The unfulfilled potential of the Danube as a transportation route

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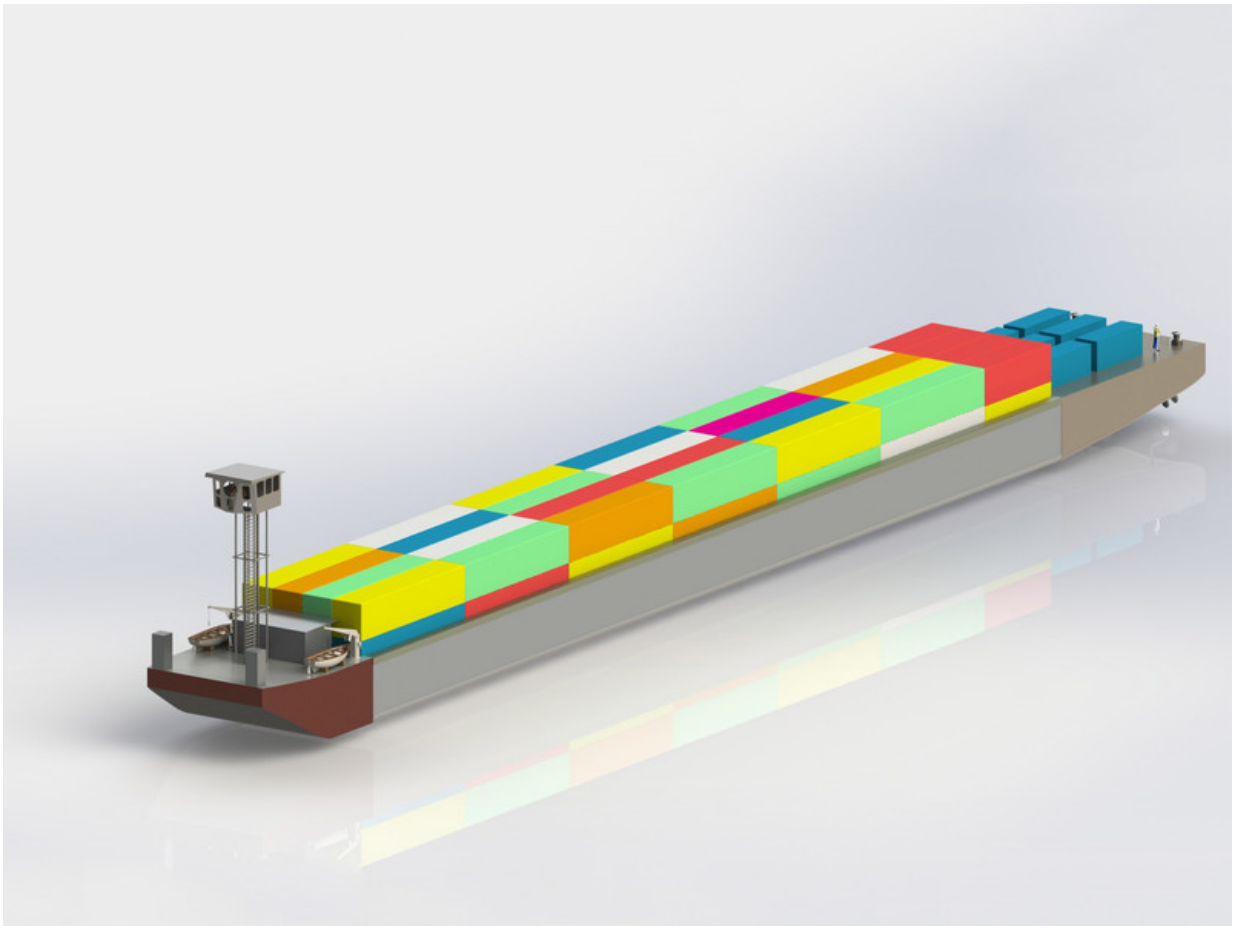

A new, more efficient vessel

Europe's rivers could be used to transport goods much more efficiently.

In order to do this, however, the existing international regulations would have to be implemented consistently.

The transportation of goods on ships is safe, efficient and usually more environmentally friendly than using other means of transportation. Nonetheless, much of Europe still continues to favour using road and rail for goods transport even today. As part of the international research project NEWS (Next generation European Inland Waterway Ship and logistics system), led by TU Wien, the potential for the use of European rivers as transportation routes has been analysed. The analysis shows that the Danube in particular still has a great deal of untapped potential.

The project has also yielded designs for a new type of vessel, tailored to the demands of today's goods transport, as well as a business plan. The result: shipping has the potential to become genuinely competitive in the future – however, European countries must abide by the existing agreements and ensure that their waterways meet the agreed standards.

Rivers, too, must abide by the rules

"Even if you have the best vessel and the best logistics system, they are of no use if the general conditions are not met", says Sandra Stein from the Institute of Management Science at TU Wien. Although there are numerous international standards for European waterways – for example in relation to water depth, bridge height or the technical specifications of locks – they have not been implemented everywhere. " In some cases, the standards cannot be complied with due to nature conservation. However, especially in some eastern European countries along the Danube, compliance with the standards usually fails due to a lack of strong lobbying on the part of the shipping industry, as well as a lack of money and will", says Sandra Stein.

Europe's rivers have much to offer.

The potential of Europe's rivers cannot be reliably assessed without also considering ideal logistics chains and appropriate vessel types. For this reason, a new type of vessel was proposed as part of the research project: "NEWS Mark II" is a ship which, in contrast to the often decade-old ships used today, is compatible with modern containers as well as cars, bulk goods or special cargoes. By using a ballast tank, the depth of the vessel can be actively adjusted by up to 80 cm so that the vessel can cope with changing water levels and low bridges. The vessel can therefore be used on 80% of all European waterways. In order to protect the environment, the vessel can be powered by electricity or liquid natural gas instead of the environmentally damaging fuels like diesel or heavy oil often in use today.

Economically sensible

According to the calculations carried out for the NEWS project, using the NEWS vessel to transport goods would not only be more environmentally friendly, but would also make economic sense, if the transport industry were able to rely on the official standards being applied everywhere. The NEWS vessel, when powered by liquid natural gas, emits 51% less CO2, 90% less NOx, 99% less SOx and 98% less particulate matter than comparable ships. "What we need on the Danube are locks with sufficiently large chambers, bridges under which a ship can pass while loaded with a stack of three containers, and a predictable draft of at least 1.80 m", says Sandra Stein. "Our analysis shows that the current standards are absolutely sufficient for transporting goods on the Danube profitably. But they must be implemented, especially in the eastern European countries which line the Danube, like Hungary." The future of the Danube as a transportation artery for goods is therefore heavily dependent on political will.

Experiments with a model vessel

Provided by Vienna University of Technology