Competence management system
– a tool to adjust professional qualifications to the changing demands in harbour logistics

BACKGROUND & CHALLENGES

Investment in human resources and securing so called social sustainability is essential for transport and logistics companies in the Baltic Sea Region to satisfy the demand for qualified labour and remain competitive. The changing circumstances, with the green and sustainable transport agenda, need proper education and skills of the workforce.

One of the key actors in need of better employee qualification is Baltic seaports. The recent years have seen a growing demand for labour flexibility in port-related container logistics. This is due to a higher intensity of cargo handling in a time unit, more and more common use of ICT in port operations, a need to keep the qualified staff during off-peak periods, and the international regulations and standards. For example, the European Qualifications Framework (EQF), introduced by the European Commission, should help better understand national education and training systems throughout Europe, and compare the required qualifications for a given type of job. The aim is to provide a common reference point for different national qualification systems, to promote workers' and learners' mobility between countries, and to facilitate their lifelong learning.

The above market and policy-related tendencies challenge the economic stability of port companies. Good port 'flexicurity' (flexibility of workforce + social security) in the context of global logistics requires that port operators and logistics service providers requires a forward-looking investment in competence and skills of the employees. This gives a good ground for transnational actions.

However, an opportunity to introduce transnational curricula and standards for employee qualification faces several barriers. The Baltic seaports tend to handle their vocation, education, and training (VET) needs individually as the transnational network of port-based VET institutions does not exist. No harmonisation and best practice exchange actions in that field have been pursued between the Baltic Sea Region countries. As diagnosed in the TransBaltic project, the distinct national profile of such services is determined by specific demographic and economic condition of each country, the EU membership status and traditional concentration on 'my Port Logistic Cluster'. Also, in some BSR countries qualification and training in the field of port and logistics are still in the phase of adjustment to the European standards, with low demand for external VET services and a primary need to integrate the EQF into the national legislation. Furthermore, no quantitative data is available to monitor the attribution of employee numbers to the EQF reference levels.

OBJECTIVES

The ambition of the TransBaltic project has been to overcome this deficiency by testing the adaptability of the **Competence Management System** (CMS) – an open web-based, non-commercial and standardised platform for training, assessing and matching harbour logistics competencies – to the changing national environments.

The CMS is rooted in a modular concept for vocational training, initiated in 2001 through the cooperation of German organisations: KWB (Koordinierungsstelle Weiterbildung und Beschäftigung e.V); Hamburg University of Technology and FGL (Forschungsgemeinschaft für Logistik e.V.), with financial support from the ESF (European Social Fund) and the City of Hamburg. The created modular database, with a structure resembling the operative processes of the logistics chain, was then upgraded by ma-co to a fully-fledged competence management system. The system ensures adjustment of professional qualifications to the changing demands in the port and logistics work.

