria	13/12/2017	FHOO
National report on port management models in Bulgaria	14/12/2017	BPICo
National reports on port management models Croatia	28/12/2017	PAV
National Report on Port Management Models - Romania	30/11/2017	MPAC
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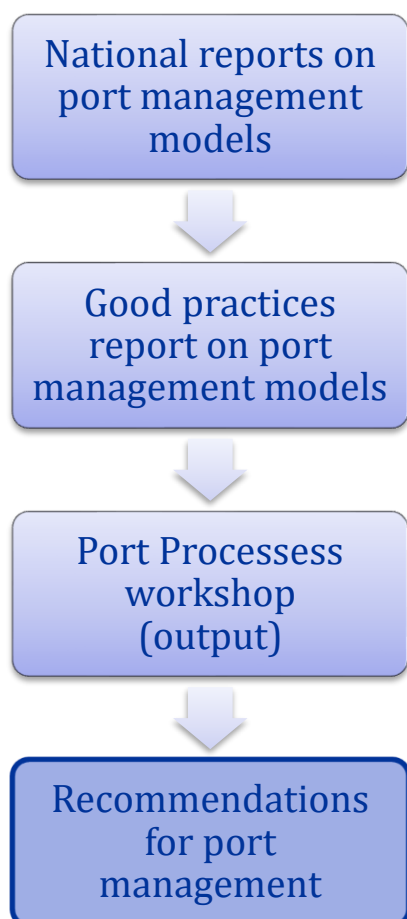
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1 Scope of the Document

Activity 4.2 of the DAPhNE project is about improving port business strategies. To create recommendations for port management (which is an output of the activity), the **Good Practices Report on Port Management Models** and the national reports on port management models will be used as a basis.



The **national reports on port management models** collected the business strategies applied by the inland cargo ports in the Danube Region and how efficiently they are implemented, related to the port management models employed all along the Danube. Utilizing the national reports as input, this document outlines the methodology of choosing, evaluating and refining the good practices of port management along the river which are going to serve as management improvement tools for ports.

Based on the common **methodology of choosing, evaluating and refining the good practices of port management** along the river, deliverable 4.2.4 elaborated such good practices that can serve as management improvement tools for ports. This document is based on D.4.2.2. National reports on port management models and D.4.2.4. Good practices report on port management models, and finally, comments and recommendations occurred at a project meeting regarding these reports. During the Port Process workshop (Output 4.1) on 5 September 2018 in Constanta, status, progress and already achieved findings of WP4 were discussed by PPs from Austria, Hungary, Croatia, Romania and Bulgaria.

When we use the term ‘ports’ in this document, it only means the inland cargo ports in the Danube Region. If a port is both a maritime and an inland cargo port, the activities shall be split between the inland and maritime port functions.

2 Principles

The below detailed principles and attitudes should be followed during the elaboration of the report on good (port) practices.

Capitalisation: Latest research findings and new developments shall be used for defining the good (port) practices. Therefore, the goal of the report on good practices is not to “reinvent the wheel” but to synthesise the existing and promising practices that can be used in other inland waterway cargo ports.

Practice oriented approach, applicability: the purpose of this project is to enhance the efficiency of port management and thus contribute to the improvement of Danube inland waterway transportation. This clearly means that the recommendations and good (port) practices evaluated and elaborated must be of practical use, meaning that they and their financial, organisational consequences must be easily put into practice.

Transparency and raising awareness-: Acceptance of the good practice report(s) can only be obtained through trust and commitment of the participating stakeholders. To achieve this, stakeholders need to be aware of what is happening and why it is happening during the processing and evaluation of relevant good practices. For this purpose, a variety of communication tools and techniques must be used to reach stakeholders and keep them informed of the entire process and about the good practice report(s).

Partnership and Co-Creation: Relevant stakeholders and participants must be included in the collection and evaluation of good (port) practices. In practice, this can be done through common collection and evaluation processes, common analysis of findings and content-related discussions. A special aspect of co-creation is to be underlined: close cooperation is necessary between the evaluating team of experts and the participating stakeholders to collect, refine and process the good practices.

3 Good Practice Definition

While setting the common methodological basis, it is necessary to define what is a good practice in the field of port management, what are the core selection criteria that a good practice should meet and what are the roles of the success factor is the selection.

3.1 Best practice versus good practice

Best practice according to Cambridge Dictionary: “a working method or set of working methods that is officially accepted as being the best to use in a particular business or industry, usually described formally and in detail”. Best practice is a method or technique that has consistently shown results superior to those achieved with other means, and that is used as a benchmark.

On the other hand, a good practice is not like a standard that must be followed or is guaranteed to reach the ideal state. A good practice is always beneficial to the organisation applying it. It is a recommended and/or approved method of achieving a higher quality of operation, and may contain guidelines, codes of practices, regulations, manuals or other documents.

A good practice is not only a practice that is good, but a practice that has been proven to work well and produce reliable results and is therefore recommended as a model. It is a successful experience, which has been tested and validated, in the broad sense, which has been repeated and deserves to be shared so others can adopt it.¹

¹ Food and Agriculture Organization of the United Nations: Knowledge Sharing Platform on Resilience (<http://www.fao.org/in-action/kore/good-practices/en/>)

Best and good practice implementation is similar, and they are generally and mostly compliance type measures.

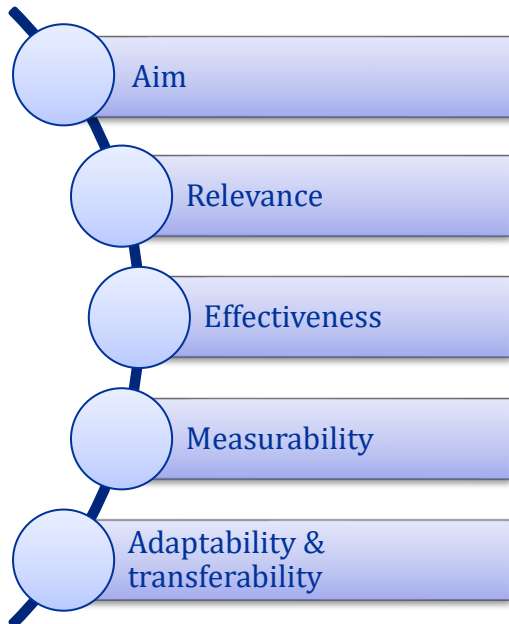
Port management models vary greatly in the Danube region. Each national report (provided by the project partners of DAPhNE for the following countries: Austria, Bulgaria, Croatia, Hungary, Romania, Slovakia) presented more than one port management model used in each country which are relatable, have common characteristics but are not the same. Thus, as also defined in the current activity, no ultimate standard for port management model is looked for, but good practices that can contribute to the optimization of port management and operations may be defined.

3.2 Good port practice as a tool

By “practice”, this document means a multitude of applicable methods, processes, techniques, procedure, routines or standards that are carried out continuously, regularly or as-needed. The methodology aims to help find and define these “practices” as tools that have clear purposes and that their implementation’s conditions and prerequisites are understandable and suitable in the frameworks of various port management models.

The good practice report should focus on tools which improve the overall effectiveness of a port management model or contribute to the growth of cargo traffic, growth and improvement of business performance of a port. Selected good practices should not be limited to the latter, they should also be applicable tools in the management and operation of a port. Good practices that improve the subsystems of port management (ICT solutions, staff trainings, internal communication forums, interfaces, port development processes and plans, lean and other organisational developments) or contribute to favourable externalities (networking solutions between port actors, applicable policies and regulations) are acceptable for the report.

4 Selection criteria



To ensure that suitable and appropriate good practices are selected and analysed the following criteria should be applied:

4.1 Aim

Good practices should have a clear definition of objectives, activities to be carried out, participants, stakeholder and target group. Good practices should display consistency between their set goals and the activities implemented.

4.2 Relevance

Port management and operation is a complex and extensive field of work where many good practices can be found which are unrelated to port management strategies (and the used port management model). The selected good practices should be relevant to port management.

4.3 Effectiveness

A good port management practice is proven and tested (practiced). Practitioners have certain amount of experience with the “practice” that serve as proof of effectiveness. It is not necessary but beneficial to have some level of documentation about the original implementation of the good practice and to evaluate effectiveness.

4.4 Measurability

A good practice’s outcome and/or impact should be measurable or at least presentable (demonstrable). Those good practices which cannot be evaluated, are not able to serve as implementable techniques. Without measuring the effectiveness of the good practice cannot be determined.

4.5 Adaptability & transferability

Good practices should be feasible elsewhere and should not be limited to a certain – originating – port. Measurability contribute to a critical criterion, which is the transferability and adaptability of a good practice. Selected good practices should be feasible in other ports. The collected good practices should also be elaborated into a tool which is adaptable elsewhere. Evaluations, possible implementation documents are contributing factors.

5 Introduction

The present document is based on national reports on port management models (D.4.2.2.), good practices report on port management models, (D.4.2.4.) and finally, comments and recommendations occurred at a project meeting regarding these reports.

During the port process workshop (Output 4.1) held on 5 September 2018 in Constanta the status, progress and already achieved findings of WP4 were discussed by PPs from Austria, Hungary, Croatia, Romania and Bulgaria, and recommendations were collected from the participants.

Main purpose of the good practice reports was to collect and present good practices that contribute to better port management and higher quality management/administration/operational services. Presented tools and practices should result in increased customer satisfaction which might bring more traffic to inland ports facilitating a modal shift to IWT (higher volume on inland waterways and higher annual turnover in inland ports). Contributing DAPhNE partner countries have mapped elements of management models that are already tried out, applied and possibly continuously practiced improving their ports' efficiency. Key findings of the reports were summarized in the Port Process Workshop (Output 4.2) held on 5 September 2018, in Constanta, Romania.

The national good practice reports begin with pre-defined scope, principles, definitions and methodology in their introduction parts to clarify the conditions of studies. National studies were completed by Austrian (FHOO), Hungarian (HFIP) and Bulgarian (BPICo) project partners. They presented experiences from economic transition and EU accession, SmartPORT, techhub for innovations, a training program and a port association as good practices contributing to higher level of service provision and effectiveness of the port management companies.

In the framework of Output 4.2 Port process workshop, DAPhNE PPs and further stakeholders from the inland port sector discussed which of the presented good practices on port management could

- a) be contributing to port development the most (workshop participants decided on Hamburg's SmartPORT concept and thinkport VIENNA concept)
- b) be the easiest to adapt and implement in other Danube cargo ports (workshop participants decided on Bulgaria's project management and Hungary's port management studies)

As a conclusion, we can say, there is no such solution which would be applicable for every inland port because different port management models are applied, and ports have different background and conditions. However, **we have identified and recommend some good practices** which readers can get to know in detail and can take what they need from each good practice to improve their own port / port management model.

6 Summary of the National reports

National reports on port management models were completed in December 2017/January 2018 in Austria, Bulgaria, Croatia, Hungary, Romania and Slovakia based on expert interviews with port managers and port administration bodies.

Purpose of the reports was to present port management models applied by DAPhNE partners to compare one to another in terms of effectiveness, customer satisfaction, flexibility and adaptability. Main actors of port management and operation (regardless that a given entity can have more roles depending on the organizational and ownership structure) were:

- port owner who owns the territory and basic infrastructure of the port,
- port manager who maintains the territory and basic infrastructure of the port, potentially invest into the development of it,
- port operator who,
- port authority,
- service provider,
- port user who arrives on any mode of transport (water, rail or road) and brings, takes or forward cargo to/from/through the port using logistics and supplementary port services (loading, unloading, storing, warehousing goods, being supplied with water and electricity),
- end-customer who ordered given products transported through the port.

Port management models according to purpose and ownership structure were pre-defined in the introduction chapters in each national report:

- public service ports,
- toolports,
- landlord ports,
- corporatized ports,
- private service ports.

Major services, practices contributing to efficient port management and operations appeared in each report from different aspects were:

- public and private participation,
- commercial disbursement,
- e-customs, digitalization, automation,
- information sharing platforms, port communication and information,
- clearness, transparency and partnership with the private sector.

6.1 Port management models in Austria

Danube ports in Austria apply different port management models.

- Port of Linz (Linz AG) – public service port with minor landlord activities,
- Ennschafen port – mainly oriented towards landlord activities,

- Rhenus Donauhafen Krems – mainly oriented towards a toolport model,
- Port of Vienna – public service port with minor landlord activities,
- Factory port of voestalpine – factory port,
- Landlord management model is ideal for public private partnership models evolving good mean to manage port operations effectively – responsibilities are divided between public and private sectors,
- Collaboration with stakeholders from the industry is an important aspect.

Major management services in practice:

- E-customs, digitalization and automation,
- Port of Vienna – digital format in terms of a customs warehouse.

Success factors:

- Socio-economic structure,
- Bureaucracy,
- Balance of public and private interest,
- Market responsibility/flexibility.

Best practices:

- Port of Vienna as a whole
 - Contractual relationships managed through an in-house real estate department
 - 2 settlement models
 - contractual model by rent or lease
 - by real estate and/or land sale
 - in cases of strategic settlements, the 2nd model is not a standard offer at the port
- Ennshafen port
 - Lease and transshipment contracts with port owner/manager and private companies
 - or only lease contract or only transshipment contract

6.2 Port management models in Slovakia

Landlord model is in practice in Slovakian cargo ports

VP a.s. is the port owner, manager and authority of all cargo ports in Slovakia: Bratislava, Komárno, Stúrovo. The company

- realizes preparation and construction of public ports
- prepares short and long-term concepts of ports' development
- ensures the operation, registration, maintenance and repairs of premises and facilities in the territories of public ports
- collects conditions for the development of combined transport including the manipulation with cargo units of combined transport

SPaP is the port operator and service provider company (or in contract with additional service provider companies) in all cargo ports beforementioned. The company leases land from VP, a.s.

Ministry of Transport and Construction of the Slovak Republic

- determines the concept of the development of waterways and ports in accordance with the Ministry of Environment and the state transport policy intentions
- considers the projects on the construction of new port and transshipment capacities of cargo and passenger transport, reconstruction and modernisation of existing ports
- permits the establishment of ports and defines their territory
- determines the territory of the public ports after the consultation with the relevant local authority
- considers the leases of VP, a.s. investment property
- monitors the application of environmental protection principles in terms of minimizing the negative impacts of water transport on ecology of vessel and port operation
- monitors the development of port, channel and other charges on the river Danube etc.

Inland navigation division of Transport Authority allows the berthing of floating facilities on waterways and in public ports.

The administrator of waterway, SVP, s.p. is:

- responsible for flood protection and creation of navigation conditions,
- setting the waterway, repairing of coastal fortifications, identification of navigational barriers on the waterways and their removal on the basis of instructions by the Transport Authority.

Success factors:

- The settlement of property relations in VP, a.s.,
- EU sources,
- Impairment of non-recoverable receivables overdue compared to previous periods,
- Awareness raising of the VP brands,
- Increasing the value of revenue for port services compares to previous periods,
- Increasing the number of ships' landing in the future.

Best practices:

- SPaP has monopoly position on IWT market in Slovakia,
- Port manager owns, develops and operates the infrastructure and superstructure providing main port activities and services in 'landlord model'.

6.3 Port management models in Hungary

2(-3) types of port management models are typical in Hungary: corporatized/landlord model is practiced in National Public Ports of Budapest, Baja, Győr. Private model is applied by Port of Paks that is owned, managed and operated by the same company, Sygnus Kft.

Major differences between the two port management models in practice are:

- willingness to take risks,
- willingness to investigate in development,
- strategic way of thinking,
- being guarded about long-term development.

Success factors:

- cost and revenues of maintenance,
- cargo traffic growth,
- flexibility and adaptability,
- integrated port management IT solutions,
- investments, external investors,
- new port operators / service providers / tenants appearing,
- lean port authority / management organization,
- acquiring EU funds,
- own resource-based investment,
- port development, service improvements.

Best practices:

- Association – Hungarian Federation of Danube Ports,
- Port operation training program,
- Performance pay for harbour masters,
- Common billing service,
- Linked loading and warehousing services.

6.4 Port management models in Croatia

Vukovar is the only Danube port in Croatia, dealing with 45% of all inland freight traffic (rest is completed on Sava and Drava rivers)

In the public port of Vukovar there is no port owner as such.

The authority and manager is the same entity.

There are private inland ports too on other rivers.

Main external actors – besides the ones settled in the port:

- National authorities
 - Ministry of the Sea, Transport and Infrastructure – development strategies, provisions, fiscal and administration measures, executing port operating rules

- Agency for Inland Waterways – technical maintenance of the river
- Harbour Masters Office Vukovar – safety navigation, port state control
- Municipality of Vukovar – implementing policies
- Port service providers – tugboats and cargo-handling

A unique management service is an ICT solution: e-Port is for supervising traffic, ship's location, information useful to customs, border police, operators, agents, harbour masters.

Success factors:

- Fast, efficient and reliable services,
- Qualifications and experience of the personnel,
- Good communication and cooperation between port actors,
- Access to financial sources for investment funding,
- Advantageous geographical position and accessibility of the port throughout the year.

No best practice was provided for Croatia.

6.5 Port management models in Romania

On the Romanian Danube section, there are only private ports; there is no state-owned port. On the other hand, it is important to notice, marine ports and ports with both sea and inland functions are state-owned.

Port authorities, ministries:

- APDM – National Company 'Maritime Danube Ports Administration' – ports of Harsova, Isaccea, Mahmudia and Macin, Chilia, Sf. Gheorghe
- APDF – National Company 'Administration of Danube River Ports' – ports of Giurgiu, Drobeta-Turnu Severin
- ANR – Romanian Naval Authority
- APM – National Company 'Maritime Ports Administration' – port of Constanta
- APDF – National Company 'Administration of Danube River Ports' – ports of Giurgiu, Drobeta-Turnu Severin and Cernavoda, Calarasi, Olternita, Corabia, Bechet, Calafat, Orsova, Moldova, Veche, Chiciu, Ostrov, Rast, Celate, Gruia, Tisovita, Dubova, Svinita, Drencova, Bazias

APDF manages port land use and limitations of the road steads and for ship transport infrastructure. It implements port policies, port and IWW infrastructure development programs designed by the Ministry of Transport. The company is responsible for dredging works, and the improvement of the fairway marking system.

Romanian port administrators were used to be agencies, currently they are national companies. This practice is close to the corporatized port management model in cases of both maritime and inland ports with some landlord characteristics:

- Authority-type-of responsibilities e.g. issuing document of compliance on behalf of the Romanian Government,

- Designing legal framework in ports,
- Stable and ever-growing relationships with stakeholders in the commercial supply chain,
- Use of public funds and private financial support in infrastructure development,
- Short period in renting contracts may not encourage long term investments.

Success factors:

- Networking with other ports,
- Improvement of hinterland connection,
- Public private cooperation in future developments,
- Improvement of communication with port stakeholders,
- Increasing public investments in port infrastructure.

Best practices:

- Networking among Danube ports through organizing Constanta Port Day
- Improvement of hinterland connection in Port of Constanta
 - The corporatized port management model extends the port administration tasks to direct involvement in promotion, applying for and implementation of transport infrastructure development projects.
- Public private cooperation in development of multimodal platform in Port of Galati
 - Bazinul Nour is a public port open to all transport operators. Infrastructure is public property administrated by APDM by a concession granted by Ministry of Transport. All stakeholders have been involved during the design and implementation phases.

6.6 Port management models in Bulgaria

There are 18 Bulgarian river ports/terminals. Owner of the port area and infrastructure is mostly the State (or municipalities or natural or legal entities). Manager often owns superstructure within the port area. Number of concessional ports doubled from 2010 to 2016. Ports in concession take the biggest freight volumes (half of all cargo ports), followed by private ports and public operators.

Major external actors on national level:

- Ministry of transport, information technologies and communication implement the national transport and port policies
- Executive agency Maritime administration controls and inspects port activities and personnel
- Bulgarian Ports Infrastructure Company is responsible for ports' infrastructure and long-term assets of ports with national importance

Port management services:

- E-customs, digitalization and automation

- permit to use when placing goods under transit procedure
- Certificate of Approval
- Movement Certificates
- Certification of Authorized Economic Operators (AEOs)
- Authorization of customs declarations and entry into the declarant's accounts
- Tariff information and origin information
- Information sharing platform, communication
 - BULRIS
 - Single Window System – monitors the prompt and efficient processing of the submitted documents for entry and exit clearance
- Contractual relations
 - Through the Ministry of Transport, information technologies and communication, state interests are represented in ports by both state port operators and concessionaires.
 - Port users are in business relations with state port operators, concessionaires and with private port operators.

