MODULE 4 - Innovative transport concepts and green logistics

Content of the Module

Whereas the previous modules discussed the current situation of inland waterway transport, this module is about the future development of inland waterway transport.
Sustainability has continued to gain in importance in the transport sector. Inefficient and unsustainable transport behaviors in combination with resource scarcity require a change in the transport sector. Inland waterway transport is recognized as a sustainable transport mode in Europe. However, inland waterways are currently only used by certain markets for transportation. As a consequence there is plenty of free capacity on inland waterways in Europe. For the future, different political programs aim to achieve a shift towards an increasing use of inland waterways for transportation. For example, by implementing new transport concepts such as synchromodality, inland waterway transport can be integrated into the transport chain. Furthermore, alternative fuels such as LNG (liquefied natural gas) and the "greening" of the transport infrastructure (e.g. ports) may foster the use of inland waterways as a sustainable transport mode in the future.

Learning Aims of the Module

After this module students should:

1. understand the importance of sustainable freight transport for the future development of inland navigation.
2. be able to name the characteristics of a green port and differences to a common port as well as the actions needed for establishing a green port.
3. know the main facts about LNG and name advantages and challenges when switching to LNG in connection with inland navigation.
4. gain knowledge about the development and the main characteristics of synchromodality as well as advantages and disadvantages for implementing it.
5. be able to explain the concept behind Physical Internet and its benefits for the Logistics sector.

Mandatory Learning Materials

Please go through the following learning materials as described below:

1. **"Sustainability and environmental aspects in inland navigation"**
This PowerPoint presentation gives a first introduction into the topic of green logistics. At first, the term green logistics is described followed by the drivers for a sustainable change, among other things the political requirements. Afterwards, inland navigation as a sustainable transport mode is presented. The last sections are about green ports and liquefied natural gas (LNG) as an alternative fuel for inland ships.
Please go through the whole presentation!
(Link: *http://www.rewway.at/files/f9d674a1bb1b4d3fbde3cd9b8c03ed09/*)

2. "**How will Greek Ports become Green Ports?**"
This paper is about a case study on the actions needed to establish a green port in Greece by focusing on two ports, taking the current legislation force into account. Please read section 5 "Towards a Green Port" (page 76-79) of this paper.
(Link: *http://www.geoecomar.ro/website/publicatii/Nr.17-2011/09_anastapoulos_BT.pdf*)

3. **"Manual on Danube navigation"- please read the following pages:**
- p.26-29: "Targets and Strategies"
- p.93-94: "Green Ports"

4. **Youtube** – please watch the following video:
***Liquefied Natural Gas (LNG) 2011*:** This video gives a short introduction in the production process of LNG, its transportation and its benefits (Link: *https://www.youtube.com/watch?v=WyZTuzUzR68*).

5. **“Importance of innovative transport concepts for inland navigation”**
This PowerPoint presentation is about new transport concepts like synchromodality and the Physical Internet. In the beginning megatrends and other spheres of influence in freight transport are discussed. Afterwards transport concepts like multimodality, synchromodality and transportation in terms of the Physical Internet are presented. Furthermore, for each concept the potential for inland navigation are discussed.
Please go through the whole presentation!
(Link: *http://www.rewway.at/files/3b655c1580ba485fa92a58e22d6c3848/*)

6. **Youtube** – please watch the following video:
Benoit Montreuil at TEDxBucharest: In this Video Benoit Montreuil, introduces the concept of the Physical Internet. (Link: *https://www.youtube.com/watch?v=H2taJUbYUZQ*)

Evaluation

As part of a test at the end of every module, you will have to answer 15 questions per module. These questions are selected randomly. You will have 15 minutes for each test. At the end you will be able to see your learning progress at a learning progress bar.