In the CMS, the core data of the training content is grouped into different categories to facilitate detail retrieval.
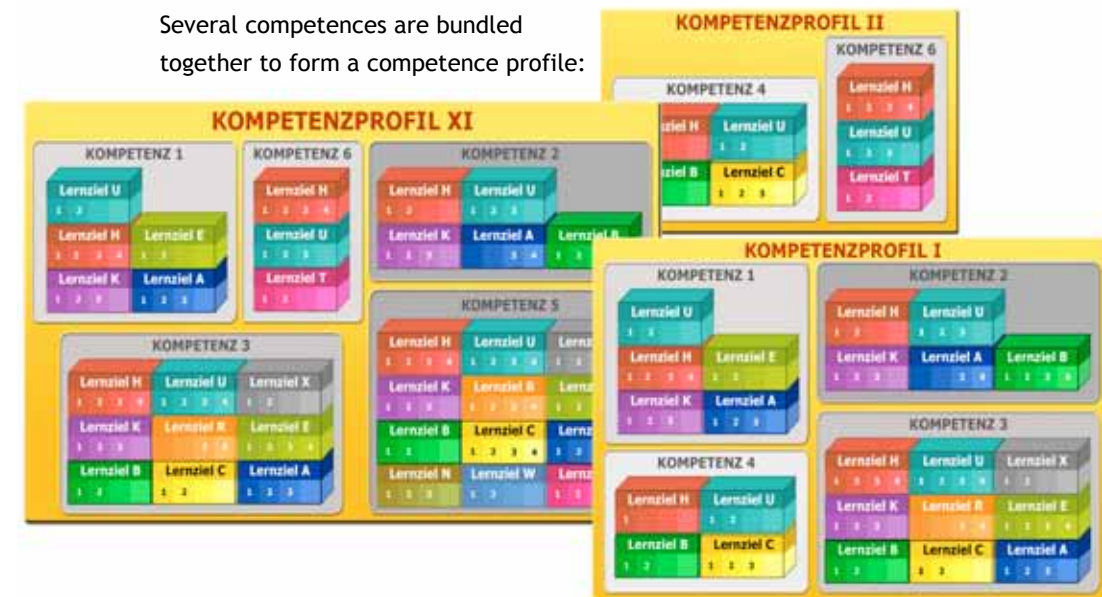
Singe learning components contain four dimensions:
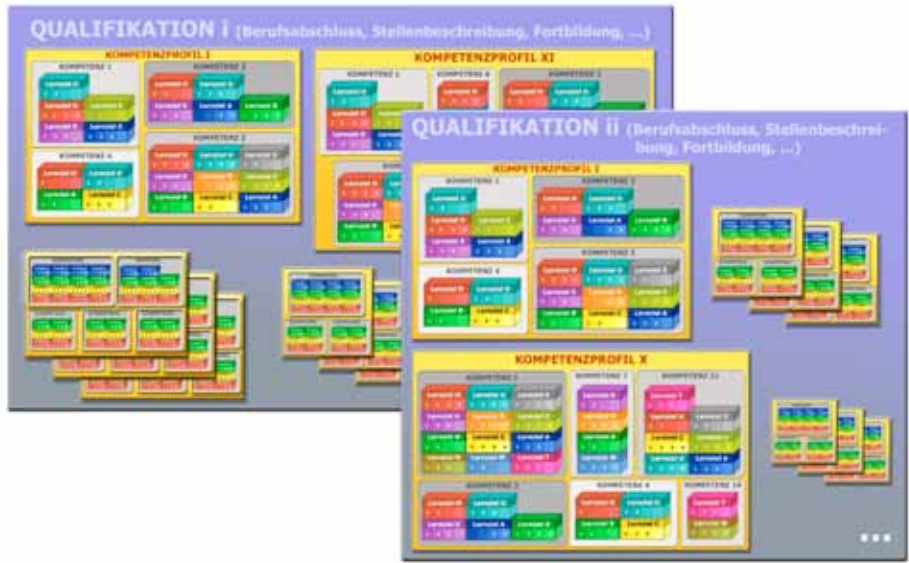**KNOWING, UNDERSTANDING, IMPLEMENTING AND EVALUATING:**
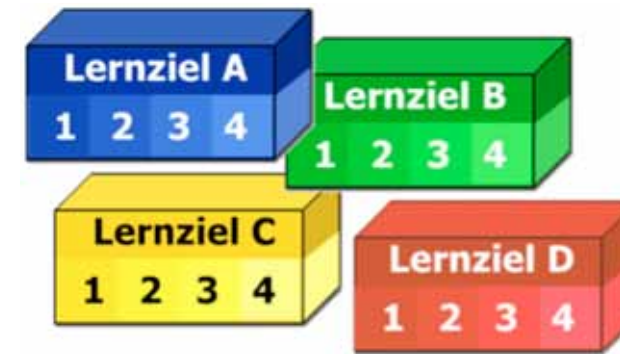
They are combined into competencies:
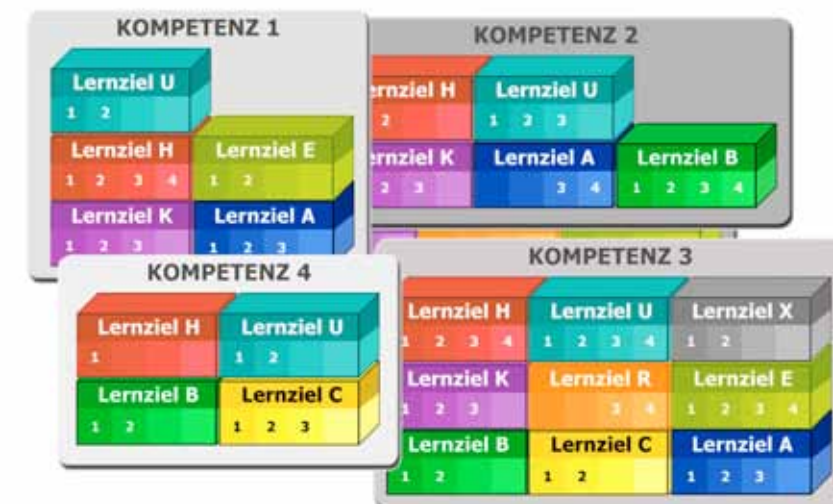
Several competences are bundled together to form a competence profile:

The competence profiles are then grouped into a qualification:

Each successfully obtained partial qualification can receive certifications. The acquired qualification may then represent a formal vocational degree.