Major differences between public, private ports and concessionaires:

- Flexibility of the management organization
- Willingness to take risks when investing in modernization
- HR and financial capacities when investing in modernization
- Lobby power for state funds

Success factors:

- Diversity of port services,
- Access to funding for big investment projects,
- Specialization or uniqueness,
- High qualification and experience of the port personnel,
- Good information and communication skills,
- State-level strategic policy.

Best practice in Ruse-east, Port Bulmarket

- Good performance indicators,
- Evidences for port development and innovative approach,
- Recognizable, easy to contact management teams.

Ruse-east terminal – state-owned

- Related to long-term operation of the port and successful overcoming of the economic and political changes, the port staff is well qualified and experienced.

Port Bulmarket – private port

- Rapid development of the port proves good and effective management decisions are taken

6.7 General objectives

Main purpose of the national reports was to collect and present good practices that contribute to better port management and higher quality management/administration/operational services. Presented tools and practices should result customer satisfaction which might bring bigger traffic, modal shift to IWT, higher volume in annual turnover. Contributing DAPhNE partner countries have mapped elements of management models that are already tried out, applied and possibly continuously practiced improving their ports' efficiency.

The national good practice reports begin with pre-defined scope, principles, definitions and methodology in their introduction parts to clarify the conditions of studies. National studies were completed by Austrian (FHOO), Hungarian (HFIP) and Bulgarian (BPICo) project partners. They presented experiences from economic transition and EU accession, smartPORT, techhub for innovations, a training program and a port association as good practices contributing to higher level of service provision and effectiveness of the port management companies.

6.8 Key findings

DAPhNE PPs presented colourful good practices including

- training program provided for port managers and operators
- techlab/thinktank for port innovations
- IT solutions for effective port administration services
- organizations and services to facilitate networking and business creation among ports and market players in the IWT sector
- association of ports for more efficient lobby, representation of interests and common goals.

Many of the good practices presented in this report were invented once and still in use, for instance the association of ports. Also, exact port management models launched and established years ago.

Other good practices in the report e.g. the training program were implemented once and there is engagement of various stakeholders to rerun the program as soon as possible with updated learning materials, inviting guest teachers from abroad and wider range of students from ports, external consulting companies and ministries, authorities.

6.9 Difficulties

Each good practice is characterized by the difficulty of defining financial aspects and budgetary needs of implementation for other ports abroad planning to adapt the solution to improve its management.

During the national level comparison, PPs having more ports and running different management models had advantage in choosing among the good practices. On the other hand,

unfortunately, PPs having less ports in their countries and one structure of port management model developed could not compare one port to another which made impossible for them to complete the report based on the template. However, these PPs also could provide useful information on their models applied.

6.9.1 SmartPORT in Hamburg, Germany

This practice analysed by FHO0 (Austria) and presented by EHO0 (Austria) during the port management workshop in Constanta. Port of Hamburg applies a cloud-based IT platform developed and provided by SAP linking transport and logistics partners to share information and specific route sections, as well as to monitor movements of trucks via GPS to avoid waiting times and stress. Services are provided in two major fields of the SmartPORT:

Smart Logistics combines economic and ecological aspects in traffic flows, infrastructure, flow of goods. Optimum data capture and information sharing help logistics managers, cargo carriers and agents to select the most efficient means of transport.

Smart Energy limits dependence, reduces emissions, saves money, focuses on renewable energy efficiency and mobility.

Testing and adaptation were implemented in an urban environment. This practice is adaptable for other ports if technical requirements and standards are available.

Benefits of this good practice are the followings

- Personalized navigation in real-time
- Shore power from renewable energies
- Intelligent railway point
- The mobile all-purpose sensor
- Smart maintenance
- Virtual depot
- Port monitor
- E-mobility in the port
- Parking for professionals
- Renewable energies

Conditions need to be completed in advance:

- Carefully building the right infrastructure
- Developing the correct technology
- Equipping the port workers with the right skillsets
- Interconnecting devices, machineries, systems and processes
- Ensuring port users are connected to the port
- Connecting the ports to other ports globally including linking the global trade and supply chain
- Using data analytics to help the port improve over time based on the data collected

6.9.2 Thinkport in Hafen Wien, Austria

Innovation-oriented technology lab focusing on freight forwarding and logistics exclusively has been running in the Port of Vienna since 2017. University of Natural Resources and Life Sciences (BOKU), Port of Vienna and the Ministry of Transport are collaborating in a successful partnership. Their common goal is to evolve and test environment-friendly solutions in city logistics with the involvement of various economic actors.

Infrastructural, human, geographical, physical aspects, requirements are crucial conditions. Ports who plan to adapt this good practice, must

- carefully build the right infrastructure
- build up a company network
- organize the needed technology
- ensure the interconnection of devices, machineries, systems and processes if possible

6.9.3 Port management studies, Hungary

A one-year training program in 2016-2017 was held for port workers delegated by port management, operator companies and authorities. The program was designed and organized by the Hungarian Federation of Danube Ports, the University of Dunaújváros and Ecotech Nonprofit Zrt. The program had theoretical and practical courses as well in the fields of port economics and operations. The goal was management workers to have a common knowledge background, provide port management and administration services on a higher-level resulting customer satisfaction to increase.

20 graduates passed their final exams successfully in the 1st class. The 2nd class is to be launched in fall 2018. Approximate financial need of the training program is EUR 60,000.

Ports who plan to adapt this good practice, should

- organize workshop with stakeholders to discuss common goals
- involve potential implementing bodies and share responsibilities
- estimate costs and timing (first phase)
- define a target group
- measure and analyse effectiveness and profitability
- estimate costs and timing, supervising the first phase estimates
- choose locations for both theoretical and practical sessions
- ensure equipment, software and IT services
- continuously monitor and receive feedback from students and lecturers once the program has launched
- measure and analyse effectiveness and profitability of port management and port services once the program has finished

6.9.4 Smaller, private-owned ports e.g. Paks, Hungary

Port of Paks is owned, managed and operated by the same company called Sygnus Kft. Since ownership, strategic management and daily operations are in one hand, the company is very flexible.

Such organization structure results easier and more fluent decision-making in cases of development and atypical customer demand. The company is willing to take higher risks than a big corporate when introducing new solutions.

Ports who plan to adapt this good practice, should

- map the company's existing organizational structure, information flows, channels
- illustrate a decision tree and clarify responsibilities of departments
- analyse the available infrastructure and intermodal connections, whether they are exploited efficiently
- analyse technological conditions, facilities with multipurpose, possibility to invest in further capacities
- reform business making processes and the marketing of port services

6.9.5 Hungarian Federation of Danube Ports, Hungary

HFIP is a business association formed in 2012 representing interests and lobbying for better market and legislative conditions in the IWT sector.

There are port owners, management companies, operators and logistics service providers among the 25 members. HFIP is represented in EFIP since January 2018. Common goals of the Hungarian Federation are

- independent representation of Hungarian ports
- collecting and distributing information to members
- representation of members in front of authorities and third parties
- organizing conferences and workshops
- harmonizing education of employees of member companies
- establishing conditions of general services

Ports who plan to adapt this good practice, should

- map the network of stakeholders and partnerships in the sector along the Danube
- organize a workshop to define common goals and a vision regarding representation of interests
- form an association (president, secretary, treasury, controlling committee, members)
- set the operational framework (membership fee, annual meetings, information channels, marketing)
- lobby and be engaged in policies to facilitate modal split
- form foreign partnerships and network
- implement exact projects and programs

Success can be measured by

- number of port companies joining the association
- number of projects implemented or facilitated by the association
- duration of information flow via/thanks to the association

- laws declared with the cooperation of port and shipping experts through the association
- quality of international partnerships

6.9.6 Successfully implemented EU projects, Bulgaria

By joining the EU in 2007, Bulgaria could form new partnerships, new scope and way of financing projects with strategic importance became possible. Main beneficiaries of the EU projects are Ports of Ruse, Lom and Vidin. These ports could improve transport infrastructure, carry higher cargo volumes on Danube, implement personnel training and reduce administrative barriers. This good practice is adaptable to ports in Central-Eastern Europe and the Balkan (e.g. Serbia as a potential new EU member).

Ports who plan to adapt this good practice, should

- elaborate an idea, define problems and goals, actions, expected results and way of implementation
- elaborate the project proposal, complete the AF
- implement the project, foreseen activities, tackling unforeseen circumstances
- evaluate project results

Success of this good practice can be measured by

- number of projects implemented
- amount of funds obtained
- new infrastructure built, and facilities settled according to the planned and implemented activity
- participation in consortiums, networks, unions etc. formed through EU projects
- number of trained personnel in HR projects
- new port services introduced
- increased cargo volume generated by a certain project
- reduced servicing time, administrative barriers

6.9.7 Successful port concessions, Bulgaria

Ports of Ruse, Lom and Vidin are those where concession forms are applied. Terminals became part of concessions: Svishtov, Oryahovo, Somovit, Vidin-north and Ferryboat complex Vidin (jointly), Lom, Ferryboat terminal Nikopol. These companies attract private investors in port and transport infrastructure development to optimize transport services and provide additional financial resources through risk sharing and resource management expertise of the private sector. This good practice is adaptable where land and infrastructure are state-owned and private investment is needed to attract.

Benefits occur for both the state and the ports. New business-oriented management approach adapted contributes to developing the infrastructure and superstructure of ports: new silos, berths, cranes and handling facilities etc. can be created and installed.

Ports who plan to adapt this good practice, should

- define the framework for reforming the port system (goals, time frames, assessment)
- elaborate strategic documents (clarified rules and responsibilities, sequence of activities, national and local level regulations, strategies)
- involve responsible ministries, government bodies who will implement the process
- implement the concession via transparent procedures for granting
- control fulfilment
- analyse effectiveness

7 Conclusions of the discussion at the Port Process Workshop

Presentation given before the workshop summarized the draft report synthesizing each PPs' good practices on management. Workshop attendees were invited to add questions, share their comments and suggestions regarding the good practices whether a practice was easy to implement elsewhere along the Danube or contributed the most to port development or had similarities with other applied management solutions/techniques, etc.

A lot of information had been collected and shared and attendees agreed they were useful for management organizations, however, at the first place, the connection between the national and the good practice reports should have been clearer and more structured. Eventually, later the relations and interdependencies became more obvious.

Representative of Hungarian Federation of Danube Ports facilitated the workshop with supportive questions generating a meaningful conversation. Participants were asked to vote on the previously introduced good practices based on two viewpoints, using two different colours (dots) – each participant had one vote on each topic. 1st question (red dots) was: Which good practice contributed the most to port development. 2nd question (blue dots) was: Which good practice would be the easiest to implement by other ports. The following picture summarises the votes.

As it turned out, practices that contribute to port development the most according to the attendees (red dots on the photo below) are the

- SmartPORT concept from Hamburg, Germany,
- Thinkport concept from Vienna, Austria,
- Port management studies from Hungary.
- Structure of small, private-owned ports from Paks, Hungary

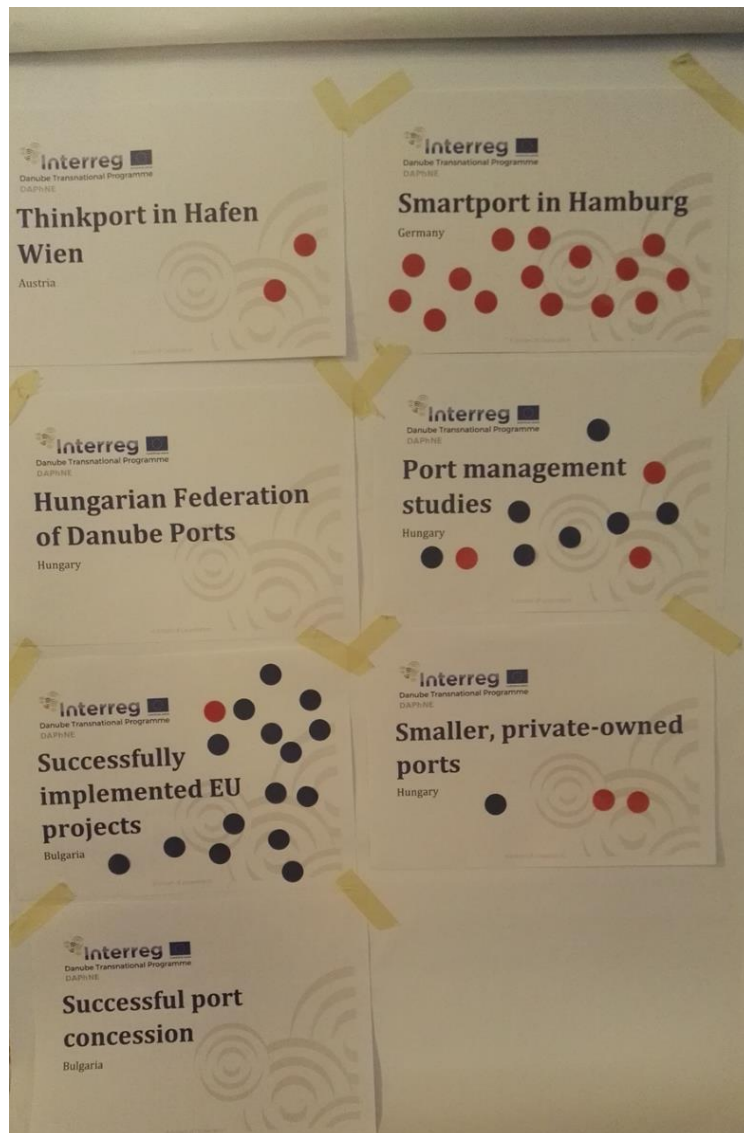
Based on the discussions with participants, Hamburg's SmartPORT concept is not depending on the management model a port applies. It was found an effective concept to solve some challenges all ports are facing. However, it may be difficult for inland ports to install the infrastructure required to realize the same concept as the SmartPORT in Hamburg. However, by investing in some technological advances (e.g. autonomous terminals) the efficiency of inland ports may be increased through standardized processes.

The easiest good practice to implement elsewhere – according to the participants (marked with blue dots on the picture below) is the EU project management applied in Bulgaria. The

following tendencies and the evolution of EU projects and funding system can be observed recently:

- strong policy in lobbying
- economic target of EU became clearer – including all means of transport
- most of the projects are not well-known
- traffic is not predictable: e.g. trucks are coming on another day than stated by the expected time of arrival (ETA)
- ongoing projects are very important

Ports should be aware of these tendencies and make sure that they are included in projects to stay up-to-date.



1. Figure - Voting results - Port Process Workshop

Although SmartPORT concept was clearly found the most useful practice contributing to port development, it is the most difficult one to adapt. According to the attendees, there are a lot of capacities on information sharing among port community actors, but administration bodies use these data for financial analyses and there is a need of educated HR and port users, besides the necessary improvement of the ports' IT background. Additionally, many new technologies receive some rejection when it is about to adapt an unknown system that seems to be good.

There are so many users, partners, especially in inland ports that are open to everyone (free ports, public service ports with corporatized or landlord characteristics). It is hardly possible to manage traffic control when trucks are coming unstopably. Although the railway system has different providers and have gates dealing with users letting the trains come in or leave the terminals, but in case of trucks, it is more difficult.

Public service ports managed jointly with the state are crucially depending on socio-economic conditions.

A possible solution to change administrative barriers and systems and the attitude of port actors in Central Europe and the Balkan could be to focus on EU grants for port development i.e. more clear financial requirements than national budgets.

8 Good practices provided by Austria

8.1 smartPORT (Hamburg, Germany)

8.1.1 Description

The goal of the „smartPORT“ is to optimize land transport due to the limited road capacity, by interlinking traffic and freight and therefore know when a container needs to be moved. A cloud-based IT platform, provided by SAP, is used to link all the transport and logistic partners and to share all the relevant information about e.g. specific route sections. By monitoring the movements of trucks via GPS, alternative routes can be recommended in real-time and help to avoid waiting times and stress because of traffic jams. Furthermore, a control instrument points the way within and outside the port area while simultaneously considering current traffic movements. There are also apps for truck drivers to simplify the communication with other parties like the transmitting of freight documents.²

²URL: http://www.hamburg-port-authority.de/en/press/Brochures-and-publications/Documents/HPA_AnnualReport_image2012.pdf p.13-15 [22.03.2018]

8.1.1.1 Preliminary check based on the selection criteria

Selection criteria	Compliance	Brief justification
Aim	Yes	The smarPort has a clear definition of goals and target groups (sustainable economic growth and the best possible benefits for its customers and the people of Hamburg while minimizing the environmental impact). ³
Relevance	Yes	The concept of the smartPORT is relevant to port management. Primarily with the two fields – smartPORT Logistics and smartPORT Energy (which will be described in detail in the following).
Effectiveness	Yes	SmartPORT is a project that was continuously developed and expanded. Some parts are still in the development and testing stage, and some projects are already transferred to other urban development areas. ⁴
Measurability	Yes	The success is measurable. The smartPORT enables optimal data collection and rapid information exchange, enabling logistics providers, freight forwarders and agents to choose the most efficient mode of transport. ⁵
Adaptability & transferability	Yes	The smartPORT concept could be adaptable and transferred to other ports, but just in the case that all technical requirements and standards are available.

8.1.1.2 Primary information

Context

smartPORT – the intelligent port, is a state-of-the-art port model. The smartPORT guarantees a smooth and efficient operation. The systems for the control of the port, which are used by the Hamburg Port Authority (HPA) are world-leading. Also, the interaction between sensor technology and analysis, forecasting and information systems delivers huge efficiency im-

³URL: <https://www.hamburg-port-authority.de/de/hpa-360/smartPORT/> [22.03.2018]

⁴URL: <http://analysewirtschaft.de/article/smarter-heimathafen.html> [22.03.2018]

⁵URL: <https://www.hamburg-port-authority.de/de/hpa-360/smartPORT/> [22.03.2018]

provements. So, there is not only a benefit for businesses, the smartPORT also provides an important contribution to the environment. In General, the Hamburg Port Authority is achieving sustainable economic growth and maximum benefit for its customers and the people of Hamburg, while it is minimizing its environmental impact.⁶

The smartPORT focuses on two segments:

- smartPORT logistics
- smartPORT energy

“**smartPORT logistics** combines economic and ecological aspects in three sub-sectors: **traffic flows, infrastructure and the flow of goods**. An intermodal PortTraffic centre for sea, rail and road transport forms the basis for networking the flow of traffic. Intelligent networking is a prerequisite for smooth, efficient transport in the port of Hamburg and ultimately for the flow of goods: optimum data capture and rapid information sharing allow logistics managers, carriers and agents to select the most efficient means of transport for their goods”.⁷

“The **smartPORT energy** helps to limit its dependence on conventionally generated power, reduce emissions and save money. It focuses on three core areas: **renewable energies, energy efficiency and mobility**. Therefore, it is also one goal to promote environmentally friendly mobility and advocates reduced energy consumption.”⁸

“The HPA (Hamburg Port Authority) developed 10 facts describing the smartPORT:

1. Navigation in real-time

Thousands of trucks drive through the port of Hamburg every day. To ensure that the traffic flows efficiently, the HPA combines various services and functions. Anyone driving around the port benefits from personalised navigation. As well as information about the traffic situation in and around the port, they also have access to parking and infrastructure information, closures of the moveable bridges, as well as the latest information on important operations.

2. Shore power from renewable energies

Within a landside cruise liner power supply sourced from renewable energies, HPA is significantly reducing the environmental impact in Hamburg. These ocean-going giants are supplied with electricity via a transformer station and mobile transfer mechanism at the Altona cruise ship terminal. The dimensions of the landside power plant are unique in Europe. HPA are currently considering using similar models in other areas of the port in future.

3. Intelligent railway point

⁶URL: <https://www.hamburg-port-authority.de/en/hpa-360/smartPORT/> [22.03.2018]

⁷URL: <https://www.hamburg-port-authority.de/en/hpa-360/smartPORT/> [22.03.2018]

⁸URL: <https://www.hamburg-port-authority.de/en/hpa-360/smartPORT/> [22.03.2018]

Frequently used points on the harbour railway are fitted with sensors that transmit data to a central IT system in real-time. They collect a variety of data by moving or passing over the switching points and thereby provide information about the condition and wear of the essential operational intersections. The benefit: maintenance work or repairs can be identified at an early stage, thereby avoiding downtime.