The CMS database contains an updatable catalogue of more than 5000 learning components for all logistics categories, allowing for an easy match of the chosen VET competence goals and demands. It facilitates the dialogue between the transport/logistics companies and the employees by showing, in a very transparent manner, which competences the participants have acquired, which ones are currently in progress, and which are still missing for optional future qualifications.

The CMS has been certified by multiple organisations (e.g. European Logistics Association) and is compatible with the EQF standards, including ECVET (European Credit System for Vocational Education and Training). The system was referred to by the ILO working group (International Labour Organisation) for the development of ILO 'Guidelines for the Training in the Port Sector'.

KEY ACTIVITIES

The project's ambition has been to test the adaptability of the CMS, developed by ma-co and used in the German ports of Bremen, Bremerhaven, Hamburg and Wilhelmshaven (Lower Saxony) – to the specific VET needs of seaports in other Baltic Sea countries. Ultimately, the testing results were expected to yield solutions towards a possible standardised platform for harbour logistics training at the transnational level. For that purpose, ma-co established cooperation with the Estonian Maritime Academy,

and later on with the Baltic State Fishing Fleet Academy from the Kaliningrad region, to transfer the Hamburg port experience with the CMS to the legal, social and economic conditions of the Eastern Baltic port operations. In this work, serious structural differences had to be taken into account, both related with the ports size, location and function in the global networks as well as with VET infrastructures and development necessities. Also, the customised CMS had to reflect specific local/regional education conditions and incorporate the needs of sector enterprises in given countries and port regions.

In Estonia, the training system for port and logistics has not attained the maturity level. The country aims at integrating occupational and educational standards, so far weekly linked to each other and amounting to the number of 700. An overarching National Qualifications Framework for lifelong learning (NQF) is currently being developed to cover the full range of professional competences. This process is geared towards improvement in comparability between formal school leaving certificates and work-based (professional) competences and qualifications, which open the entrance to the labour market.

All types of VET will be formally linked with the levels of NQF. Currently, the graduation certificate from a VET or higher education institution alone does not give the graduate a professional qualification in Estonia, which must be obtained by passing a professional examination. Presently, only one third of VET graduates take this exam.

In effect, 44 new outcome-based and modularised curricula for VET have been prepared in Estonia and will be implemented sector by sector in the coming years. A new model of occupational standards is to be gradually developed in the period 2008-13 as an obligatory basis for curriculum development.

The working meetings attended by ma-co, German VET institutions and the Estonian counterparts (port authorities, port operators, stevedoring companies, logistics companies, Estonian Qualification Authority and Estonian Logistics and Freight Forwarding Association) helped identify the competence profiles of interest for Estonian stakeholders. These were:

- Container inspector
- Authorised person for dangerous goods
- Docker / operator of lifting machines
- Truck driver
- Talleyman.

Parallel, the CMS database had to undergo technical adjustments in order to better work in an international and decentralised setting (e.g. porting from a local client / server application to a web application; extended user interfaces to enable the translation of the contents into different languages; new functions and edit masks for multilingual use etc.).

That stage of work ended up with the preparation of English versions of handouts in the competence profiles specified above. Two of the profiles – 'Container Checking' and 'Dangerous Goods' – received particular attention from the Estonian stakeholders. The former was found meaningful for raising competitiveness of the Estonian transport and logistics services; the latter got recognition as the most regulated in the international context. The two competence profile handouts were rendered available for future implementation in Estonia, including: negotiations by the ordering customers, the assessment of VET clients and the result documentation.