4. **The mobile all-purpose sensor**

Where is the floating crane? Which emergency vehicle is closest to the incident? In order to be able to answer such questions, a mobile GPS sensor is currently being developed, which wirelessly forwards data to the HPA IT system. As well as intelligent fleet management, HPA therefore will also use the sensor for other measurements, such as temperature, wind speed and direction, air pollution and the flow of the Elbe.

5. **Smart maintenance**

The infrastructure in the port of Hamburg is monitored using mobile end devices, such as tablets or smartphones. When controlling roads, bridges and tracks, these devices automatically send measurements to the downstream IT systems, where the data is processed, stored and edited. The aim is to make the maintenance processes more effective and efficient and to improve the quality of notifications.

6. **Virtual depot**

Truck journeys with empty containers put an unnecessary strain on the environment. HPA has therefore developed the so-called virtual depot to optimise the movement of empty containers between packing companies. The cloud-based system informs participating operators which containers are to be delivered back to the depot. The packing company then requests these directly. The result: no more unnecessary empty trips to the depot.

7. **Port Monitor**

The control room software, Port Monitor, allows us to keep all the stakeholders in the port of Hamburg up-to-date. A variety of information is centrally gathered and can also be accessed remotely, such as electronic cards, vessel positions, water level data, berths, current construction sites, planned dives and bridge heights and widths. Important information is therefore always accessible to all those involved on land and on the water.

8. **e-Mobility in the port**

Electric vehicles are becoming increasingly commonplace in road transport. HPA is also reviewing ways of extending e-Mobility to passenger and freight traffic in the harbour area. HPA is therefore pressing ahead with charging infrastructure, in collaboration with the operators of public charging pillars. At the cruise ship terminal, HPA plans to use preferential e-Taxis.

9. Parking for professionals

Always knowing where the nearest free parking space is and preferably reserving this – HPA aims to fulfil this requirement with the smartPORT logistics app for trucks. Its comprehensive parking management guarantees optimum utilisation of existing and future truck parking spaces within the port. The system's features include the detection and management of parking spaces, especially with a view to relieving the pressure in neighbouring city districts.

10. Renewable energies

By focusing on innovative technologies, the HPA is adopting a pioneering role in Germany on the issue of a turnaround in energy policy. At the centre of this is the efficient use and expansion of the existing networks, and above all options for generating renewable energies. HPA is currently reviewing wind and solar power and even bioenergy, because after all large quantities of biomass also accumulate in and around the harbour area.”⁹

Actors applying the good practice

Location

The port of Hamburg is Germany's biggest seaport.¹⁰ “In terms of TEU throughput, the port of Hamburg is the second-busiest port in Europe, after the port of Rotterdam, and under the 15th-largest ports worldwide. 2017, 8.8 million TEUs (20-foot standard container equivalents) were handled in the port area of Hamburg. Overall the port of Hamburg covers an area of 73.99 km² (64.80 km² usable), of which 43.31 km² (34.12 km²) are land areas. The natural advantages of the Port location that the branching of the Elbe creates an ideal place for a port complex with warehousing and transshipment facilities.”¹¹ “The port of Hamburg handles around 9,000 ship calls per year, almost 300 berths and a total of 43 kilometres of quay for seagoing vessels, more than 2,300 freight trains per week, four state-of-the-art container terminals, three cruise terminals and around 50 facilities specialized in handling ro-ro and breakbulk and all kinds of bulk cargoes, along with about 7,300 logistics companies within the city limits – these are just a few of the factors making the Port of Hamburg to one of the world's most flexible, high-performance universal ports.”¹²

Hamburg Port Authority (HPA), the company applying the good practice

“The Hamburg Port Authority (HPA) takes care of the economic heartbeat of the Hanseatic city. Created from various Hamburg authorities. The company has been responsible for the

⁹URL: <https://www.hamburg-port-authority.de/en/hpa-360/smartPORT/> [22.03.2018]

¹⁰URL: <https://www.hafen-hamburg.de/en/> [22.03.2018]

¹¹URL: https://en.wikipedia.org/wiki/Port_of_Hamburg [22.03.2018]

¹²URL: <https://www.hafen-hamburg.de/en/> [22.03.2018]

water and landside infrastructure, improving safety and profitability at the port, planning and implementing construction projects and managing property since 2005.”¹³ “HPA is combining the efficiency and environmental awareness, supported by the use of state-of-the-art technologies and innovative projects such as **smartPORT**. HPA therefore maintains a close contact with the shipping, logistics and service sectors. The overall aim of HPA is to maintain and extend the position as Germany's leading transshipment hub in the long-term.”¹⁴

8.1.1.3 Presentation of this management tool (functionality)

By means of state-of-the-art networking and digitization, the Port of Hamburg turns into a smartPORT. This smartPORT project is recognized worldwide and participates in the exchange of innovative ideas as part of an international network. Thus, the smartPORT is a suitable good practice example. The smartPORT concept was developed to efficiently coordinate the growing traffic and goods flows in the port and to set up a network. As an inland port, the port of Hamburg is faced with the challenge of implementing increasing container throughput on a limited or non-expandable area. Together with SAP and T-Systems, the cloud-based information and communication system SPL was developed, which is open to everyone involved in the transport chain. In this way companies, partners and customers of the Port of Hamburg can network with each other and coordinate their processes in real time. The current traffic situation is also displayed in real time.¹⁵

8.1.1.4 Details of original introduction

The port of Hamburg is one of the busiest ports in Europe and is facing a still increasing freight volume which will be transhipped in the port. For 2025 the Hamburg Port Authority expects that in total 296 million tons of cargo will be handled in the port of Hamburg. This leads to the need to expand the handling capacity of the port. Since space is limited in the port area an increase in productivity is needed to be able to handle the volumes. In addition, the environmental impact in terms of negative externalities (e.g. CO₂-emissions, pollution) caused by port activities should be minimized as well in the future. In 2012, the Hamburg Port Authority issued a strategic and operational plan including all current and future projects which should help reach this goal. This plan also included various measures which helped to facilitate realizing the smartPORT Hamburg. However, the work on the smartPORT already started in 2011 (e.g. installing new infrastructure such as sensors).

To develop the smartPORT, the Hamburg Port Authority has collaborated with various stakeholders from different industries. Public and private partnerships were important to realize the project. The smartPORT development also ran in parallel with the digitalization of the city of Hamburg which was moving towards a smart city model. Thus, there was the support of the public area, which was interested in transforming the port of Hamburg – which

¹³URL: <https://www.hamburg-port-authority.de/en/hpa-360/> [22.03.2018]

¹⁴URL: <https://www.hamburg-port-authority.de/en/hpa-360/> [22.03.2018]

¹⁵URL: <http://analysewirtschaft.de/article/smarter-heimathafen.html> [22.03.2018]

is located in the city centre – in the smart city concept. In addition, partnerships with private companies such as technology providers such as Cisco or SAP were necessary to develop the technological infrastructure.

The Hamburg Port Authority also had some hurdles to overcome during the development process of the smartPORT:

- different technologies were used the different actors in the logistical chain leading to disparities in data types, equipment and operating systems.
- companies feared to share their information with other stakeholders (especially competitors).
- business processes had to be reengineered due to the use of modern technology. Thus, change management was needed to show the stakeholders the benefit of the change and teach them how to use new systems.¹⁶

However, the Hamburg Port Authority managed some of the hurdles. However, the smartPORT logistics platform will be shut down in June 2018 since there are not that many users as expected. This also shows, that it is necessary to constantly integrate the different stakeholders involved in the elaboration process of such a concept to guarantee that it is used in the long term.¹⁷

8.1.2 Analysis & Evaluation

This chapter is a detailed analysis and evaluation of the currently described good practice. The aim of this part is to present the good practice for those who are looking for good practices in port management.

8.1.2.1 Evaluation of the good practice based on the port management success factors

Socioeconomic structure of country:

“Germany is the top economic power in Europe and the fourth globally. In 2017, GDP increased by 2.1%, the country’s highest growth rate since 2011. While export revenues have largely contributed to the economic performance of the country, internal demand also played a major part. In 2018, Germany will probably remain Europe’s top economy, but political uncertainty could affect long-term investments.” The main sectors of industry in Germany are:

- the agricultural
- the automotive industry and
- the services sector.¹⁸

¹⁶ URL: <http://transport.sia-partners.com/20160930/internet-things-transportation-port-hamburg-case-study> [30.03.2018]

¹⁷ URL: <https://www.ndr.de/nachrichten/hamburg/Hamburger-Hafen-Aus-fuer-Vorzeigeprojekt.smartPORT100.html> [30.03.2018]

¹⁸URL: <https://en.portal.santandertrade.com/analyse-markets/germany/economic-political-outline> [22.03.2018]

Focused consistent state strategic policy

Sustainable shift in the transport sector is needed. Thus, the EU policy determines different actions to promote this shift. The European Commission's White Paper of 2011 „Roadmap to a single European transport are – towards a competitive and resource-efficient transport system“ presents the Commission's vision for the future transport system in Europe. Increasing greenhouse gas emissions as well as the need for a modal shift towards multimodality are named as crucial factors which lead to an increasing demand for sustainable transport modes. Since rail and inland waterway are recognized as sustainable transport modes by the European Commission, there are ambitious goals concerning the modal shift in favour of these transport modes: the European Commission has the goal to shift 30 % of road freight with a transport distance longer than 300 km to rail or inland waterways by 2030. This value should reach 50% by 2050.¹⁹

Partnership factors

In this good practice example partnership plays an important role, due to the fact that the development of the smartPORT was an ongoing and continuously developed process. Several different partners, for example software companies (SAP) universities and business partners, are involved.

Organizational conditions

This good practice example could provide other ports with useful organizational conditions. To become a smartPORT itself or to be able to take over (some) processes, there must be various technical requirements exist.

Factors of finances, investment & funding

A fully developed smart port can use it gained insights for new business model generation. However not all ports have the potential to integrate fully with their surroundings. Some ports might lack infrastructure or physical integration with their surroundings or might simply not have the scale required to perform the necessary investments.²⁰

Market access & customer relations

The good practice example, which is located in Hamburg is an outstanding hub of logistics in world trade and the most important logistics location in Northern Europe. The Elbe city is the most eastern port of the North Sea, making it the ideal harbour for Eastern Europe. As a global hub serving overseas countries, Central and Eastern Europe, and the entire Baltic Sea region, Hamburg benefits from its central position at the confluence of the global trade handled by

¹⁹URL: http://ec.europa.eu/transport/themes/strategies/doc/2011_white_paper/white-paper-illustrated-brochure_en.pdf p.4-6; 9[22.03.2018]

²⁰ URL: <https://www2.deloitte.com/content/dam/Deloitte/nl/Documents/energy-resources/deloitte-nl-er-port-services-smart-ports.pdf> [22.03.2018]

European logistics. Therefore, the good practice example is of great importance for the supply of the European single market with 500 million consumers.²¹

Port services

The good practice example provides various services. Today there is an increased need for digital integration - a port is increasing its focus as a service provider, albeit not in physical services like towage and crane operations but more by becoming a data service provider (digitalization of port activities). In some cases, new services can replace or traditional port services. To give an example: data services like the Automatic identification System linked to GPS which offers insights in multiple aspects of ship movements like origin, destination, cargo, etc.²²

Flexibility

Flexibility plays an important role in this good practice example. Not only in the context of customers (unpredictable needs,) but also with new technologies.

High qualification & experience of the personnel

The time that working in the port meant hauling cargo all day has long gone, nowadays there are numerous possibilities working in a port. A networked mindset is more and more important.

Information management

In this case, the information management is important when it comes to new developments and trends.

²¹URL: <http://www.hamburg-invest.com/warum-hamburg/2056444/smartPORT/> [22.03.2018]

²²URL: <https://www2.deloitte.com/content/dam/Deloitte/nl/Documents/energy-resources/deloitte-nl-er-port-services-smart-ports.pdf/> [22.03.2018]

Category of success factors	Relevance	Impact on port management	Justification
Socioeconomic structure of country	relevant	high	The socioeconomic structure of the country is important in terms of companies and industries located near the port which are using the port for transshipment.
Focused consistent state strategic policy	relevant	high	Important as the European Commission is increasingly focusing on sustainable transport concepts. And the smartPORT energy already promotes environmentally friendly mobility and advocates reduced energy consumption.
Partnership factors	relevant	high	Because background knowledge from different areas is needed, to develop and to use the smart port.
Organizational conditions	non-relevant		
Factors of finances, investment & funding	relevant	high	Very important for port management because of the feasibility.
Market access & customer relations	relevant	medium	Important for entering into new markets and generating new customers.
Port services	relevant	medium	Important for Service Providers who want to use the advantages of the new technology to build up new services for their clients.
Flexibility	relevant	medium	by having access to real-life data, ports can operate more flexible (e.g. reroute trucks due to a traffic jam)

Category of success factors	Relevance	Impact on port management	Justification
High qualification & experience of the personnel	relevant	high	In order to be able to work with a digital platform and all the digital devices, skilled people are needed in ports in the future.
Information management	relevant	high	Through digital platforms such as the smartPORT information can be shared between different stakeholders in a port.

8.1.2.2 Adaptability

The smartPORT concept could be adaptable to other ports, but just in the case that all technical requirements and standards are available. Although most ports are aware of the need for digital integration only few have been acting proactively towards becoming a smart port. Even the European ports with the highest level of IoT implementation today use the technology primarily for adaptive analytics. A challenge by implementing a smartPORT is the increased focus on cyber security. Companies active in the ports industry, are responsible not just for customer data (which is already extremely valuable), but for physical goods.²³

8.1.2.3 Financial analysis

There is no detailed information about financial aspects. It is estimated that the elaborated platform and other smartPORT logistics projects costed around 5.5 million euro.²⁴

8.1.2.4 Benefits

By implementing a smartPORT both the port users as well as the port authority, itself should gain benefits. Within the smartPORT philosophy, the Hamburg Port Authority is achieving sustainable economic growth and maximum benefit for its customers and the people of Hamburg, while minimizing its environmental impact.²⁵

8.1.3 Guidelines for Implementation

This chapter gives basic guidance for those ports or port actors who intend to implement – or pilot – the currently described good practice.

²³URL: <https://www2.deloitte.com/content/dam/Deloitte/nl/Documents/energy-resources/deloitte-nl-er-port-services-smart-ports.pdf/> [22.03.2018]

²⁴ URL: <https://www.ndr.de/nachrichten/hamburg/Hamburger-Hafen-Aus-fuer-Vorzeigeprojekt.smartPORT100.html> [30.03.2018]

²⁵URL:<https://www.hamburg-port-authority.de/en/hpa-360/smartPORT/> [22.03.2018]

8.1.3.1 Conditions of introduction

Infrastructure

Technology and innovation, such as the Internet of Things, are the driving force behind the smartPORT productivity. This type of technology, in the form of physical and IT infrastructure, could be the best way to see benefits in a smart port environment.²⁶ Furthermore a reliable infrastructure is important to promote multimodality.

HR requirements

Working in a port means no longer only hauling cargo all day long. A port offers countless opportunities. Future port workers should have a high interest in modern technologies. Furthermore, a port worker should know all relevant trends concerning logistics. In addition, port workers play a significant role on an international level. Working in a port guarantees dynamic working environment where people interact with each other in a personal and direct way.

Geographical

The port of Hamburg is Germany's biggest seaport.²⁷ In terms of TEU throughput, the port of Hamburg is the second-busiest port in Europe, after the port of Rotterdam, and under the 15th-largest ports worldwide. 2017, 8.8 million TEUs (20-foot standard container equivalents) were handled in the port area of Hamburg. Overall the port of Hamburg covers an area of 73.99 km² (64.80 km² usable), of which 43.31 km² (34.12 km²) are land areas.

Physical necessities

By implementing a smartPORT, physical facilities and high-quality equipment is demanded.

8.1.3.2 Suggested steps of implementation

By implementing a smartPORT the 10 facts (which are described more in detail under 3.1.) should be considered:

1. Navigation in real-time
2. Shore power from renewable energies
3. Intelligent railway point
4. The mobile all-purpose sensor
5. Smart maintenance
6. Virtual depot
7. Port Monitor

²⁶URL: <https://www.porttechnology.org/news/what-is-a-smart-port> [22.03.2018]

²⁷URL: <https://www.hafen-hamburg.de/en/> [22.03.2018]

8. e-Mobility in the port
9. Parking for professionals
10. Renewable energies

By focusing on innovative technologies, the HPA is adopting a pioneering role in Germany on the issue of a turnaround in energy policy. At the centre of this is the efficient use and expansion of the existing networks, and above all options for generating renewable energies. HPA is currently reviewing wind and solar power and even bioenergy, because after all large quantities of biomass also accumulate in and around the harbour area.²⁸

Developing a port into a “smart port” does not happen overnight. It is a step-by-step approach where a port transforms its mode of operation from reactive (automated port) to proactive (intelligent port) and finally to a predictive port (“smart port”). The whole transformation process involves:²⁹

- Carefully building the right infrastructure
- Deploying the correct technology
- Equipping the port workers with the right skillsets
- Interconnecting devices, machineries, systems and processes
- Ensuring port users are connected to the port
- Connecting the ports to other ports globally, including linking to global trade and supply chain
- Using data analytics to help the port improve over time based on the data collected³⁰

8.1.3.3 Financial aspects

“As growth in trade continues to remain sluggish due to uncertainties in global demand, coupled with declining freight rates, the “smart port” concept is the way to go. While ports in developed and developing countries continue to invest and transform themselves into a “smart port”, ports in underdeveloped countries should look at tapping on aids from international organizations, international/regional development banks and even solutions providers to transform themselves into a “smart port”. The improvement in service level and cost reduction as a result of “smart port” implementation for the port operator will directly, and indirectly translate into benefits to the users of the port. Stakeholders in the global logistics and supply chain, such as shippers, freight forwarders, truckers, logistics service

²⁸URL: <https://www.hamburg-port-authority.de/en/hpa-360/smartPORT/> [22.03.2018]

²⁹URL: <http://blog.logisticsjobs.asia/demystifying-smart-port-next-generation-port/> [22.03.2018]

³⁰URL: <http://blog.logisticsjobs.asia/demystifying-smart-port-next-generation-port/> [22.03.2018]

providers and carriers, will need to keep a close watch on the “smart port” effect and start thinking how they can leverage on the benefits to enhance their businesses and operations”.³¹

To develop a smartPORT or something similar, various investments are necessary in terms of infrastructure, technology and training. As mentioned in this good practice, there was the support of the city of Hamburg when implementing the smartPORT. It is important to be in line with the strategic plans of the region/city where a port is located and to work with the authorities. In addition, the support of companies and other stakeholders located at the port – financially and in general - is important to facilitate the development of a smartPORT. Even though it is not expected that Danube ports will transform to smartPORTs such as the port of Hamburg, some technological devices or services could be used or adapted by Danube ports to be prepared for the digital age.

8.1.3.4 Measuring the effectiveness of introduction

The effectiveness of this good practice example could be best measured quantitative. The port’s overall operations should increase by a recurring revenue. At the same time, it should be lowering costs of operations and reducing the impact to the environment. ³²

8.1.3.5 Further information & aid

For further information, please visit the official homepage available under:

<https://www.hamburg-port-authority.de/en/hpa-360/smartPORT/>

³¹URL: <http://blog.logisticsjobs.asia/demystifying-smart-port-next-generation-port/> [22.03.2018]

³²URL: <http://blog.logisticsjobs.asia/demystifying-smart-port-next-generation-port/> [22.03.2018]

8.2 Model of Thinkport in the Port of Vienna/Hafen Wien

8.2.1 Description

8.2.1.1 Preliminary check based on the selection criteria

Selection criteria	Compliance	Brief justification
Aim	Yes	Hafen Wien is a multifunctional service company offering decades of experience and the latest technologies. ³³ Thinkport VIENNA aims to develop, test and implement logistics innovations in Vienna. ³⁴
Relevance	Yes	The three harbours on the Danube in Vienna are notable for their modern handling facilities, excellent infrastructure and reliability. ³⁵ Thinkport VIENNA analyses logistics issues and supports networking and implementation of demand-oriented solutions. ³⁶
Effectiveness	Yes	Hafen Wien operates the largest free port in Austria. Thanks to its optimum rail, road and water links and the proximity to Vienna International Airport in Schwechat, it provides an important and practical interface for international trade and transportation. ³⁷ Stakeholders are directly involved in the work of Thinkport via several channels. In addition, existing cooperation at national and international level will be further expanded. ³⁸
Measurability	Yes	Yes, because of the number of transshipments. In the case of Thinkport Vienna, the effectiveness could be measured by the development of new solutions, the growth of the community within the Thinkport Vienna and the number of launched projects.
Adaptability & transferability	Yes	The processes handled in a port can be used/seen as good practice examples. Furthermore, investigates the Hafen Wien a lot of time in project work – for example within its Thinkport.

8.2.1.2 Primary information

Context

The Hafen Wien is already the largest port on the Danube in Eastern Austria and its diverse logistical capabilities and capacities continue to be enlarged. Although it is 2.000 km from the Black Sea and 1.500 km from the North Sea, it has the great advantage of being the largest trimodal logistics center in Austria, bringing together road, rail and water transportation and making it the ideal place for the transportation of goods and for container storage, trade and management.

Actors applying the good practice

Location

Port of Vienna is located on river km 1920 of the Danube, covering both left and right bank. Port has three different basins on three nearby locations: Freudenuau, Albern and Lobau. In addition, Port of Vienna has a passenger terminal. The Thinkport Vienna is located in surrounding of the Freudenuau port.

Wien Holding group, the company applying the good practice

Wiener Hafen, GmbH & Co KG is a member of a public company Wien Holding which has 95% of ownership of Wiener Hafen, while the Vienna Economic Chamber (Wirtschaftskammer Wien) has a 5 percent share in the company. Wiener Hafen, GmbH & Co KG is the owner of the port facilities comprising real estate, buildings and wharf equipment and operates the harbours in Freudenuau, Albern and Lobau.

Apart from ownership and operation of all storage and vehicle facilities and all real estate that is not directly located in the port, the company Wiener Hafen und Lager Ausbau- und Vermögensverwaltung, GmbH & Co KG is responsible for all crane operations required for cargo handling. It also manages the holdings WienCont.

Wiener Hafen, GmbH & Co KG and Wiener Hafen und Lager Ausbau- und Vermögensverwaltung, GmbH & Co KG form the unit publicly known as port of Vienna (Hafen Wien) offering solutions tailored to the needs of its customers.

8.2.1.3 Presentation of this management tool (functionality)

In this section the Winer Hafen, has two good practice examples. First of all, the Hafen Wien is known for its modern handling facilities, excellent infrastructure and dependable, well trained

³³URL: <http://www.hafen-wien.com/en/company> [22.03.2018]

³⁴URL: <https://www.thinkportvienna.at/ueber-uns/strategie/> [14.05.2018]

³⁵URL: <http://www.hafen-wien.com/en/company> [22.03.2018]

³⁶URL: <https://www.thinkportvienna.at/ueber-uns/strategie/> [14.05.2018]

³⁷URL: <http://www.hafen-wien.com/en/company> [22.03.2018]

³⁸URL: <https://www.thinkportvienna.at/ueber-uns/mehrwert/> [14.05.2018]

workers, ensuring the reliable and rapid handling of all goods.³⁹ Furthermore the Hafen Wien plays a pioneering role in the development of European inland shipping. The Danube has always been an important traffic artery, particularly in the light of the growing amount of traffic associated with the EU eastward enlargement and the resultant capacity bottlenecks on road and rail. As a result of these factors, it is an increasingly attractive alternative in both economic and commercial terms.⁴⁰ The Hafen Wien develops comprehensive logistical solutions with a view to protecting man and nature by modernising transportation.⁴¹

The second good practice of the Hafen Wien is the Thinkport. The Thinkport Vienna is an innovation lab which offers various services:⁴²

- information platform
- educational opportunities
- Ideas and Open Innovation Platform
- Network Function
- Participatory laboratory, showroom and test environment
- Project support, evaluation and start-up promotion

8.2.1.4 Details of original introduction

Concerning the D.4.2.2 National report on port management models, Hafen Wien could have a function as good practice example in the case of dissemination and promotion of ports and inland waterway transportation.

8.2.2 Analysis & Evaluation

This chapter is a detailed analysis and evaluation of the currently described good practice. The aim of this part is to present the good practice for those who are looking for good practices in port management.

8.2.2.1 Evaluation of the good practice based on the port management success factors

Socioeconomic structure of country

The Austrian economy is deemed one of the most stable in Europe. In 2018, Austria should benefit from the economic recovery in the Euro zone – especially in Germany - while strengthening trade relations with eastern European countries such as Czech Republic, Hungary, Slovakia but also Belarus and Ukraine. Austria has implemented policies for innovation and business diversification in green and digital economy. The Austrian political landscape has been characterized by an increasing polarization in the past couple of years.

³⁹URL: <http://www.hafen-wien.com/en/company> [22.03.2018]

⁴⁰URL: <http://www.hafen-wien.com/en/company/infrastructure> [22.03.2018]

⁴¹URL: <http://www.hafen-wien.com/en/company/importance> [22.03.2018]

⁴²URL: <https://www.thinkportvienna.at/das-lab/leistungen/> [22.03.2018]

The main sectors of industry in Austria are:

- the agricultural
- the industrial sector and
- the renewable energies sector.⁴³

Focused consistent state strategic policy

Same as mentioned under (3.2.1).⁴⁴

Partnership factors

Apart from Wiener Hafen group, a member of the Wien Holding group, there are a further 120 private companies located in an area of 3.5 million square meters, including around forty transportation companies renting premises and taking advantage of the economic benefits of the site. The goods distribution centre from the good practice example is used by many well-known companies. The presence of large forwarding companies on the premises at the Harbour Vienna provides an ideal cooperation platform.⁴⁵

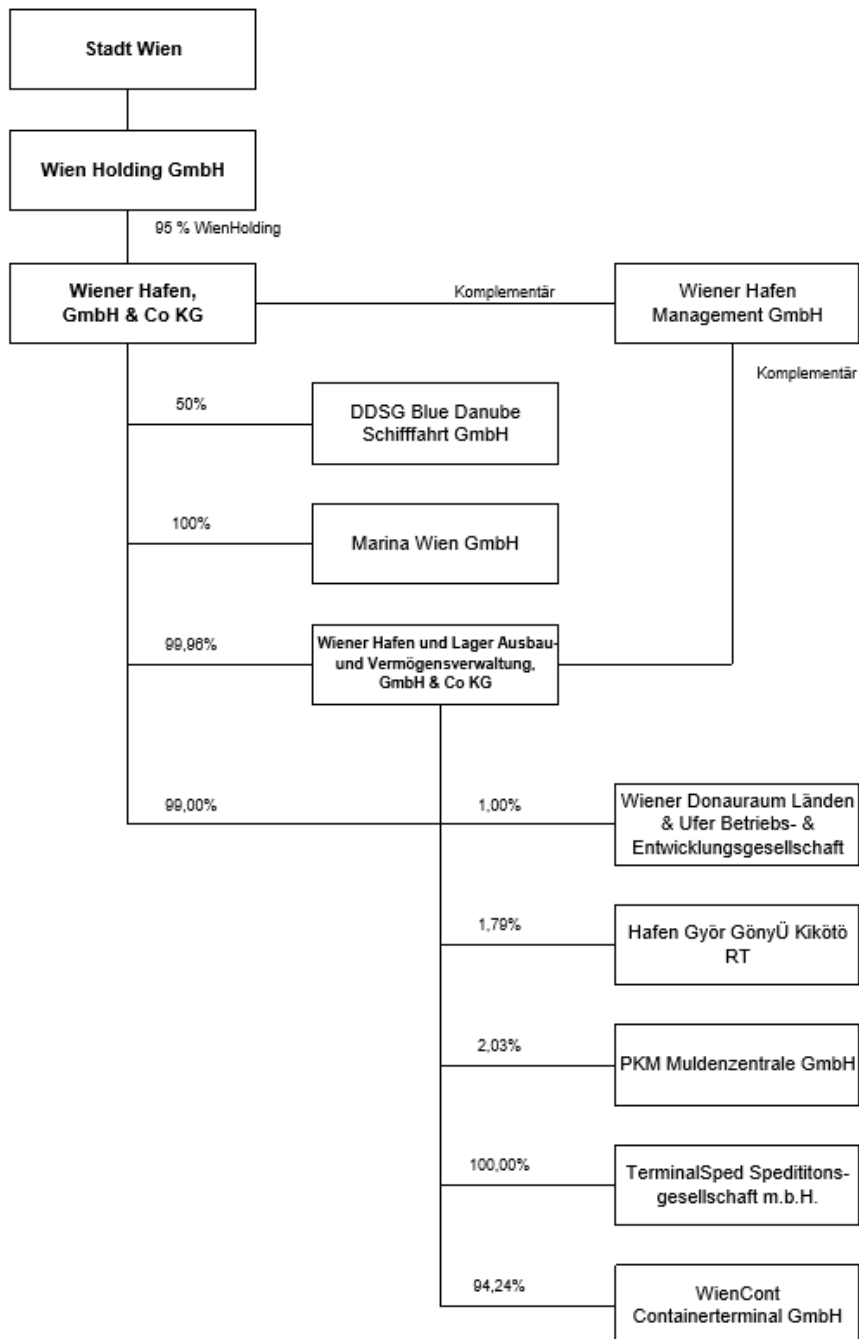
⁴³URL: https://en.portal.santandertrade.com/analyse-markets/austria/economic-political-outline?&actualiser_id_banque=oui&id_banque=0&memoriser_choix=memoriser [22.03.2018]

⁴⁴URL: http://ec.europa.eu/transport/themes/strategies/doc/2011_white_paper/white-paper-illustrated-brochure_en.pdf p.4-6; 9[22.03.2018]

⁴⁵URL: <http://www.hafen-wien.com/en/connection/local-connections> [22.03.2018]

Organizational conditions

Organigramm Wiener Hafen Gruppe



2. Figure: Company structure Hafen Wien

A good company structure and well-experienced workers are necessary to achieve the goals of Hafen Wien.

Port services

The Hafen Wien offers several services:

- cargo handling
- warehousing / logistics
- car terminal
- container terminal
- settlement of enterprises
- passenger harbour and marina
- project development

High qualification & experience of the personnel

Well trained workers, ensuring the reliable and rapid handling of all goods.⁴⁶ Furthermore offers the port of Vienna jobs for 5,000 people, making it an important source of employment for the entire region.⁴⁷

Information management

Information Management plays a significant role in the whole supply chain as well as around a port. For the Thinkport Vienna information management plays a key role as well.

⁴⁶URL: <http://www.hafen-wien.com/en/connection/local-connections> [22.03.2018]

⁴⁷URL: <http://www.hafen-wien.com/en/connection/local-connections> [22.03.2018]

Category of success factors	Relevance	Impact on port management	Justification
Socioeconomic structure of country	non-relevant		
Focused consistent state strategic policy	relevant	high	Important as the European Commission is increasingly focusing on sustainable transport concepts.
Partnership factors	relevant	high	To build up a network for further improvements.
Organizational conditions	relevant	low	Good trained personal is essential for a successful port management.
Factors of finances, investment & funding	non-relevant		
Market access & customer relations	non-relevant		
Port services	relevant	medium	Services are becoming increasingly important in order to remain competitive.
Flexibility	non-relevant		
High qualification & experience of the personnel	relevant	high	In order to meet new requirements.
Information management	relevant	low	Relevant for the communication along the whole supply chain.

8.2.2.2 Adaptability

The concept/structure of the Hafen Wien as well as the concept of the Thinkport Vienna could be adaptable to other ports, but just in the case that all technical requirements and standards

are available. Especially the good practice from the Thinkport Vienna should be easy to adapt in other companies.

8.2.2.3 Financial analysis

There is no detailed information about financial aspects.

8.2.2.4 Benefits

The most benefits which could be generated are by implementing a process like the Thinkport Vienna.

As part of its activities, thinkport VIENNA will initiate innovations in urban freight transport and logistics, promote the development of new solutions, business areas or processes and, in the context of its organizational and operational structure, offer the following USPs: ⁴⁸

- **Development of innovative solutions:** Thinkport Vienna is a thematic incubator, think tank, demand detective, catalyst of ideas and presentation space, which takes up the real needs and requirements of urban freight transport and converts them into socially supported sustainable solutions for urban logistics.
- **Innovation and knowledge transfer:** Accordingly, Thinkport Vienna offers a wide range of options for methodically preparing complex situations, processes and technologies in the dynamic environment of the city, actively implementing a multi-stakeholder environment, real-testing and analysing the findings to support new solutions along the innovation cycle.
- **Institutionalized Participation:** Stakeholders are directly involved in the work of Thinkport Vienna via several channels. In addition, existing cooperation at national and international level will be further expanded.
- **Real test environment:** Thinkport Vienna offers a test environment for the methodical development and evaluation of complex innovative concepts and technologies of urban logistics. The test environment is part of the real city environment in which a variety of stakeholders with different backgrounds and interests work together to bring about innovative solutions.
- **Wide range of resources:** an extensive range of multifunctional rooms both at the BOKU and in the Port of Vienna opens up a variety of opportunities. From stakeholder workshops to science slams to test drives with autonomous vehicles on the harbour rail, almost every possible use is given.
- **flexible and lean organizational structure:** the merger of an independent university with a logistics infrastructure manager close to the city opens new options and ways in the development of innovative logistics solutions. ⁴⁹

⁴⁸URL: <https://www.thinkportvienna.at/ueber-uns/mehrwert/> [22.03.2018]

⁴⁹URL: <https://www.thinkportvienna.at/ueber-uns/mehrwert/> [22.03.2018]

8.2.3 Guidelines for Implementation

This chapter gives basic guidance for those ports or port actors who intend to implement – or pilot – the currently described good practice.

8.2.3.1 Conditions of introduction

Infrastructure

Port infrastructure is expensive, particularly if significant amounts of dredging and reclamation are necessary; and/or breakwaters are required apart from which the quays, jetties, storage facilities, and the like need to be considered on top of the connecting roads and rail infrastructure. Though the port generates a return itself, the cost associated with common port requirements such as the channel has been traditionally financed by government, semi-government related port authorities or development companies.⁵⁰

HR requirements

The requirements are almost the same as in the smartPORT. However, there is one exception when the good practice of the Thinkport Vienna applies, because in this case there is a need for employees with project-management skills.

Geographical

The Hafen Wien is already the largest port on the Danube in Eastern Austria and its diverse logistical capabilities and capacities continue to be enlarged. Although it is 2.000 km from the Black Sea and 1.500 km from the North Sea, it has the great advantage of being the largest trimodal logistics centre in Austria, bringing together road, rail and water transportation and making it the ideal place for the transportation of goods and for container storage, trade and management.

Physical necessities

By implementing a process like Thinkport Vienna, a good network and spatial availability is of great importance. Concerning the Hafen Wien a good infrastructure leads to a huge advantage.

8.2.3.2 Suggested steps of implementation

The suggested way to implement the good practice example is by:

- Carefully building the right infrastructure
- Build up a company network
- Organization of the needed technology
- Interconnecting devices, machineries, systems and processes (if available)

⁵⁰URL: <https://www.aurecongroup.com/thinking/thinking-papers/port-infrastructure-build-and-they-will-come> [22.03.2018]

8.2.3.3 Financial aspects

To develop the good practice, public or private funding could be required to realize the conditions mentioned under 4.3.1.

8.2.3.4 Measuring the effectiveness of introduction

The effectiveness of this good practice example could be best measured quantitative. For example, the importance of the Hafen Wien is also well illustrated by the fact that one in five cars passes through the Hafen Wien on its way to dealers and customers.⁵¹ Considering the Thinkport Vienna, the effectiveness could be measured by the development of new solutions, the growth of the community within the Thinkport Vienna, the number of launched projects over a certain time period, the volume and growth of R&D year by year within the Port of Vienna and surrounding logistics/industrial parks.

8.2.3.5 Further information & aid

For further information please visit the official homepage available under:

<http://www.hafen-wien.com/en>

<https://www.thinkportvienna.at/> (only in German available)

⁵¹URL: <http://www.hafen-wien.com/en/company/importance> [22.03.2018]

9 Good practices provided by Bulgaria

9.1 Successful port concession

9.1.1 Description

9.1.1.1 Preliminary check based on the selection criteria

The following table supports the selection of the currently described good practice is suitable for this report. All the selection criteria are met.

Selection criteria	Compliance	Brief justification
Aim	<input checked="" type="checkbox"/>	Attracting private investors in the development of transport infrastructure, in order to optimize transport services and to provide additional financial resources through risk sharing and resource use expertise from the private sector.
Relevance	<input checked="" type="checkbox"/>	No private participation was allowed in the activity and investment in ports until concession was introduced.
Effectiveness	<input checked="" type="checkbox"/>	Effectiveness is observed and reported by the Ministry of transport. The state has declared this tool to have high effectiveness.
Measurability	<input checked="" type="checkbox"/>	Increased cargo volume, concession fees collected, and annual investment in port infrastructure.
Adaptability & transferability	<input checked="" type="checkbox"/>	Adaptable and transferable to all ports that are operated by state-owned structures and need private investment.

9.1.1.2 Primary information

Context

Ports of public transport of national importance may be granted to third parties under the procedure of the Concessions Act with a concession for a service or concession for construction, according to the provision of Art. 117c of the MSIWPRBA. By granting a concession for a service for which the use of port territory and / or port facilities is required, the concessionaire shall be granted access to the market of port services under Art. 117a of the MSIWPRBA. In Art. 117c, para. 3 of the MSIWPRBA is stipulated that if the concession is awarded for construction, the concession is defined as such for construction. For both types of concessions envisaged, the port territory and infrastructure remain state-owned. The Bulgarian state has consequently granted 7 (seven) river terminals with national importance on concession. Another 5 (five) cargo terminals are to be granted in the future. Successful port

concession to a private operator was defined as a good practice because it has proved its positive influence on the performance of the ports that have already been granted.

Actors applying the good practice

Concession is applied for Bulgarian ports with national importance – Ruse, Lom and Vidin. Most common practice is granting a separate port terminal on concession, as the entire port of national importance most often include several terminals which are usually located in different cities.

Application is provided by motivated decisions of the Council of Ministers, where the Ministry of transport, information technologies and communication have a major role. Control is ensured with the help of Executive agency Maritime administration and Bulgarian Ports Infrastructure Company.

Very descriptive and detailed information about the above ports and the administrative bodies can be found in the two national reports delivered in the frames of activities 4.1. and 4.2. of the DAPhNE project.

9.1.1.3 Presentation of this management tool

Port concessions serve to fulfil strategic aims at national level that are set before their implementation. Having identified the unsatisfactory technical and economic condition of the port system in Bulgaria compared to its Western European counterparts, the government took decision with a long-term effect to attract private investment and managerial experience while keeping the control over the process. The concession approach entirely re-shaped the port management system in the period after 2007, when this strategic approach was put into practice for river ports.

This tool is demonstrated and directly linked to the ports of national importance which **management model is characterized with private operators (concessionaires)**. Even more, this tool proves the importance of the river port sector for the private sector.

9.1.1.4 Details of original introduction

The following successful concessions of river ports in Bulgaria are implemented:

1. **February 2007 Port terminal Svishtov** – part of the port for public transport of national importance Ruse, is granted to "Dredging fleet - Istar" JSCo. The duration of the concession is 31 years. For the contract period, the concessionaire undertakes to invest at least BGN 3,212 million⁵² for the first 2 years, BGN 10,637 million for the first 10 years and BGN 19,227 million for the entire duration of the concession. The Concessionaire undertakes for the first ten years of the concession period to reach an average annual turnover of less than 1,347,698 tonnes at a turnover of 763,457 tonnes in 2006.
2. **July 2007 - A contract for the concession of Oryahovo Port Terminal**, part of the port for public transport of national importance Lom, has been signed for a period of 25

⁵² Fixed rate of 1 BGN = 1.95583 euro

years. The concessioner is “Slanchev Dar” JSCo. The amount of the investments, according to the offer and the concluded contract for the term of the concession, is BGN 2.4 million. The amount of the fixed part of the concession payment for the duration of the concession is BGN **250,000**

3. **May 2009** - A contract for the concession of **the Somovit Terminal**, part of the port for public transport of national importance Ruse. The concessionaire is "Octopod - C" Ltd. The contract is concluded for a period of 22 years and is effective from 1 August 2009. The amount of the investments during the concession is BGN 6.45 mln.
4. **August 2010** - A contract for the concession of the port **terminal Vidin-north** and the terminal **Ferryboat complex Vidin** for a period of 30 years. The concessionaire is “Bulgarian River Shipping” JSCo.
5. **January 2013** at its regular meeting, the Council of Ministers decided to give **Port terminal Lom** on a concession for 35 years to “Port Invest”Ltd. The recently established company is 100% owned by Bulgarian River Shipping. The concessionaire has offered to invest BGN 22.4 million for the entire duration of the contract, of which 6.7 million BGN had to be invested in the first four years. The fixed part of the annual concession fee is BGN 187.1 thousand. The proposal exceeds the minimum requirements provided by the Ministry of Transport - BGN 16 million for the entire duration of the concession and a minimum of BGN 6.3 million for the first four years.
6. **Ferryboat terminal Nikopol** - granted on concession to "Bulgarian River Shipping" JSCo. for a period of 35 years under a concession contract concluded on 07.08.2013, which entered into force on 01.10.2013.
7. **Port terminal Vidin-south** - granted on concession to "SCM Port Vidin". It is expected the concessionaire to make investments amounting to BGN 3,737 million for the entire 35-year period of the concession. The company has to repair existing infrastructure and build new facilities. The fixed annual concession fee that the company will pay, amounts to BGN 8,060 excluding VAT. The variable fee will be calculated as 1.76% of the net annual revenue from all activities of the site.