An example of the competence path – from the container inspection profile to the qualification profile is given below. It accommodates specific requirements and needs of each business operation.
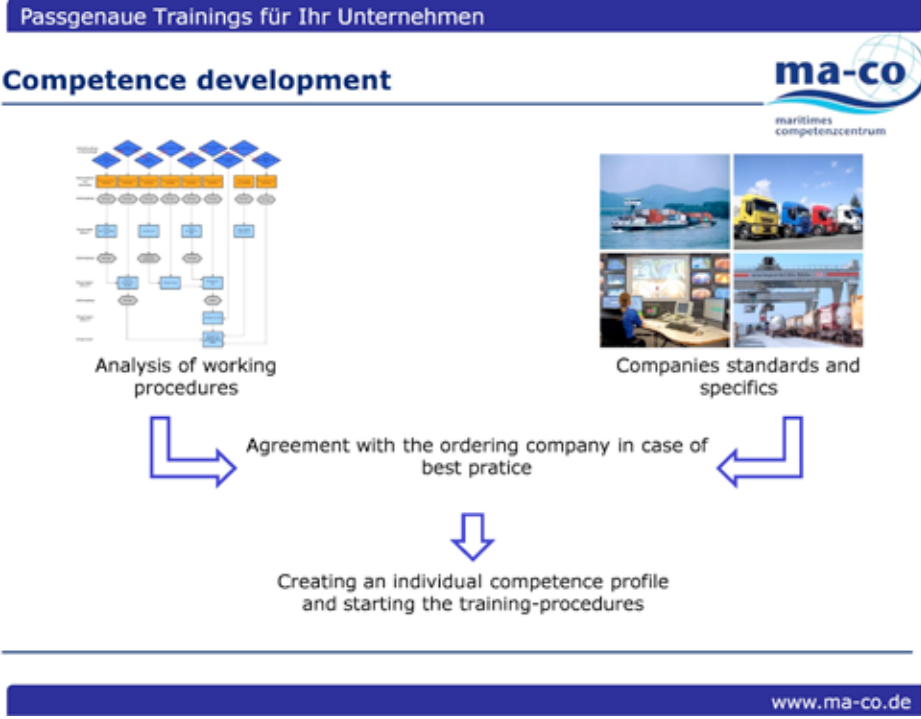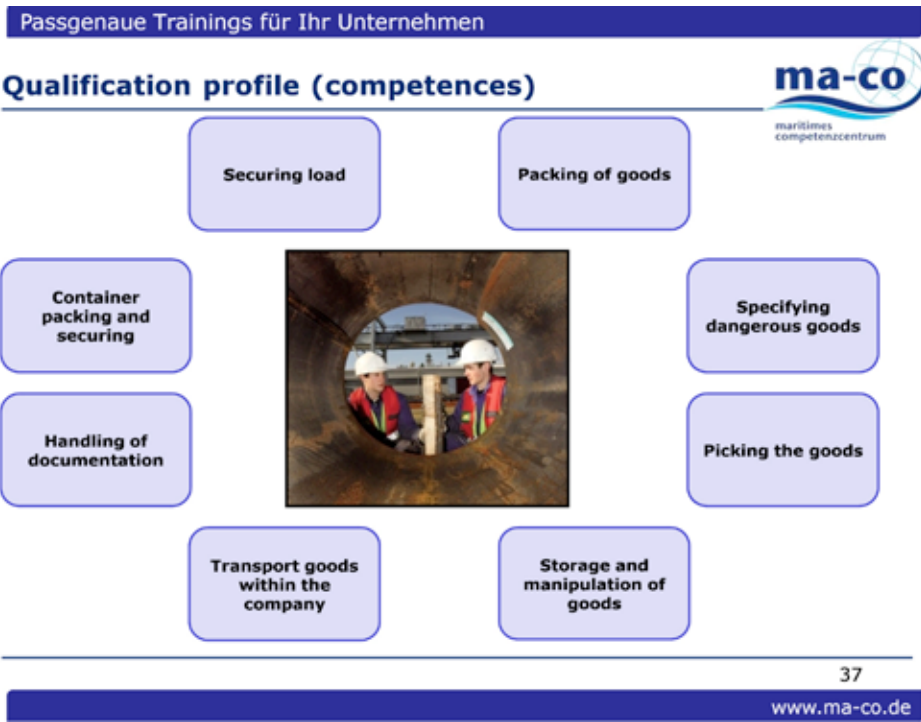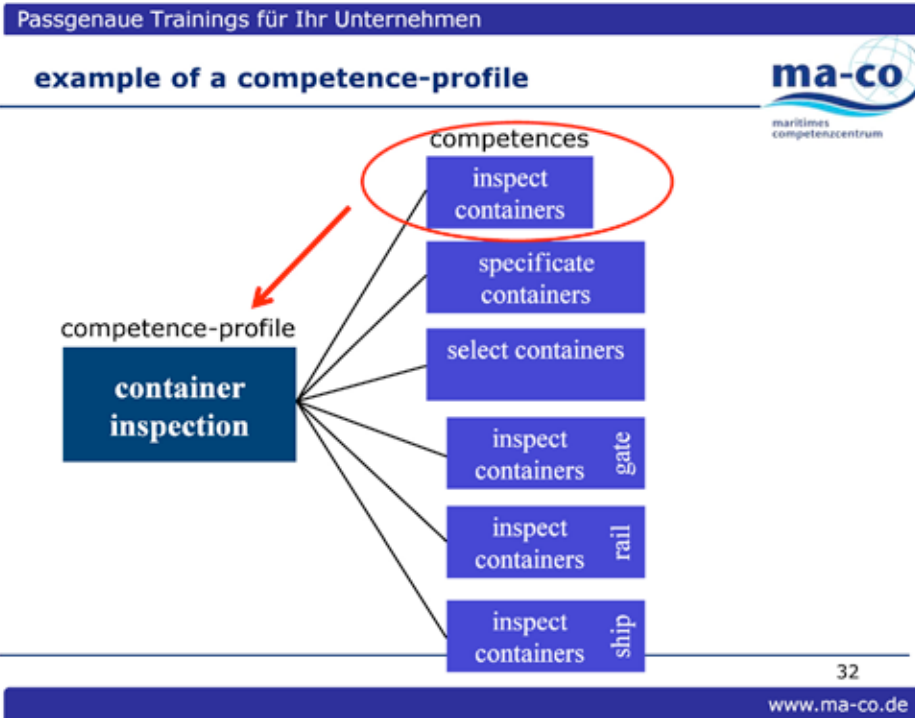
The CMS test deployment in Estonia was faced with another challenge, associated with the country's interest in pursuing the International Standard Classification of Occupations (ISCO) in developing the National Qualifications Framework for lifelong learning. For that reason, the modular content of the CMS in the prioritised competence profiles needed customisation in order to fit to the eight-level ISCO structure. Also, as Estonia does not have classification for the field of Port Logistics, the relevant data from the CMS had to be added. In effect, a uniform layout of professional qualification has been proposed (see fig. 1).