River ports which the Ministry of transport, technologies and communication is preparing to offer on concession:

1. Winter Shelter Port Terminal-Rousse;
2. Vidin-Center Port Terminal, part of the Port for public transport of national importance of Vidin;
3. Ruse-west Port Terminal, part of the Port for public transport of national importance of Rouse;
4. Ruse-east-1 Port Terminal (including berths from 1 to 8), part of the Port for public transport of national importance of Ruse;
5. Ruse-east-2 Port Terminal (including berths from 9 to 14), part of the Port for public transport of national importance of Ruse;

9.1.2 Analysis & Evaluation

This chapter is a detailed analysis and evaluation of the currently described good practice. The aim of this part is to present the good practice for those who are looking for good practices in port management.

9.1.2.1 Evaluation of the good practice based on the port management success factors

Socio-economic structure – the relevance of this factor may be explained with the influence of the transition of Bulgaria to market economy after 1989. Obviously, it became a long-term complex process that caused entire change of the industry and stakeholders. First concessions of river ports have already a 10-year history and may be taken as part of the socio-economic characteristic of the country.

Focused consistent state strategic policy – port concessions are the result from a consequently implemented national strategy for development of the transport infrastructure of the Republic of Bulgaria through the concession mechanism.

Organization conditions – concessioners retain or change the organizational conditions for the aim of costs reduction, for provision of better port service.

Factors of finances, investment and funding – investing in terminals granted on concession is from the one side obligatory for the concessionaire and from the other side – favourable for the private operator in order to improve its competitiveness. Private investment is assured in ports owned by the state – new storages /universal and specialized/, new berths, maintenance and repair.

Market access and customer relations – concessionaires are often private companies that are part of bigger corporative structures. This significantly widens the ability to attract cargo in the terminal under concession. Private concessionaires are entirely market oriented.

Port services – by achieving the above three success factors concessioned ports improve their port services in terms of quality and quantity.

Flexibility – private companies – concessionaires are far more flexible in taking managerial decisions than state-owned operators.

Category of success factors	Relevance	Impact on port management	Justification
Socio-economic structure of country	relevant	Medium	Improved port performance affects the socio-economic structure of the area of its location. Thus, successful port concession contributes to the positive effect on a regional level.
Focused consistent state strategic policy	relevant	High	This good practice is prepared and implemented already 11 years. Independent on the variety of changes in the government, this strategy is continuously applied, which proves its consistency and success.
Partnership factors	non-relevant	Low	-
Organisational conditions	relevant	High	Granting a terminal on concession firstly means a change in its management. New managers impose new management rules, of course in line with the contract for concession and with the current legislation.
Factors of finances, investment & funding	relevant	High	Concessionaires have the freedom to decide on the source of their investment.
Market access & customer relations	relevant	High	Traditional client relations are transferred from the former port operator (state owned) to the private company with its know-how and clients' network. When the concessionaire is a part of a bigger group it benefits from the easier access to information about the market.
Port services	relevant	High	Market oriented concessionaires keep profitable services at appropriate level, re-organize the port activity according to the investments made and clients' demand.

Category of success factors	Relevance	Impact on port management	Justification
Flexibility	relevant	High	Flexibility for this tool is presented by fast decision-making process, active marketing activities.
High qualification & experience of the personnel	non-relevant	Low	-
Information management	non-relevant	Low	-

9.1.2.2 Adaptability

This practice is adaptable to ports in countries where the land and infrastructure are state public property and there is expressed necessity for attraction of private investment.

In principle concessions are applicable to ports with land-lord management model. The models of “Public service ports” and “Tool ports” may be altered by implementation of the concession method where there is a profound analysis of the expected positive result.

9.1.2.3 Financial analysis

Concession from the viewpoint of the concessionaire is a serious business initiative requiring significant financial resources.

The following figures could be orientational⁵³:

Port terminal	Fixed concession annual fee, ⁵⁴ EUR	Variable concession annual fee, EUR	Total investment for development, mln. BGN
Svishtov	207 000	25% of the total gross revenue growth for the current year compared to the base year	19.227

⁵³ Source: www.nkr.government.bg

⁵⁴ The fixed part is indexed every 5 years of the concession period with the cumulative consumer price index.

Port terminal	Fixed concession annual fee, ⁵⁴ EUR	Variable concession annual fee, EUR	Total investment for development, mln. BGN
Oryahovo	5 112,92	10% of the growth in gross earnings compared to the base year	2.4
Somovit, 2009 conditions	31 200	7.2% of the increase in total gross earnings of all activities, or a coefficient of EUR 0.348 per ton, multiplied by the increase in annual turnover, relative to the basic annual freight turnover	7
Vidin-north& Ferryboat complex Vidin	41 000	8.40% of the increase in total net revenue versus the base net income or an amount of EUR 0.16 per ton multiplied by the increase in annual turnover	16,039
Lom, 2013 conditions	95 612	Not less than 5% of annual revenue growth or not less than € 0.20 per ton of increase in freight	22,4
Ferryboat terminal Nikopol	1 500	n/a	0,06

From the viewpoint of the state – over 380 thousand euro/ year are collected from fixed fees and the total private investment should amount to over 67 mln. BGN. The income for the state for 2014 is 32,8 mln BGN., and for 2015 – 34,7 mln. BGN. The transport ministry reports a total investment from the side of port concessionaires /15 sea and river terminals/ of almost 64 mln. BGN for 2014 and 58.2 mln. BGN for 2015.⁵⁵ The revenues from concessions are transferred directly to the state budget and at the same time BPICo. manages, maintains and invests in the port infrastructure, ie. in the objects, which are granted on concession (public ownership).

⁵⁵ Source: <https://www.publics.bg/bg/news/17594/>

9.1.2.4 Benefits

Except the benefits for the state listed above, ports under concession benefit from new management with “fresh” and business-oriented management approach, new silos, berths, cranes, handling facilities are delivered. In the end the basic goal of maintaining sustainable financial conditions and increase in the cargo turnover are most often the case.

9.1.3 Guidelines for Implementation

This chapter gives basic guidance for those ports or port actors who intend to implement – or pilot – the currently described good practice.

9.1.3.1 Conditions of introduction

Conditions for introduction include, but are not limited to:

- The first condition is to have a port system where the state or municipality is the direct owner or has 100% ownership of the provider of port loading/ unloading, storage, technical and administrative port services.
- Another condition is to have a strategic decision on national level. This may be applied by a regulation, by a national strategic paper or decision made by the government;
- Usually the tool of concession is aimed at assuring private partnership where the state has insufficient resources to adequately develop port terminals.

9.1.3.2 Suggested steps of implementation

Implementation can be done in the following stages:

1. Setting the framework for a port system reform – restructuring the functions within the port sector and bring it in line with European Union requirements and European port practices, setting objectives, time frames, assessment of concession as the best possible way for port development.
2. Elaboration of strategic documents with clear rules and sequence of activities – laws, government/ municipal regulations, strategies in order to create transparent rules for the financial structure related to port management & concessions.
3. Definition of one or more responsible ministries, authorities, government bodies that will implement the process.
4. Actual implementation of the concession through transparent procedures for granting.
5. Control of the concession fulfilment by the managing body of the port.
6. Analysis of the effectiveness

9.1.3.3 Financial aspects

Concession must take in mind:

1. Costs for preparation and implementation of concession mechanism specialized for port terminals;

2. Expected revenue from terminals granted on concession against expected revenue from state owned companies – port operators;
3. Expected cargo growth compared state vs private operator;
4. Expected, planned investment in port terminals considering of available finance sources from the side of the state, from the side of the state-owned operator and the concession proposition.

9.1.3.4 Measuring the effectiveness of introduction

Measuring methods that can identify successful port concessions are:

Method of measurement
1. Investment according to type – number of new machinery and facilities, number and square meters new storage facilities
2. Concession fee collected by the managing body of the ports BPICo
3. Cargo volume
4. Income per person
5. Income per ton
6. Annual profit of the concessionaire
7. Surveys regarding clients' satisfaction
8. Keeping the contract “alive” through the entire contract period without violation of the contracted conditions from the side of the private company concessionaire.

9.1.3.5 Further information & aid

Organization	Contact data
Ministry of transport, information technologies and communication, Department “Concession and control over the activity of commercial companies and state-owned enterprises	Address: 9, Dyakon Ignatij str. Sofia 1000 e-mail: mail@mtic.government.bg tel. (+359-2) 9409-419, fax: (+359-2) 988-51-49
Bulgarian Ports Infrastructure Company	Headquarters of Bulgarian Ports Infrastructure Company Sofia, 69 Shipchenski prohod Blvd, fl. 0, fl. 1 and fl. 4 Phone: +359 (0) 2 807 99 99 Fax: +359 (0) 2 807 99 66 E-mail: office@bgports.bg

9.2 Successful implementation of projects funded by the European Union

9.2.1 Description

9.2.1.1 Preliminary check based on the selection criteria

The following table supports the selection of the currently described good practice is suitable for this report. All the selection criteria are met.

Selection criteria	Compliance	Brief justification
Aim	<input checked="" type="checkbox"/>	Improve transport infrastructure, attract higher cargo volumes, introduce new services, personnel training/qualification, reduce administrative burden
Relevance	<input checked="" type="checkbox"/>	Relevant to port management models of all types
Effectiveness	<input checked="" type="checkbox"/>	Proven high effectiveness from the public and the private sector
Measurability	<input checked="" type="checkbox"/>	Number of new transport infrastructure facilities, number of trained personnel, reduced time for ships' stay, new services
Adaptability & transferability	<input checked="" type="checkbox"/>	Adaptable and transferable to all ports within the EU, especially for those from Central and Eastern Europe

9.2.1.2 Primary information

Context

Each project receiving funding is in line with national and European transport priorities and strategic objectives for the development of the common transport network. Bulgarian ports do not have the capacity to provide the resources necessary for their overall development. The large amount of investment needed to turn ports into modern logistics centres requires the attraction of external financing. Cash flow from European funds plays a significant role in improving their condition. Implementation of projects funded by EU is accepted as good practice as it could be found in almost every river port in Bulgaria. This brought us to the logic decision that working on a European project and fulfilling it successfully is important and widely used as good practice for state owned and for private ports.

The wide aspect that EU funds cover is beneficial to many industrial and social spheres of the Bulgarian economy.

Actors applying the good practice

Project implementation is applied all over the country and spreads to trans-border and international cooperation activities. Major river cargo ports that may be referred to as points

of project implementation are Ruse and Lom as there is busy commercial activity and relatively big cargo volumes.

Currently EU projects are implemented by:

1. The state through ministries, agencies and other organizations within its structures:
 - a. Ministry of transport, information technologies and communication (MTITC);
 - b. Bulgarian Ports Infrastructure Company (BPICo.)
 - c. Executive agency Maritime administration (EAMA)
 - d. Executive agency for exploration and maintenance of the Danube river (EAEMDR)
 - e. National Customs Agency (NCA),
 - f. Port operators with 100% state ownership, etc.
2. Private companies, including private ports

9.2.1.3 Presentation of this management tool

Successful implementation of projects funded by the EU has no great necessity to be presented. There is a wide range of easily accessible web sites that contain information on funding, for example https://europa.eu/european-union/about-eu/funding-grants_en. Applying for funding is even easier with the help of national and international consultants.

The most important part of the tool is to identify projects that are eligible for financing either directly or through operating programs and to be an eligible entity to obtain the required funding.

9.2.1.4 Details of original introduction

Bulgaria became a member of the EU in 2007. The membership brought new scope of partnership and possibilities for financing of projects of strategic importance.

A successfully implemented project by BPICo. is the “Establishment of River Information Services System in the Bulgarian part of the river Danube – BULRIS” BG 161 PO 004-4.0.01-003 financed by the EU through the Operational Programme “Transport 2007-2013” under Priority Axis 4 “Improvement of the maritime and inland waterways”. From 2017 the so called “Single window” system is used for electronic document exchange for ships’ visits in Bulgarian river ports.

Ongoing projects with participation of BPICo. are:

- Design and Implementation of Integrated Information System (IIS) for planning and managing the resources in BPI Co; Total cost of the Project: 6 377 831,36 BGN Grant: 5 229 605,60 BGN;
- Feasibility Study on Development of Port Community Information System of the Bulgarian Ports /PCS/ Total cost of the project: 334 166.40 BGN Grant: 282 717.00 BGN;
- Technical assistance for preparation and implementation of „Delivery, Installation and Implementation of the port reception facilities (PRF) in the “Bulgarian public transport

- ports of national importance“ project; Total cost of the Project: 1 560 000 BGN; Financial Grant: 1 320 000 BGN; European Regional Development Fund: 1 122 000 BGN; National co-financing to the Grant: 198 000 BGN;
- RIS COMEX, funded by the Connecting Europe Facility, total project cost: 26,501,194 EUR, Budget of Bulgarian Ports Infrastructure Company: 384 000 EUR;
 - DBS Gateway Region № DTP1-1-050-3.1, Budget of the Project: 2 178 449,30 €, Budget of BPI Co.: 223 423,60 €;
 - Danube Ports Network (DAPhNE) – the project under which this document is prepared; total project budget: 2 985 406,15 €, Budget of Bulgarian Ports Infrastructure Company: 243 650 €;
 - Project Integrated Bulgarian Maritime Surveillance InBulMarS, Budget: Total budget: 238 820 EUR, Grant: 191 056 EUR;
 - ECOPORTIL Environmental Protection of Areas Surrounding Ports using Innovative Learning Tools for Legislation, Total Project budget: EUR 865 947,66, BPI Co. budget: EUR 139 961,52

Regarding ports, most recent influential example may be observed in port of Ruse – the participation of the private port Bulmarket in the LNG Masterplan for Rhine – Main - Danube. **As a result, the first LNG terminal for Eastern Europe was built by Bulmarket DM Ltd. in Ruse, Bulgaria, as part of the LNG Masterplan project activities.** According to a presentation from September 2016 made by Mr. Baev – the deputy CEO of Bulmarket DM, the project includes:

I phase

- 4 x 250 m³ vertical LNG tanks;
- connection with terminal for dangerous goods loading/unloading;
- river ships bunkering;
- LNG station for fuel for the delivery trucks;
- 3 trucks Iveco 330 for delivery of LNG, driven by LNG;

II phase

- LNG terminals in Sofia & Plovdiv;
- delivering of LNG for industrial customers by trucks;
- retrofitting 70 existing end-users;
- connection to the existing natural gas distribution network – BOG, regasification, peak-shaving;

More detailed information on the private port and its activities may be obtained from the web site www.bulmarket.bg.

Port terminal Ruse-east with a state-owned operator – Port Complex Ruse JSCo. (www.port-ruse-bg.com) became a starting logistic point for a Marco Polo project on modal shift fulfilled by big transport companies – PIMK, DB Schenker and DB Schenker Rail – for trailer loading

on railway platforms with final destinations in Germany and Austria. The company “Gopet trans” has also promoted intermodal transport of containers via Ruse-east (using its railway connection and handling facilities) and has participated with a Marco Polo project. In addition, **as of 1 March 2018 Port Complex Ruse JSCo. has started implementation of an HR project BG05M9OP001-1.021-0213-C01 for creation of conditions for sustainable employment within the company.** Although not a new one – the ro-ro terminal and the biggest warehouse of 12 000 sq. meters on the terminal were built with EU funding by the PHARE program. These facilities are still fully functional and attract cargo shippers.

The electronic portal of the Bulgarian Customs Agency has been funded within the frame of the project "Strengthening the Administrative Capacity of the Bulgarian Customs Administration in accordance with the initiative Electronic Customs of the European Union" under Contract No. A11-31-11 / 17.02.2012 on Operational Program "Administrative Capacity".

A fully exhaustive enumeration of all realized and ongoing projects is not the purpose of this report. The examples above just outline possible positive results from this good management practice and its very wide application.

9.2.2 Analysis & Evaluation

This chapter is a detailed analysis and evaluation of the currently described good practice. The aim of this part is to present the good practice for those who are looking for good practices in port management.

9.2.2.1 Evaluation of the good practice based on the port management success factors

Almost all success factors are developed through the good practice of successful EU projects. It has so many aspects both on national and regional level, on governmental and private sphere, The Bulgarian state has declared its strategic aims by defining the frames of the operating programs. On the level of a single company or port the relevant success factors are expressed through participation in new national and international networks (partnership), additional source of funding for soft and infrastructure projects, enhancement of human resources qualification, innovative approach to port services, improved communication and information exchange, etc.

Category of success factors	Relevance	Impact on port management	Justification
Socio-economic structure of country	Non-relevant	low	-
Focused consistent state strategic policy	relevant	high	Availability of operative programs on high national level assures clear focus on national priorities and relevance to EU strategic policies.
Partnership factors	relevant	high	Very important success factor – as many partners with good experience a company/entity has, the more positive is the result from the project.
Organisational conditions	relevant	high	Organization affects management of project activities and communication with partners.
Factors of finances, investment & funding	relevant	high	EU funding assures additional financial resource for crucial transport investment.
Market access & customer relations	relevant	high	EU projects most often include measures as studies, researches and questionnaires to final stakeholders that bear the effect of the initiative. Partnerships are created for achieving easier and more beneficial market access on EU level.
Port services	relevant	high	Projects related to river ports are connected to achieving effective and sustainable services and overall improvement of the end product for the clients.
Flexibility	Non-relevant	low	-

Category of success factors	Relevance	Impact on port management	Justification
High qualification & experience of the personnel	relevant	high	High capacity of human resources is required to achieve successful application and implementation of EU projects. Usually a creation of department for EU projects is a good way of concentrating qualified personnel in the field.
Information management	relevant	high	Having in mind that integrated port community systems are encouraged, that new services are being introduced with the help of EU projects (E-customs, Single window), information management could be defined as important success factor.

9.2.2.2 Adaptability

This practice is in fact adapted in every EU member state. All port management models could benefit from implementing EU projects as per the needs of the specific port.

9.2.2.3 Financial analysis

Financial analysis must consider the financial stability of the applying company during the project period and its ability to successfully prove the eligibility of costs related to the project. Independent of the type of the project implemented, practice shows that losses are not typical to occur. What has left is to evaluate the benefits in terms of cash flows and the qualitative improvement that is not expressed with money.

9.2.2.4 Benefits

As there is no single example for this good practice in one port benefits may be categorized as follows (from the point of view of separate ports):

1. Attracting additional funds for fulfilment of a project that has been evaluated as profitable/ beneficial for the port;
2. According to the frame of the EU funding program – discovering new initiatives that had not been current priority (for example Horizon 2020 – focus on research and innovation);
3. Participation in consortiums, meetings, networks, alliances in the process of applying and fulfilment of a project – widens possibilities for participation in related projects, gives access to new information and even markets;

4. For ports of national importance – except the ability for the port operator to apply for funding, they benefit from the implementation of projects on national scale from BPICo.
 - new infrastructure built, additional information exchange systems.

9.2.3 Guidelines for Implementation

This chapter gives basic guidance for those ports or port actors who intend to implement – or pilot – the currently described good practice.

9.2.3.1 Conditions of introduction

Conditions are set for each application and are related to the organizational and financial abilities of the applicant, his eligibility and the relevance of the proposed projects.