The cooperation with the Baltic State Fishing Fleet Academy, the Russian national maritime institution responsible for VET in Port Logistics, featured two thematic workshops (Hamburg, Kaliningrad) dedicated to a detailed exchange of information and experiences concerning VET contents and methods. However, a joint transnational work on developing educational standards in Kaliningrad region could not be pursued further, since the Russian Federation is not eligible to any direct financial support under the Baltic Sea Region Programme 2007-2013, which co-funded the TransBaltic project.

ISCO Activity	ISCO Sector	Sub group	Managers	Professionals	Technicians and associate professionals	Clerical support workers	Service and sales workers	Craft and related trades workers	Plant and machine operators, and assemblers	Elementary occupations
			1. group (ISCO 4. level)	2. group (ISCO 4. level)	3. group (ISCO 3. level)	4. group (ISCO 2. level)	5. group (ISCO 2. level)	7. group (ISCO 2. level)	8. group	9. group (ISCO 1. level)
Managers	Managers		managers of departments, divisions etc.	PR manager, finance manager, lawyer, analyst etc.	skipper - head of marina	assistants	CMS competence profile Dangerous goods / Authorised person			
			harbour master	managers of business division	specialists					
				Senior specialists	accountants					
Driving Moving Machines	Vehicle driver lifting truck driver				skipper, skipper-mechanic				CMS competence profile docker / operator of lifting machines	
					chief engineer, engineer-navigator				CMS competence profile driver of truck	
Service (Commerce, Beauty Service, Other Service)	Commerce, Customer Service					cashier (passenger)	customer service worker (passengers)			help-worker
					ship agent					
Shipping, Aeronautics	Shipping, Aeronautics				surveyor	port supervisor			sailor-engineman	
Clerks	Transport clerks		port captain			head of the shift, dispatcher, shift dispatchers				
						terminal administrator, information provider				
						stevedore				
Driver of motor vehicles	Drivers of cranes, lifting machines etc.								floating-, portal-, mobile-, container crane driver	
Logistics	Logistics, ware-housing, supplying			chief repairman, repairman	technologist	CMS competence profile Talleyman		rigger	operator of heat and water supply	CMS competence profile Container checker
Non-classified elementary work	Non-classified elementary work						welder, turner		technician	
							repair plumber, repair technician			
							repair worker		rescue seaman	
							sanitary engineer			

Figure 1: *Uniform layout of the ISCO with the inserted prioritised competence profiles in the CMS Port Logistics proposed for implementation in Estonia*

KEY FINDINGS

Practical application of the CMS during the development of qualification competences in German companies yielded high acceptance and a very good response from both companies and participants.