9.2.3.2 Suggested steps of implementation

After considering that the organization is an eligible beneficiary and there is appropriate possibility for EU funding, steps may be focused on:

a) Elaboration of an idea for a project:

- Definition of a problem;
- Definition of aim;
- Definition of needed actions;
- Definition of expected results
- Forming a team, which will be responsible for application and implementation

b) Elaboration of the project proposal:

- Filling an application form;
- Observing the conditions for application

c) Implementation of the project

- Subsequent implementation of the foreseen activities
- Tackling the unforeseen circumstances

d) Evaluation of the project results

9.2.3.3 Financial aspects

Financial aspects depend on the scale of the project and on the possibilities of the organization that has decided to apply for funding.

9.2.3.4 Measuring the effectiveness of introduction

EU projects always have set measuring methods for each single project. Possible measuring methods that can identify successful EU projects:

Method of measurement
1. Number of projects implemented
2. Amount of the funds obtained
3. New infrastructure and facilities according to the planned and implemented activity

Method of measurement
4. Participation in consortiums, networks, unions, etc. created by EU projects
5. Number of trained personnel when the project is about HR
6. New port services introduced
7. Increased cargo volume generated by a specific project
8. Reduced servicing time and ships' stay

9.2.3.5 Further information & aid

Organization	Contact data
Ministry of transport, information technologies and communication, Department "Concession and control over the activity of commercial companies and state-owned enterprises	Address: 9, Dyakon Ignatij str. Sofia 1000 e-mail: mail@mtitc.government.bg tel. (+359-2) 9409-419, fax: (+359-2) 988-51-49
Bulgarian Ports Infrastructure Company	Headquarters of Bulgarian Ports Infrastructure Company Sofia, 69 Shipchenski prohod Blvd, fl. 0, fl. 1 and fl. 4 Phone: +359 (0) 2 807 99 99 Fax: +359 (0) 2 807 99 66 E-mail: office@bgports.bg

10 Good practices provided by Hungary

10.1 Port operator training at the University of Dunaújváros

10.1.1 Description

10.1.1.1 Preliminary check based on the selection criteria

The following table supports the selection of the currently described good practice is suitable for this report. All the selection criteria are met.

Selection criteria	Compliance	Brief justification
Aim	<input checked="" type="checkbox"/>	Training for professionals to have a common level knowledge and skills to operate and manage ports
Relevance	<input checked="" type="checkbox"/>	Before launching the training at the university, there had been no such studies at all in Hungary.
Effectiveness	<input checked="" type="checkbox"/>	According to experts the training program fills a gap, and it contributes to the harmonization of administration, operational and management processes in ports.
Measurability	<input checked="" type="checkbox"/>	As a soft development, education contributes to port managers to provide higher level services. Customer satisfaction is measurable with surveys.
Adaptability & transferability	<input checked="" type="checkbox"/>	Experts from HFIP are up to share their knowledge on launching the program and open to expand it.

10.1.1.2 Primary information

Context

In 2017, for the first time in Hungary, 20 professionals successfully graduated in port operator studies at University of Dunaújváros thanks to the cooperation of Hungarian Federation of Danube Ports, Ecotech Nonprofit Zrt. and the university. This training program filled a niche according to port stakeholders, since port operation, administration and management competencies need to be harmonized along the Danube to upgrade the quality of services provided in inland ports.

Future plans of the organizers include raising the training program to international level, and it is foreseen in a joint effort.

Actors applying the good practice

Location

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. Students were sent from Hungarian Danube port owner, management and operator companies. As graduated professionals, they returned to their fulltime job to port operation and management along the Hungarian river section.

Introduction of HFIP

Studies were provided by experts of the Hungarian Federation of Danube Ports and Ecotech Nonprofit Zrt at the University of Dunaújváros.

Hungarian Federation of Danube Ports (HFIP) was established on 25 May 2012 in Budapest with the aims of as follows

- independent business representation
- promoting common interests and views of Hungarian inland ports on national and international levels, both industrial and governmental levels, considering issues and initiatives facing ports.
- collecting and supplying professional information for its members
- promoting public awareness to understand ports' contribution to national and regional development

Membership expands year by year, now it includes 25 port operators, port managers, port owners and other service providers from the logistics sector.

President of HFIP, Capt. Béla Szalma was lecturer and chairman of examination committee at the final of the training program.

Introduction of the University of Dunaújváros

University of Dunaújváros is a relatively new institution, however its roots go back to hundreds of years of technological higher education in Hungary. Currently, the institution runs eight bachelor and two master programs, an unsplit teacher training, four higher education vocational training and six specialization courses.

Introduction of Ecotech Nonprofit Zrt.

Based on the university's resources, **Ecotech Nonprofit Zrt.** aims to achieve a competitive advantage in the localization, dissemination and development of cutting-edge technology branches, in line with market operation. In order that, Ecotech Nonprofit Zrt.

- creates an innovation centre to incubate developments
- optimally utilizes the existing competencies of the university
- creates new competencies to meet the emerging customer needs
- conducts a technology transfer
- drains the results of the development into education

- is actively involved in the creation and development of new companies.

The company is 100% owned by the University of Dunaújváros. It is characterized by market operation, project-based management: performance focus, authenticity, organization development, positive economic feedback, investment in development, innovation, resource management, ensuring incubation period, focusing on certain professions.

The course was a special challenge for **Ecotech** since they had no such project before in cooperation with other institutions regarding the volume and magnitude of the project. However, Ecotech is well-experienced in developing online learning material methodology and technology, and this program ensured a perfect opportunity to make this methodology part of the training.

10.1.1.3 Presentation of this management tool (functionality)

Any management model a port is run by; human resources, marketing, port operation skills, cargo handling, environment protection and safety related competencies are necessary for workers in ports. These competencies are needed to be harmonized along the Danube to provide same level services with the same expertise in the management from the background to clients i.e. shipping companies and port operators. Through education, this tool functions as a contribution to increase the quality level of maintenance and logistics services port managers are responsible for.

10.1.1.4 Details of original introduction

Each existing Danube ports had the opportunity to delegate one of their colleagues to the training program. In the end, 20 students passed their final exams successfully and received their diplomas as expert port operators and managers. Knowledge and competencies had been existing inhouse within the Federation, however, such good practice still needed to be shared and spread to harmonize background services along the Hungarian Danube section.

Preparation of the program took one and a half year, while the training itself took one year with practical courses on site in the ports of Budapest, Dunaújváros and Baja.

Core studies were based on Port economics (30%) and Port operation (70%). Former one includes Port management, Human resource management, Marketing, Finance and Trading courses. Latter covers Engineering, Shipping, Cargo handling, Environment protection, Safety and health, Asset and product security. Number of sessions was 120-180 on both theory and practice.

Since March 2016 different scenarios have been developed, then learning materials and polymedia lectures were designed and recorded from May till October. Contact lessons and port seminars were taking place between October 2016 and June 2017. The training program came to its end with a final exam.

Online learning materials were designed as follows. Processes and deadlines were defined with lecturers. Document templates and descriptions were provided to them. Timing was designed. Scenario, course structure was prepared based on which the documents were supervised, afterwards. Meanwhile, course information, chapter information, exam questions,

polymedia presentations, written components and additional learning materials were developed.

Online courses were designed and completed as follows.

- (1) first polymedia presentation and lecture were recorded
- (2) recording was analysed
- (3) further recordings were completed
- (4) PDF versions of polymedia presentations were uploaded to the server/cloud
- (5) additional written materials, notes were uploaded to the server/cloud
- (6) checking questions were uploaded to the server/cloud
- (7) animations, interactive learning materials were completed

These formed the entire course, that was supervised and analysed. In case of compliance, students tested the system, materials and accessibility. Afterwards, documents could be published.

After the program, fresh graduates returned to their fulltime job at different ports and traffic authority. Moreover, during their studies – thanks to remote access to online learning materials and lectures – they were working too. This means, students – and since – official experts could adapt every new skill in practice just right after getting to know one.

Although, less than a year passed by since the first class graduated, and it is difficult to measure (already) how the new program as good practice influenced port management along the Hungarian Danube section. Education being a soft tool of development serves as an investment to the future, future services, future market opportunities that perhaps do not exist yet.

Covering each port management model

Present good practice is independent from port management models. Stakeholders (companies delegating their colleagues to the training program and students themselves) can acquire new competencies even if they are managing a little private port, or a bigger corporatized port with more entities or they are in the role of the landlord coordinating among different companies, etc.

The reason to this on one hand is that each types of management model face with similar issues and challenges during administration and operational processes; during the business making with clients (old and new customers): shipping companies or logistics service providers settled down or to-be-settled-down in the port area; during implementation of any sort of development. On the other hand, students may become familiar with other port management systems differing from their own one. This can be very useful and advantageous when cooperating, doing business together and possibly providing joint services.

10.1.2 Analysis & Evaluation

This chapter is a detailed analysis and evaluation of the currently described good practice. The aim of this part is to present the good practice for those who are looking for good practices in port management.

The training program was launched because there occurred a demand for specialists to be aware of port operation system and shipping. The compilation of the training program, learning materials and system took one and a half year which was guaranteed by the cooperation between the University of Dunaújváros and Ecotech Nonprofit Zrt. and the Hungarian Federation of Danube Ports.

10.1.2.1 Evaluation of the good practice based on the port management success factors

In case of growing expertise, expanding competencies of port managers costs can be reduced, serving success factors in our National report on port management models 2.3.1 i.e. *Costs and revenues of port maintenance* as well as 2.3.7 *Lean port authority/management* organization. These factors have been concentrated into success factors finalized in the methodology, and thus as the port staff will be well-trained and skilled, this good practice is contributing to **organizational conditions, flexibility** and **high qualification & experience of the personnel**. Prepared managers, fresh graduates upgrade the level of their work and can become responsible for a wider range of tasks and services. This in fact on a long term is more profitable for the port management companies than how much cost fresh graduates' risen wages mean for the employer companies.

Upgraded human resources returning to the ports contribute to success factors 2.4.3 *Flexibility and adaptability* and 2.4.10 *Port developments, service improvements*. Fresh graduates of the training program became more familiar with needs of shipping companies and clients seeking for port services: cargo handling, administration, unexpected issue-handling. These factors shall be measured with surveys on customer satisfaction and quality of service. By serving these success factors defined in D.4.2.2 this good practice also contributes to improve **port services** and the management staff's **flexibility** on unexpected issue handling.

From a broader perspective and on national level, launching a training program on port operations and management that did not exist before in the country can influence the **socio-economic structure of the country**. New jobs will be created, and entire industries can start growing due to a successful modal shift to IWT. Also, a dual training program requires synergies between sectors and builds on cooperation of academic and industrial actors.

Category of success factors	Relevance	Impact on port management	Justification
Socio-economic structure of country	<i>relevant</i>	<i>high</i>	Educating port operator professionals is on a longer term contributing to a modal shift in the direction of IWT as port logistics and management and administration services will be more attractive for freight forwarding companies.
Focused consistent state strategic policy	<i>relevant</i>	<i>high</i>	This good practice is highly depending on whether governmental support is available for port HR capacity building.
Partnership factors	<i>relevant</i>	<i>high</i>	Industry- and market demand pulled dual education system requires the strong cooperation of academic and economic actors: as the example of university & federation & ports is presented
Organisational conditions	<i>relevant</i>	<i>high</i>	Port staff is trained influencing organizational structures, habits in processes and practices depending on the position of the student completing port operation studies.
Factors of finances, investment & funding	non-relevant	low/ medium/ high	-
Market access & customer relations	non-relevant	low/ medium/ high	-
Port services	<i>relevant</i>	<i>high</i>	Well-trained port staff can improve the quality of port services which can be measured by customer satisfaction surveys and is visible through rising volume of traffic.

Category of success factors	Relevance	Impact on port management	Justification
Flexibility	<i>relevant</i>	<i>high</i>	Competencies to handle unexpected business challenges can be improved by the training program, which focuses on practical components.
High qualification & experience of the personnel	<i>relevant</i>	<i>high</i>	As a training program this good practice serves the high qualification and practical experience of port personnel.
Information management	non-relevant	low/medium/high	

10.1.2.2 Adaptability

The training program contains two major sections: Port economics, which cover 30% of courses and lessons and Port operation covering 70%. There are eleven courses to be completed in 240-360 hours overall in these two fields. Knowledge and competencies are related to

	Theory	Practice
• port management	8-12	8-12
• HR management	4-6	-
• trading	12-12	24-36
• marketing	8-12	4-6
• finance	12-18	8-12
• port engineering	20-30	24-36
• shipping	8-12	12-18
• cargo handling	12-18	24-36
• environment protection	8-12	-
• work safety and health, asset and product security	8-12	8-12
• professional language skills	20-30	8-12
• total number of classes	120-180	120-180
• total number of classes both theory and practice	240-360	

These are the components of the training program that need to be transferred and adapted by port management and operation experts elsewhere. Port authorities, owners and operators must be familiar with these fields port economics, but perhaps related competencies have not been institutionalized. To take the next step, namely, to design the course structure and develop learning materials and organize supporting background, consortium of HFIP, University of Dunaújváros and Ecotech Nonprofit Zrt can help new adaptors of this good practice.

This good practice is adaptable into an environment of port community if

- knowledge and competencies related to the above listed subjects are available or
- potential organizers of the program can accept Hungarian experts' support; furthermore
- there is the opportunity at ports to hold practical sessions and workshops for students
- remote access to (interactive) learning materials can be available or
- lectures, workshops can be blocked.

Port management models this good practice is applicable to

As declared in D.4.2.2 National report on port management models, this good practice is not restricted to any types of port management models, because the training of port operators and management staff has positive effects on every port with no regard on what model it is run by.

10.1.2.3 Financial analysis

Analysing the financial aspect of the training program in Hungary, budget is estimated listing the following cost items:

Cost item	Sum, rough estimations
Human capacities, wages of teachers, lecturers 11 subjects, 11 teachers × 128 lessons × EUR 20 per lessons that goes directly to the given lecturer	EUR 30,000
Costs of development of learning materials EUR 500 × 11 pcs of coursebook that goes directly to the given author	EUR 5500
Total cost of training including teachers, learning materials, IT background (hardware for polymedia classes, software and cloud-based services for remote access)	EUR 25,000

Alternative costs of missing colleagues (uncompleted tasks) while out of office/working site per person	EUR 800
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10.1.2.4 Benefits

Major benefits of introducing this good practice elsewhere are indirect and slowly appearing, since education is a long-term investment as mentioned in other chapters already. Although, harmonization of knowledge and practices, administrative, operational and management processes will be a huge advantage of port communities, federations on regional, national and especially international level. International joint services based on the same management processes practised in many Danube states could be developed reducing transaction costs in case of setting up a common knowledge background along the Danube.

On operational level, certainly, there are cost items that need a one-time investment, and later for future classes, they only must be upgraded and updated. For instance, the base of learning materials and infrastructure will have been set up by the time next classes begin the training program.

Evaluation of benefits

Costs of time-consuming tasks and activities will be decreasing as more experienced and skilled managers will be completing port processes. Administration processes will be shortened causing customer satisfaction which indirectly generates a bigger volume of traffic. However, rough estimation of profit increase in 5 years due to more fluent administration processes and management activities are difficult to numerically define.

10.1.3 Guidelines for Implementation

This chapter gives basic guidance for those ports or port actors who intend to implement – or pilot – the currently described good practice.

10.1.3.1 Conditions of introduction

HR requirements and organisational aspects

Core competencies given on courses, lectures and seminars were provided by experts of HFIP in cooperation with university having technological history and experience. Such associations and colleges operate in many countries along the Danube, among partner countries of project DAPhNE, which means, the organizational background and human resources for knowledge sharing are available. In case DAPhNE PPs face with lack of capacities, organizers of this pilot training program are open to enter international fields and expand port operation studies onto international level.

IT system and physical necessities

In order students not to leave their job entirely due to their studies, they had remote access to learning materials and lectures as well. The IT system and methodology were developed by Ecotech Nonprofit Zrt. The company can provide support for developing and adapting such an

IT background regarding software and methods. Although, hardware and infrastructure are necessary for implementation.

Geographical aspect

Thanks to the remote access, theoretical knowledge could be picked up, however practical sessions were taken place in the ports of Budapest, Dunaújváros and Baja, covering the largest and most complex ports in Hungary concerning their annual turnovers and colourful portfolios.

10.1.3.2 Suggested steps of implementation

As a result of observation of conditions of possible implementation, the following steps have been outlined:

- (1) organizing a workshop to define the baseline and clarify the objectives of the training program for all stakeholders, press and summarizing documents shall be sent to key stakeholders with interests
- (2) involving possible implementing bodies to share responsibilities
- (3) estimating costs and timing (first phase)
- (4) targeting group of port workers demanding such competencies and skills to refresh or acquire (and asking port owners, managers if they were to delegate colleagues)
- (5) measuring, analysing effectiveness and profitability of port management, operation and administration services based on statistics and customer satisfaction before launching the program
- (6) estimating costs and timing (supervision of first phase estimates)
- (7) defining locations of implementation (university or conference halls for lectures and group seminars and ports for practical sessions)
- (8) purchasing necessary equipment and software and IT services
- (9) launching the training program
- (10) continuously testing students' and teachers' satisfaction with available infrastructure, learning materials and opportunities
- (11) finishing the training program
- (12) measuring, analysing effectiveness and profitability of port management, operation and administration services based on statistics and customer satisfaction a little while after first graduates returned to work (however, education is a long-term investment: results of the program shall be tangible after 1-3-5 years and more, especially if more classes graduate years after year)

10.1.3.3 Financial aspects

Here below are the cost items of training program in case of adaptation elsewhere. Although, it is impossible even to roughly estimate prerequisites and operational costs of implementing the subjected good practice, because wages of lecturers, IT operational costs, lecture hall renting costs, etc. are different in every country.

- Human capacities, wages of teachers, lecturers
- Costs of purchasing the IT background (hardware e.g. for polymedia classes)
- Costs of purchasing/developing the IT background (software and cloud-based services from Hungarian software developers)
- Costs of purchasing and further developing the learning materials
- Costs of mobility of students
- Alternative costs of missing colleagues (uncompleted tasks) while out of office/working site

On the other hand, in case of purchasing the entire program including learning materials and IT components developed by Hungarian experts and translated to English in Hungary, that costs: EUR 80,000.

However, country-specific competencies and information shall be added by national actors adapting the good practice to the basic structure.

10.1.3.4 Measuring the effectiveness of introduction

In the followings, there are both *quantitative* and *qualitative* indicators of effectiveness of introduction listed. Quantitative indicators are easier to measure the effectiveness with, e.g. using scale-based surveys and/or by counting the number of participants in each program. Qualitative indicators on the other hand are more difficult to measure the effectiveness with. However, when following-up the afterlife of the program (e.g. professionals' opinion) or to measure willingness to reinvest in such trainings again in the future (e.g. governmental support and its way to do so), qualitative reactions from stakeholders are essential.

- Students' satisfaction with available courses on a scale from 1 (bad) to 6 (excellent)
- Students' satisfaction with lecturers' expertise and preparedness on a scale (1-6)
- Students' and teachers' satisfaction on technological conditions and IT support on a scale (1-6)
- Professionals' 'satisfaction' (opinion) with the level of training program after 1st year
- Government's openness, engagement to support such programs before/after 1st pilot year (yes/no and if yes, in what way does the government support such actions?)
- Number of students out of fresh graduates that can find a job or take the next level in their carrier in the fields of port logistics, operation, management and administration
- Number of companies out of all port operators/owners in the given country delegating colleagues (students) to the training program

10.1.3.5 Further information & aid

In case of need for further information, table below shows contact details of the responsible organizations.

Organization	Contact person	E-mail	Phone
University of Dunaújváros	central office	kommunikacio@uniduna.hu	+36 25 551 100
Hungarian Federation of Danube Ports	Capt. Béla Szalma president	elnok@hfip.hu	+36 1 210 9801
Ecotech Nonprofit Zrt.	central office	info@ecotechzrt.hu	+36 25 551 295

10.2 Management model of smaller, private-owned ports (Paks)

10.2.1 Description

10.2.1.1 Preliminary check based on the selection criteria

The following table supports the selection of the currently described good practice is suitable for this report. All the selection criteria are met.

Selection criteria	Compliance	Brief justification
Aim	<input checked="" type="checkbox"/>	To have easier and more fluent decision-making in case of development and atypical customer demand.
Relevance	<input checked="" type="checkbox"/>	Most ports along the Danube's Hungarian section are smaller, private-owned ports that could adapt management solutions easier than large, corporatized ports.
Effectiveness	<input checked="" type="checkbox"/>	The company managing trade, storage, loading and freight forwarding in one hand can response faster to an ever-changing business environment.
Measurability	<input checked="" type="checkbox"/>	Speed of issue-handling and services that are complex and have plenty of components.
Adaptability & transferability	<input checked="" type="checkbox"/>	Ownership structure cannot be changed from one day to another, however, the model can work for small, private ports.

10.2.1.2 Primary information

Context

Port management model applied at Paks by Sygnus Kft. is considered as a good practice due to the system's flexibility, fast reactions and fluent processes. According to this management solution services provided in and out of the port area are linked and offered by one company. This concept has grown out from the good practice briefly presented in D.4.2.2 as '*Linking of loading and storage services (including short term buffer storage)*'.

Sygnus Kft. concentrates plenty of services in the Port of Paks since it owns, manages and operates the port at the same time. As an SME, it implements developments when introducing new solutions on the market by taking much higher risks than a big corporate. However, once the given investment is successfully completed, its benefits and financial income will be also higher. These are all based on management decisions, which are easier to be made in a small

organization than in a bureaucratic one that needs to assist with several authorities before an investment.

Actors applying the good practice

Location

This good practice is applied at Port of Paks located at rkm 1528-1529 on the right bank of the Danube, 130 km away from Budapest to the south. There are two terminals for both loading and unloading, and there is a third berth for loading only. Loading capacity is 1 million ton per year, while the annual turnover is 600,000 ton. The office of the company is located in Szekszárd, Tolna county while the port and its storages are in Paks.

Sygnus Kft, the company applying the good practice

Sygnus Kft. is a private company established in 1993 by two agricultural engineers. The main activity has been always domestic grain trading that has led the company to be a significant supplier of multinational corporates in food manufacturing as well as in animal-feed industries and lately in the European bioenergy sector. The Port was built in 2003 with two loading berths, after the realization that it is worth investing in an own port instead of being a tenant of Port of Fadd-Dombori.

The Port of Paks operates as an agricultural logistics centre as well. The port offers various logistics services such as:

- loading into/from vessels, rain wagon, truck
- organizing freight forwarding on road
- grain warehousing
- big bag filling
- trading with agricultural goods
- drying agricultural goods
- customs clearance

The Port of Paks is one of the largest bulk cereal loader in Hungary. Despite of the fact that the company has only few employees, the Port turns 800,000 tons of bulk grain and oil seeds annually.

Sygnus Kft. has earned its fame for its reliability on its logistics performance and value-added services that expand clients' demand.

10.2.1.3 Presentation of this management tool (functionality)

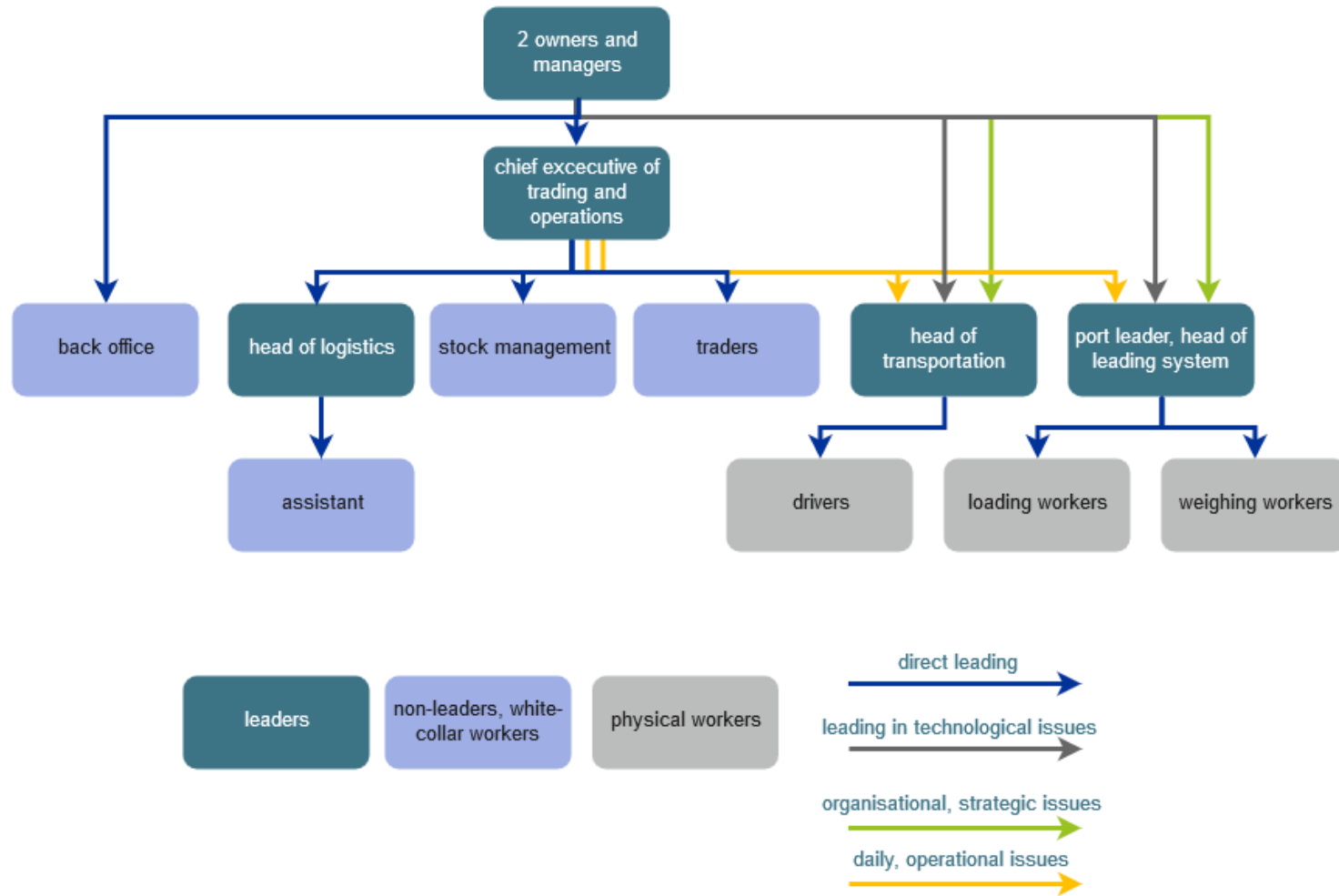
This good practice functions as a tool improving quality of services and competitiveness, expanding the portfolio of small, private ports. This good practice has been functioning in the case of Sygnus Kft. owning and operating the entire port on the Danube. It is much easier to launch and maintain this practice in private, single-actor ports. Certainly, it can be working in a landlord or corporatized port but would require much more cooperation among various actors.

10.2.1.4 Details of original introduction

When completing *D.4.2.2 National report on port management models* we presented a business model related to private ports. Several Hungarian ports are not only offering loading and related services to their clients, but storage services and warehouses as well. This needs a more equipped port, more developed infrastructure and various capacities from a physical perspective. From an operational point of view, groups of services combined such as loading, storing, packing and forwarding goods by another mode of transportation mean great advantage for ports. Successful private ports provide and promote these services and likely attract more clients. It is easier to handle these services and manage the administration processes from the background and, for customers it is more transparent to do business with a single actor. For a potential freight forwarder, it is more logical to load and store goods at the same place. It is a decisive factor for carriers or product owners when choosing ports.

To sum up, this is an ongoing good practice applied by Sygnus Kft. at the Port of Paks. Thanks to a very flexible and loose organization structure, workers are very much involved and motivated when entering new markets, introducing new solutions and products. Also, in a quickly changing economic environment and in case of atypical customer needs the company can response fast to find the best solutions for its clients since this way costs and prices can be reduced.

General managers and owners are the same persons in the company. They cover every activity from finance and administration through logistics, transportation and port operation within trading and operational leadership.



3. Figure: Organisational structure of Syghus Kft.

10.2.2 Analysis & Evaluation

This chapter is a detailed analysis and evaluation of the currently described good practice. The aim of this part is to present the good practice for those who are looking for good practices in port management.

10.2.2.1 Evaluation of the good practice based on the port management success factors

Focused consistent state strategic policy affects the successful implementation and adaptation of a flexible, lean management model by small ports functioning as logistics centres along the Danube. Building a national economy on small businesses drives to growth, and grants are not the only way to do so. In other words, a lot is depending on different external circumstances of successful port development when setting up its management model. Building on a sector contributing to a greener transportation system makes this good practice, Sygnus's management model relevant and a factor of success.

Partnership factors are less relevant in this model, because in this good practice, different, linked services are not outsourced but managed by the same company.

A management structure is highly affecting and at the same time affected by the ***organisational conditions*** of a company. Flexible structure and well-experienced workers are necessary. Management is formed by few workers with strong involvement and high responsibility on any kind of decisions when ***accessing into new markets*** or ***customers'*** engagement to use other services too provided by the given port.

Factors of finances, investment and funding are crucial for a company size such as Sygnus Kft. An SME takes much higher risk than a large company when completing a huge investment.

Following projects were implemented by Sygnus Kft. in recent years in the frameworks of the Economic Development Operational Program and Transport Operational Program (programming-budgeting period 2007-2013) cofounded by the European Union:

- Intermodal vessel loading port capacity development of Sygnus Kft. (Identification code: GOP-3.2.1-09/1-2009-0001)
- Technology development of Sygnus Kft. for strengthening the generation of income (Identification code: GOP-2.1.1-09/A-2009-2276)
- Development of internal road connections at Port of Paks (Identification code: KÖZOP-4.6.0-14-2014-0017)
- Construction of vertical embankment at Port of Paks (Identification code: KÖZOP-4.1.0-13-2013-0004)
- Development of a complex intermodal logistics centre at Port of Paks (Identification code: GOP-3.2.1-11-2013-0004)

When Sygnus Kft. implemented the construction of a vertical quay at Port of Paks, its commitment was to increase the port's loading capacity by 80,000 tons. See details below *chapter 4.2.4 Benefits*.

The essence of this good practice is to provide various **port services** from loading and unloading to storage and even to organizing further freight forwarding on road using the company's own truck fleet.

Flexibility is also one of the key characteristics of this management model since the Port of Paks as a logistic centre with multimodal connections by the river faces numerous challenges and customers' unpredictable needs (e.g. big bag filling services).

High qualification, moreover, the **experience of the personnel** is necessary. Having open-minded, sensible staff with the capability of quick reactions and decision making, involvement and motivation to take risks hoping high income are important elements of a fluently working management in this good practice.

Category of success factors	Relevance	Impact on port management	Justification
Socio-economic structure of country	non-relevant	low/ medium/ high	-
Focused consistent state strategic policy	<i>relevant</i>	<i>low</i>	Building a national economy on SMEs, contributes to a more dependent and stable business environment, thus role of such logistics centres as river ports are essential for greening the transportation sector.
Partnership factors	non-relevant	low/ medium/ high	-
Organisational conditions	<i>relevant</i>	<i>high</i>	Developing the management model of private ports is first of all an organisational issue. Organisational structure of the company, staffs' responsibilities and motivations are essential for a successful port management.
Factors of finances, investment & funding	<i>relevant</i>	<i>high</i>	Governmental grants can support SMEs a lot in the fields of capacity-building, accessibility, development of equipment and technology. For implementing all these investments, the port management is responsible. A flexible and experienced management can handle such projects.
Market access & customer relations	<i>relevant</i>	<i>high</i>	Entering into new markets, introducing new services in the port are crucial management decisions

Port services	<i>relevant</i>	<i>high</i>	As results of management decisions, newer and newer port services become part of the portfolio of Sygnus Kft. Since it is both the owner and operator of the port, it can/must provide many logistics services linked to one another.
Flexibility	<i>relevant</i>	<i>high</i>	It is one of the major characteristics of private ports' management model contributing to higher level of service provision and a more effective and profitable business.
High qualification & experience of the personnel	<i>relevant</i>	<i>high</i>	Business experience of personnel is very important in a small company for quick decisions, fast reactions and also, long term strategy creation.
Information management	non-relevant	low/ medium/ high	-

10.2.2.2 Adaptability

First of all, private owned ports having a lean management department, providing several services and not dealing with different operators in the port, are considered to be able to adapt this good practice. Certainly, it is possible for larger companies from the categories of corporatized or landlord ports to implement this good practice as well, but not that simply. In their case, there are way too many actors and authorities who might be bureaucratic i.e. decision-making, fast reaction on customers' needs are much more difficult. Administrative and operational processes become longer in case of bigger ports' management departments when linking different logistics services.

10.2.2.3 Financial analysis

It is not relevant to provide a financial analysis about the costs of original introduction and operation of this good practice, since it is not only a particular element but is itself the entire management model that has been running by Sygnus Kft.

10.2.2.4 Benefits

One of the main characteristics of private ports is that they primarily need to invest into their own development. To achieve their goals – as small and medium sized companies – they must take risks when investing in infrastructure, technology and background services of new market opportunities. The more own contribution they undertake, the more efficient the development is likely to be and the greater result the (governmental-) support brings. Although, it is not represented in the granting system. Looking at undertakings of development projects in small and in large ports, we can see that small ports may undertake similar volumes as large ones, however private ports expect higher return.

In the next table we summarized some significant figures of certain projects from the previous years implemented by large, corporatized and by smaller, private owned ports. Undertakings are measured in the indicator of freight volume (tonne/year). As can be seen, Port of Paks undertook the highest rates in comparison to other ports proofing the risky but potentially very beneficial investments of SMEs in the logistics sector.

4. Figure Project sizes in larger and smaller ports

Port	Funding scheme	Project volume (€)	Non-refundable subsidy (€)	Own contribution (€)	Grant rate (%)	Freight volume indicator (tonne/ year)
Major projects						
Intermodal development of the Freeport of Budapest	Transport Operational Programme (2007-2013) KÖZOP-4.5.0-09 Connection of transport modes and the development of transport infrastructure and intermodality of economic centres	10,447,597	9,664,027	783,570	92,50%	20,000
Intermodal development of the public port of Baja	Integrated Transport Development Operational Programme (2014-2020) IKOP-2.1.0-15 Improvement of international (TEN-T) waterborne and railway accessibility	12,275,614	11,660,605	615,008	94,99%	79,000
Middle size projects						
Construction of a new vertical quay in the port of Paks	Transport Operational Programme (2007-2013) KÖZOP-4.1.0-13 Connection of transport modes and the development of transport infrastructure and intermodality of economic centres	3,279,082	2,783,941	495,141	84,90%	80,000
Construction of a new berth in the port of Dunavecse	Transport Operational Programme (2007-2013) KÖZOP-4.1.0-09 Connection of transport modes and the development of transport infrastructure and intermodality of economic centres	805,300	563,710	241,590	70,00%	120,000

Small scale projects						
Development of internal road network in the port of Paks	Transport Operational Programme (2007-2013) KÖZOP-2014-4.6 Development and upgrading of port infrastructure Funding scheme for ports with de minimis state aid - application procedure	273,973	200,000	73,973	73,00%	10,340
Developing the intermodal capacity of Ferroport in Budapest	Transport Operational Programme (2007-2013) KÖZOP-2015-4.6 Development and upgrading of port infrastructure Second call on funding scheme for ports with de minimis state aid - application procedure	277,778	200,000	77,778	72,00%	8,361
Hidraulic loader equipment in the port of Dunavecse	Transport Operational Programme (2007-2013) KÖZOP-2015-4.6 Development and upgrading of port infrastructure Second call on funding scheme for ports with de minimis state aid - application procedure	335,329	177,725	157,605	53,00%	2,280

Source: Own editing

10.2.3 Guidelines for Implementation

This chapter gives basic guidance for those ports or port actors who intend to implement – or pilot – the currently described good practice.

10.2.3.1 Conditions of introduction

Geographical

Port of Paks has an attractive location since it lies far enough from other ports, which is an advantage, but it is not a crucial aspect for ports planning to adapt this good practice. The Port is located approximately in the centre of the country, less than 130 km away from Budapest on the mid-way between the Hungarian capital and the southern border. It is surrounded by arable lands, and smaller and mid-size forests are also quite close which means that goods giving the majority of products handled by Sygnus Kft. are available.

HR requirements

It is important from the management's perspective in case of this good practice to have competent, capable, easy-going and flexible but at the same time disciplined and motivated workers in the port staff, who can respond immediately to the quickly changing economic environment and customers' needs.

Infrastructural conditions

Multimodality is a big advantage of the Port. There are loading/unloading services available from/to vessels, rail wagons and trucks. Good infrastructure is an important factor for the company to grow.

Physical needs

As the company grows, it can include and link more and more port services provided to its clients. Although, it demands physical facilities and high-quality equipment. Installed storage capacities and loading facilities are necessary and represent big advantages of the port also.

Organizational aspects

As any regular small organization responsible for various issues parallelly, it is true for Sygnus Kft. as well, that information flow and flexibility, workers' holistic view in business are important. So as their engagement for the company's growth; responsibilities do not disappear among numerous departments and stakeholders.

The IT system is also crucial but must be tailor-made when adapting this good practice.

10.2.3.2 Suggested steps of implementation

As a result of observation of conditions of possible implementation, the following steps have been outlined. It is suggested to supervise four dimensions of external and internal factors of the port company.

- (1) First of all, the organisational structure of the company shall be discovered
 - organisational structure could be illustrated on figures and flowcharts in order
 - To map the channels of information flow in the company

- Decision tree could be illustrated to discover, how bureaucratic the organisation is and what are the responsibilities of certain departments
- (2) Secondly, infrastructure and connections of the port shall be analysed
- To decide how its possible multimodal connections could be exploited
- (3) Thirdly, the technological background of the port shall be analysed
- What sort of equipment is available and what is its purpose
 - What else that facility could be used for
 - What sort of other capacities could be installed in the port to link it to existing services
- (4) The fourth dimension is to reform business making processes and the marketing of port services

10.2.3.3 Financial aspects

This good practice is an ongoing port management model that has been developed by Sygnus Kft., owner, manager and operator of a middle size port at Paks. Core of this model is successful in work life because of favourable organisational conditions. It is very difficult to implement this good practice elsewhere with the demand for restructuring the organisational culture in a certain company, however steps of adaptation are listed above. Furthermore, financial aspects, prerequisites and operational costs, especially abroad are impossible to estimate.

10.2.3.4 Measuring the effectiveness of introduction

In the followings, there are mostly *quantitative* indicators of effectiveness of introduction listed. Quantitative indicators are easier to express numerical components of effectiveness with, e.g. by counting the number of projects, the port has completed. Among qualitative indicators we list the possible measurement of changing external conditions of the market e.g. how supporting institutions (banks, government) react when realizing successful management practices in the logistics sector.

- Indicator of own sources (financial, technological, etc.) can measure the company's own contribution to certain development projects. The higher this rate, the bigger the added value of the project is presumed.
- Number of projects successfully completed by the port company
- Number of ongoing projects being implemented by the port company
- Changing of external financial and funding conditions: expansion of credit offers for port development

10.2.3.5 Further information & aid

In case of need for further information, table below shows contact details of the responsible organizations.

Organization	Contact person	E-mail	Phone
Sygnus Kft.	Zita Haiszer / commercial manager	paksport@sygnus.hu	+36209355778
	Jozsef Fritz / port manager	paksport@sygnus.hu	+36204068961

10.3 The Hungarian Federation of Danube Ports (HFIP)

10.3.1 Description

10.3.1.1 Preliminary check based on the selection criteria

The following table supports the selection of the currently described good practice is suitable for this report. All the selection criteria are met.

Selection criteria	Compliance	Brief justification
Aim	☑	Main objective of HFIP is to represent and promote common business interests and views of Hungarian inland ports on national and international levels for the industries and governments.
Relevance	☑	Ports with various management structures working together for a common goal can learn from each other
Effectiveness	☑	Information flow and knowledge sharing among members and players of the sector became easier, more fluent.
Measurability	☑	Number of members, of meetings and conferences, of new clients, volume of development on the river
Adaptability & transferability	☑	Network of or relations between ports and shipping companies can be institutionalized by establishing such an organization to represent and promote common goals and interests stronger.