The use of the CMS during the TransBaltic project was modified to provide additional access to the database via the Internet. This enabled the users to develop individual seminars interactively – either at the customer's facilities or jointly with the participants. In addition, it is ensured that the EQF guidelines are met and that the seminars are designed on a competence basis.

Through the workshops in Estonia the CMS was recognised as a very efficient and flexible tool for developing and standardising working qualifications, with the added value for:

- professionalisation of port jobs and better skills,
- elevation of qualification standards and profiles,
- satisfying the professional demand of seaport companies,
- successful take-up of the first job by the employees,
- reducing unemployment of a workforce that is difficult to place but is highly motivated,
- preventing poaching of professionals from other sectors.

It was also acknowledged that such a tool in port logistics is necessary to raise overall quality in port services in Estonia.

The scheme for integrating the CMS modular concept into the ISCO-driven National Qualifications Framework for lifelong learning in Estonia was handed over to the Estonian stakeholders. However, the application of the CMS for port-related activities in Estonia is determined by several factors:

1   Interest of local companies. The demand to take up systemised harbour logistics training in order to upgrade competence and professionalism of port workers to the internationally competitive level is not yet apparent. Low wages and fear of job loss are two reasons behind the fact that VET routines are still carried out locally (regulated internally by the given company or through support of locally-based external service providers). On the other hand, adoption of the standardised CMS may turn beneficial for the port sector in Estonia provided the change is enforced by insurance companies (e.g. checking the competence of personnel in case of damages).

2   Employment dimensions. The market size of Estonian ports compared with the case of northern Germany poses limitation for an extended exchange of information and experiences, and for running of an inter-company VET structure based on the CMS.

3   Process maturity. The qualification and training in the field of port logistics are still in the phase of adjustment to the European standards. The discussion is dominated by the need to integrate the EQF into the national legislation and the compatibility with the International Standard Classification of Occupations (ISCO).

4   Language constraints. While information and experience exchange in English can 'open the doors', a more concrete cooperation practice requires the translation of methodological documentation on the competence profiles into the national language. This stands as an essential condition for the development of a sector-specific VET, which should take into account specificities of the national education system and should be guided by the international best practices and requirements in port-related logistics.

5   Involvement of professional training institutions. The testing stage of the CMS for the selected (prioritised) qualification profiles requires commitment of institutions responsible for professional training in the field of port logistics from both sides (in this case: Germany and Estonia). One of the measures in that respect is also to train local trainers.

6   Formal decisions by the national verification authorities. While certain standards for the port workers training have already been certified by the Estonian Qualification Authority (dockworker tallyman and general standards for warehouseman and logistician), the scope must be widened to include the full spectrum of professions prioritised by the Estonian stakeholders in the area of port logistics.

NEXT STEPS

Lessons learned from the German-Estonian cooperation in defining standards for port training may be translated to the transnational level. An issue of international cooperation of VET institutions in port logistics has not been tackled by any Interreg project so far.

A follow-up initiative could address an ambition to create a platform for transnational VET cooperation in harbour training and education in the Baltic Sea Region - among ports, terminal operators, professional training institutions, relevant education authorities and research institutes, and local/regional administration. Such a structure could ensure adjustment of professional qualifications to the changing demands in the port and logistics work in the Baltic Sea Region. Moreover, it could serve as a BSR network of excellence in port-related VET and bring in to the EU Baltic Sea Strategy the context of well qualified labour force in the Baltic ports as an asset in labour force mobility and employability throughout the Baltic Sea Region.

A first step in that direction could be a comparative review of the existing VET facilities, training and regulatory standards, and VET practices in the BSR ports – in order to estimate future demand for labour and, in particular, for staff flexicurity.

Also, it is important to discuss with respective national authorities an issue of binding standards in port logistics qualifications for all companies as well as state support funding for VET services.

On the ground, a CMS module-based training idea for port logistics in Estonia is planned for pilot deployment, based on the ma-co methodological materials, which will be translated to the national language. It shall, however, await accreditation of the professional standards in that field by the Estonian Qualification Authority as well as modification of the country's maritime legislation.