10.3.1.2 Primary information

Context

Hungarian Federation of Danube Ports is a business association established in Budapest in 2012. HFIP creates a lasting partnership among various Danube ports, thus its work is very beneficial to port owners and operators. The Federation represents and promotes its members' interests and common goals to governmental authorities (Ministry of National Development) and the industry. Due to its necessary activity, network of port operation experts and their gap-filling knowledge, HFIP became an observer member of the European Federation of Inland Ports (EFIP) in January 2018. EFIP president Roland Hörner said: *'We are very pleased to welcome the Hungarian Federation of Danube Ports with whom strategic links are of paramount importance. The Hungarian Alliance was a missing link within our organization, and this cooperation provides enormous help to further support the Danube issue.'*

Cooperation is also a good basis for making expertise at EU level in discussing the new TEN-T corridor policies linking the East West.'

Actors applying the good practice

Location

Being an umbrella organization, HFIP covers the entire country. It has members along the Hungarian Danube section from Győr (at 1794 rkm) to Mohács (at 1449 rkm) and partners with terminals and logistics centres with bigger distance from the river. Since it became an EFIP member, HFIP is representing partner interests from lower Danube sections even in Western-Europe.

HFIP, association applying the good practice

HFIP has 22 cofounders: port owners and operators established the federation in Budapest in 2012. Today, there are 25 members including port owners, port management companies, port operators, logistics service providers. President of the federation is Capt. Béla Szalma, expert of both shipping & trade and port operation & management.

List of members (location and the most frequently referred companies' name in English are in brackets):

- Győr-Gönyű Kikötő Zrt. (Győr-Károlyháza)
- Water Team Kft. (Komárom)
- FOKA Öböl (Budapest)
- Budapesti Szabadkikötő Logisztikai Zrt. (Freeport of Budapest Logistics Ltd.)
- MAHART-Szabadkikötő Zrt. (MAHART Freeport Plc., Budapest)
- MAHART Container Center Kft. (Budapest)
- Ferroport Kft. (Budapest)
- Profi-Bagger Kft. (Biatorbágy, not located by the river)
- Dunai Nehézzrakodó Kft. (Budapest)
- Dunai Kikötő Kft. (Budapest)
- Adony Logisztikai Központ Kft. (Adony)
- Centroport Kft. (Dunaújváros)
- ISD Portolan Kft. (Dunaújváros)
- Dunavecse Kikötő Kft. (Dunavecse)
- Agro-Harta Zrt. (Harta)
- Sygnus Kereskedelmi Kft. (Paks)
- Concordia Közraktár Zrt. (Fadd-Dombori)
- Bloker Zrt. (Bogyiszló)
- Port Almás Kft. (Baja)
- RWA Magyarország Kft. (Baja)
- ÁTI DEPO Zrt. (Baja)
- Bajai OKK Kft. (Baja)

- Bóly Zrt. (Mohács)
- MVR Kft. (border-crossing point, Mohács)

10.3.1.3 Presentation of this management tool

This good practice functions as a representative and promoter of interests and common goal of shipping companies and port companies, namely to increase the share of IWT in comparison to other modes of transportation (road and rail). As an umbrella institution, HFIP has numerous members including public and private owned ports, freight forwarders and other service providers from the logistics sector.

10.3.1.4 Details of original introduction

Hungarian Federation of Danube Ports was established in 2012 by 22 co-founders. Since then, president of the federation is Capt. Béla Szalma, who is expert in port management and experienced in inland waterway transportation too. Secretary is Mr. László Nagy, port owner and manager of Public Port of Baja, one of the largest port in Hungary regarding its size and annual turnover. Treasurer is Mrs. Zita Haiszer, port manager of ports of Harta and Paks, working at Sygnus Kft. presented above in the previous chapters. Controlling Committee is formed by

- President Mr. László Szucsányi, head of port of Dunavecse
- Mr. Ákos Pintér, head of Port of Győr-Gönyű,
- Mr. László Mester, head of Ferroport Kft. a land owner in the Freeport of Budapest
- Mr. Szávó Sztilkovics, president of MAHART-Freeport Plc. owner of the Freeport of Budapest

Objectives of the federation are

- independent representation of Hungarian ports
- collecting and distributing information to members
- representation of members in front of authorities and third parties
- organizing conferences and workshops
- harmonized education of employees of member organisations
- establishing conditions of general services

In order to achieve objectives above, Federation takes part in designing and implementing organisations related to representation and training by members' consulting, representative and socially responsible work.

To ensure achieving these goals and economic conditions of the organisation, HFIP may also engage in economic and entrepreneurial activity though it is not its main activity. As a result of its economic activity, HFIP is not allowed to pay dividends, but to use it exclusively to achieve the goals defined. If the association conducts an investment, its General Assembly is required to prepare and accept investment policies.

The association does not engage in political activity, its organization is independent from parties, it does not provide or receive financial support and does not support parliamentary, county level and municipality level candidates.

Presidency

- performs duties related to the operational management of the Association
- issues and disseminates strategies for the Assembly in matters concerning the Association
- decides on membership issues
- accepts the written notification of leaving members
- completes the annual budget, accounting report, balance sheet
- is responsible for the preparation and convening of ordinary and extraordinary General Assembly
- prepares proposals, draft budgets and final accounts presented to the General Assembly
- manages assets of the Association, elaborates principles concerning the use of assets
- coordinates the activities, actions, contacts members and other organisations
- continuously contacts with domestic and international partner organisations
- keeps member register
- prepares annual accounts

Presidency is entitled to decide on the obligations of the Association (contracts and the decisions related to the association) and the rights of the Association, subject to reporting.

The main body of the Association is the **General Assembly**, consisting of all members. The Assembly may decide on any matter affecting the Association. At the General Assembly, members of the Association having legal personality and who do not have legal personality participate through their representatives.

Controlling Committee of the Association is consisting of four members and operates separately from the Presidency. Members of Committee are senior officers. Its members are elected by the General Assembly for a fixed term of three years.

Committee has a quorum in the presence of three members. Committee holds meetings at least twice a year, which is convened by the President. Each member must be invited to the meeting by announcing the invitations and agenda 3 days in advance either via email or fax.

Members of the Committee may receive reimbursement. They undertake their mandate in the acceptance declaration. Members of the Committee have the same rights and obligations. Committee and its members are entitled to control, report, inform the Association and request information from the Presidency and employees of the Association, and also entitled to inspect and examine the books and documents of the Association. Controlling Committee shall report to the General Assembly at least once a year. Committee prepares numbered meeting minutes and decisions. Meeting minutes include place and date, names of members present, persons invited and minutes leader, the agenda, comments, substantive decisions and their scope in

time. Meeting minutes must be completed in such a way that the proportion of supporters and opponents of a given decision are clear and consequent.

Considering its economy, Association decides annually on the extent of the financial devices to be used to execute the tasks listed in its objectives, the manner of their use and other support. The Association may also engage in economic and entrepreneurial activities in order to achieve its objectives and to ensure its economic conditions, but it cannot be the main activity.

The Association

- may not claim loans risking its business activities to develop its entrepreneurship
- subsidies from subsystems of the national budget cannot be used as collateral for loan or repayment of loan.

Ordinary members of the Association pay membership fee annually, the amount and method of payment of which are determined by the General Assembly.

The Association conducts entrepreneurial activity exclusively for achieving its goals and does not endanger them. The operation of the Association shall be kept in accordance with the provisions of separate legislation and shall be closed at the end of the business year. By the end of the business year, President prepares a balance sheet for the General Assembly on the economics of the Association, and a statement of the economic result, that must be supervised and reported by the Controlling Committee. The Association is obliged to keep records of its revenues and expenditures from its target activity or business activity separately, and the accounting rules governing it shall be applied. The General Assembly shall have sole discretion in deciding how its profits are generated and how it is used. However, given that the profits from the activities of the Association cannot be divulged, it can only be used for the activities specified in the constitution.

Originally, port management companies run by various management models could benefit from this good practice. It is not specified to any models defined in previous methodologies.

10.3.2 Analysis & Evaluation

This chapter is a detailed analysis and evaluation of the currently described good practice. The aim of this part is to present the good practice for those who are looking for good practices in port management.

10.3.2.1 Evaluation of the good practice based on the port management success factors

Socio-economic structure of the country and *strategic policies* are affected through successful lobby by the Federation when promoting the necessity of better navigation on the Hungarian Danube section and port development projects.

Partnerships are extremely important when establishing such an association. HFIP is the institutionalized form of an already existing network of port owners and operators.

Size of companies Association members come from as long as they are engaged to the common goals, however their experiences may influence their roles in the **organisation**. Members are

required to represent HFIP's mentality and contribute to common goals defined by the Federation.

HFIP itself has been and, currently is a partner in international projects such as DAPhNE today. Hence, factors of **finances, investment and funding** are relevant in networking, cooperation and the representation of Hungarian ports' interests.

HFIP membership contributes ports to find new **customers** (being a member of a group of experts may also be a form of quality control from clients' perspectives), suppliers and service providers for the port management.

General Conditions of Contract (KÁSZ) is proposed and declared by HFIP. The objective of this document is to harmonize administration processes (**port services**) being completed by port managers along the Hungarian Danube section.

Category of success factors	Relevance	Impact on port management	Justification
Socio-economic structure of the country	<i>relevant</i>	<i>high</i>	Representing interests and common goals means to promote the necessity of better navigability of the Danube. And through this, the benefits of modal shift in the direction of IWT from road (and rail).
Focused consistent state strategic policy	<i>relevant</i>	<i>medium</i>	Partially due to successful lobbying of HFIP, spectacular port development projects have been completed in Hungary along the Danube in recent years.
Partnership factors	<i>relevant</i>	<i>high</i>	The concept of forming and maintaining a federation aims exactly the institutionalization of existing partnerships and widening the current networks.
Organisational conditions	<i>relevant</i>	<i>low</i>	Membership requires additional tasks and HFIP's mentality and goals to be completed/represented by partners.
Factors of finances, investment & funding	<i>relevant</i>	<i>high</i>	HFIP itself takes part in international projects e.g. DAPhNE and implements development.
Market access & customer relations	<i>relevant</i>	<i>high</i>	HFIP membership helps ports to find new clients or suppliers and service providers.

Category of success factors	Relevance	Impact on port management	Justification
Port services	<i>relevant</i>	<i>medium</i>	Declaration of <i>KÁSZ</i> , an internal rule for harmonizing operation of Danube ports in the Hungarian section contributes to a common and higher level of port services along the river.
Flexibility	non-relevant	low/ medium/ high	-
High qualification & experience of the personnel	<i>relevant</i>	<i>high</i>	HFIP is representing the entire sector from Hungary on international level in DTP projects for instance and at conferences and international associations due to their gap-filling knowledge and experience. Port operation training program was launched, coordinated and completed by experts of the federation.
Information management	non-relevant	low/ medium/ high	-

10.3.2.2 Adaptability

Good practice can be transferred and adapted elsewhere by institutionalizing existing but ad hoc partnerships and collaborations of stakeholders in IWT logistics sector. An umbrella organisation needs to be established with the aim of covering and connecting port managers and port operators under common goals and to harmonize port processes and administration services port manager companies are responsible for. Harmonization of port processes and port administration practices can be implemented by defining common terms, rules and frameworks for pricing and fees for

- adjustment of damages, applicable law, legal disputes
- unloading goods from the vehicle, taking over, storing
- storage of the goods
- releasing from stock, loading in the vehicle, delivery
- warehouse renting
- direct transloading

- complex service
- cargo control and control of processes
- operational rules

as these are defined by HFIP in the General Conditions of Contract (KÁSZ) harmonizing port services provided by port managers.

Port management models this good practice is applicable to

This good practice is not considered as a specific tool for developing a certain port management model. As an umbrella institution, Hungarian Federation of Danube Ports includes several port owner and operator companies and other port logistics service providers. This partnership has been fruitful for each member as HFIP tends to harmonize port processes related to administration and management. General Conditions of Contract, a document completed by HFIP experts defines the frameworks of contracting with clients, what sort of items a contract shall cover, which fields port management companies shall look at.

10.3.2.3 Financial analysis

As stated in the constitution of the Federation, revenues of the Association are as follows:

- grants of donations for foundations, subsystems of the national government or other donors to cover HFIP's purposes or to cover operating costs
- proceeds directly attributable to the pursuit of other activities pursued by purpose
- proceeds from the investment of the assets of the organisation
- membership fee
- other revenue specified in other legislation
- income from business activities

Expenditures of the Association:

- direct costs incurred in the operation
- direct costs incurred for other purpose activities
- direct costs incurred in the business activity
- indirect costs incurred in the course of business activity, which are to be distributed in revenue.

However, in fact, to elaborate the financial needs of the Federation we can state that HFIP's costs due to paying wages is approximately EUR 300 plus contributions for its project managers. Membership fee in 2017 is also approximately EUR 300 per members i.e. EUR 8,000 in total. Other incomes may occur from certain projects, but the main revenue of the Federation is membership fee.

10.3.2.4 Benefits

It is difficult to numerically define the benefits of adapting this good practice and establishing a port association. Although, we surely can say that service provision is improving and being

harmonized by having an organisation covering several port companies and gathering all the relevant information from stakeholders on port management on national level.

In case of successful lobby and promotion of common goals of ports i.e. better navigation conditions on IWW, implementation of a modal split from road to IWW, and improvement of infrastructure, port development can take off and be completed in huge volumes. As the success story of Hungarian port development shows: plenty of ports could implement smaller and larger improvements regarding their core or higher-level infrastructure and capacities in the frameworks of national transportation and economic development operational programs, as requirements of market players from the industry and logistics sector have been built in the national legislation and funding programs.

10.3.3 Guidelines for Implementation

This chapter gives basic guidance for those ports or port actors who intend to implement – or pilot – the currently described good practice.

10.3.3.1 Conditions of introduction

HR requirements

Various stakeholders should become members of the association

- to not miss anything important when defining a common vision and goals for the association;
- to be capable of true representation of the port community in front of authorities and the industry.

Geographical aspect

Network of HFIP covers the entire country and beyond, since it became an observer member of the European Federation of Inland Ports. General Assembly takes place in Budapest or Dunaújváros and there are several other meetings and conferences throughout the year where members of HFIP and actors of the logistics sector can meet and discuss achieved results and future visions of IWT development. The more various regions are represented in the federation the more competences and knowledge can be shared among members and the more aspects and perspectives can become part of the ever-changing agenda of IWT development at meetings.

Physical necessities

An office with physical address is needed as a headquarter of the association where leaders and experts of the federation can be found.

Organisational aspect

HFIP has adapted a clean organisational structure that can easily be copied and implemented elsewhere. The president leads the association. Secretary and treasury support president's work. Controlling committee supervises the presidency's work between two General

Assembly that is open for every member. There are some external partners of such an association, mostly other logistics actors and umbrella institutions.

IT system

There is no need for any kind of special IT support when launching and maintaining such an association. An official website and contacts are necessary for external communication and promotion of events. For internal information flow, newsletters, requirements and information on upcoming conferences are sent regularly to each member by e-mail.

10.3.3.2 Suggested steps of implementation

As a result of observation of conditions of possible implementation, the following steps have been outlined:

- (1) mapping the network of stakeholders and existing partnerships between players of the inland waterway freight forwarders and logistics service providers on the Danube
- (2) workshop to be organized with the participation of national port owners and port operators
- (3) on the workshop, stakeholders define common goals and visions regarding representation of interests in IWT development
- (4) forming an association
 - electing president, secretary, treasury and controlling committee and members
- (5) operational frameworks to be defined including
 - membership fee
 - annual meetings, programmes and conferences
 - internal information channels
 - external communication platforms such as official website, central e-mail address, phone and contact person
- (6) preparation of IWT development and modal split by lobbying and engagement in policies
- (7) contacting foreign partnerships and networking
- (8) implementation of projects and programs

10.3.3.3 Financial aspects

We cannot estimate the volumes of expenditures in other countries in case of this good practice either since we are not familiar with membership fees and operational costs, developments of similar institutions abroad.

10.3.3.4 Measuring the effectiveness of introduction

In the followings, *quantitative* and *qualitative* indicators of effectiveness of introduction are listed. Quantitative indicators are easier to measure the effectiveness with, e.g. number of members in the association. However, qualitative indicators are more difficult to measure the

effectiveness with e.g. measuring meaningfulness of laws and rules declared on a national (or international) level in policies supporting, controlling and making privileges in the IWT sector.

- number of port owners, operators, port logistics service providers joining the association
 - progress in expansion of the association, growing number of members
- number of projects implemented or facilitated by the association
- duration of information flow thanks to the association
- quantity and quality of laws declared with the cooperation of port and shipping experts through the association
- quality of international partnerships
- number of occasions the association participates in international conferences

10.3.3.5 Further information & aid

In case of need for further information, table below shows contact details of the responsible organizations.

Organization	Contact person	E-mail	Phone
Hungarian Federation of Danube Ports	Capt. Béla Szalma president	elnok@hfip.hu	+36 1 210 9801

Annexes

Model of Vukovar port

Port of Vukovar is the only Danube port in Croatia, and almost the only inland port, however there are smaller ports on the Drava and Sava. The port authority has 8 employees. They are responsible for various tasks: general manager and his assistant prepare and manage annual financial and operational plans, organize work and assignment fulfilling. The legal department's employees are responsible for concessions related assignments, for property issues solving within the port area, for public procurements, managing EU projects. Technical department is responsible for technical issue handling within the port area and for passenger ports in Vukovar, Ilok, Batina and Aljmaš and also for EU projects. The financial department has only one employee in charge with financial tasks and also for participation in EU projects.

In general, the Port Authority is in charge for port development planning, concessions granting and in that sense for communication with and coordination of port users. Port operators are in charge for port activities (transshipment, warehousing, loading, etc.) and they are in connection with port users (their service users). Port authority has to provide infrastructure for good port functioning.

Model of Slovakian ports

The port authority company responsible for both Bratislava and Komárno is Verejné prístavy, a.s. (VPAS) since 2008 representing the Slovak Republic as established by the Ministry of Transport and Construction. Its main responsibilities are optimising the commercial operation of state assets and increasing the effectiveness and efficiency of transport infrastructure in public ports of Bratislava and Komárno in order to develop domestic and international IWT. In fact, VPAS' core business activities are:

- ensuring the readiness and securing construction work at the public ports in Slovakia while developing long-term and short-term concepts for their development
- assuring operation, maintenance and repairs as well as evidence of facilities, structures and installations inside the public ports
- leasing land inside the public ports and other related activities immediately associated with the disposal of the assets inside the public ports
- collecting payment for the use of the public ports
- establishing the conditions for the development of multimodal transport, including handling of multimodal cargo units

The main port operator in the ports of Bratislava and Komárno is Slovenská plavba a prístavy, a.s. established in 1996. Its core business activities are:

- domestic and foreign transport of goods by IWW

- transshipment and storage of goods, performance of additional and conditioning activities in inland and maritime ports
- renting of land and warehouses
- maintenance, repairs, reconstruction and construction of vessels, lifting and other devices
- services in the field of domestic and foreign container transport, including cleaning and repairs of containers
- operation of parking areas
- supplying all vessels with fuels, spare parts
- operation of public customs warehouses, forwarding, provision of guarantees to secure customs debt in customs procedures
- purchase and sale of diesel as a fuel for vessels in water transport

The company is the main owner of infrastructure and superstructure used for port operations.

The organizational structure is formed by the General Assembly, Board of Directors, Board of Supervisors, Section of General Director, Production Department, Business Department and Economic Department.

The company had 236 employees at the end of 2016 in port of Bratislava and Komárno. Their main responsibilities are:

- transportation of goods by cargo vessels
- transshipment and storage of goods in the ports of Bratislava and Komárno
- operating of the container terminal.

Transport

Vessel fleet of various types and weights (tugs, covered and open boats, tank boats, Danube cargo ships, RoRo vessels) allows the transport of all kinds of goods, including over-sized and heavy goods.

Transshipment and storage

The port of Bratislava annually transload, depending on the goods situation and water conditions on the Danube, about 2 mil. ton of goods of various kinds. The harbour equipment includes 22 gantry and bridge cranes with lifting capacity from 2,3 to 35 tons, as well as two special cranes designed to transload oversized and heavy goods with a carrying capacity of up to 560 tons. The port also has its own RoRo ramp.

Port of Komárno is a typical port on the translation of dry and bulk goods, including agricultural products, equipped with a sufficient number of crane equipment, preferably tied to the rail and road network.

Relations between port authority and main operator are:

- Verejné prístavy, a.s. are renting their land to the company Slovenská plavba a prístavy, a.s.
- Verejné prístavy, a.s. are collecting payments for the use of the public ports in Bratislava and Komárno from the company Slovenská plavba a prístavy, a.s. (fees for landing vessels and loaded goods)