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Key to the future of barging in Europe: small waterways and barges

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Editorial

Venice, clearly. Not only the post but even the pizza's are being transported there by barge. But flooding cities and conurbations all over Europe to get an affinity for inland barging like in Venice, is certainly a little bit too much! But a visit to Venice surely supports the necessary process of rethinking, because a sector

which needs break up regulation every 25 years in order to reduce fleet capacity, should rethink its strategy and continuity as soon as possible.

By the way: a local politician from Cologne supports the initiative to realize public transport alternatives through the use of barging - as happens in a lot of cities worldwide already.

One must embrace small progresses as well.

Jos W. Denis



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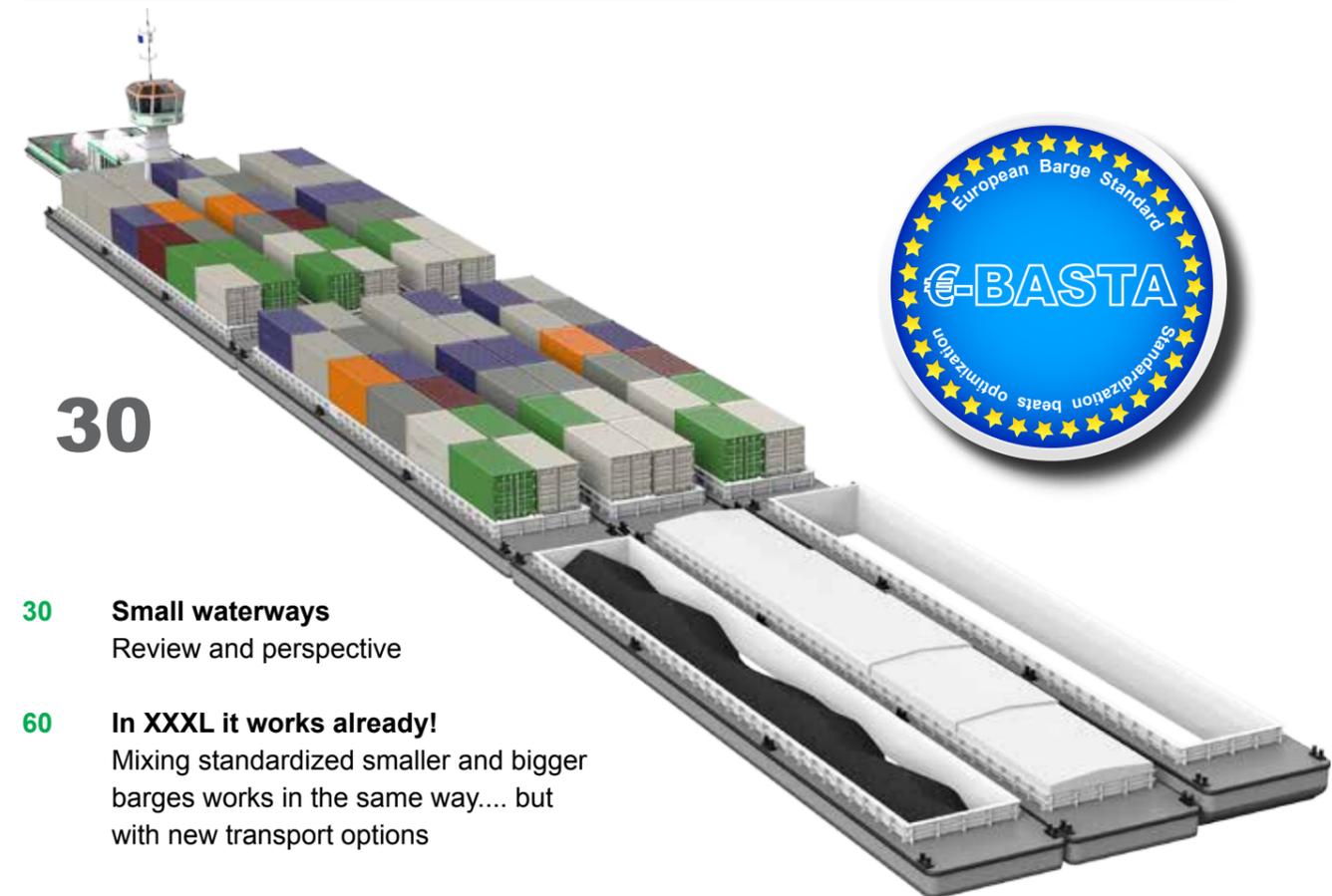
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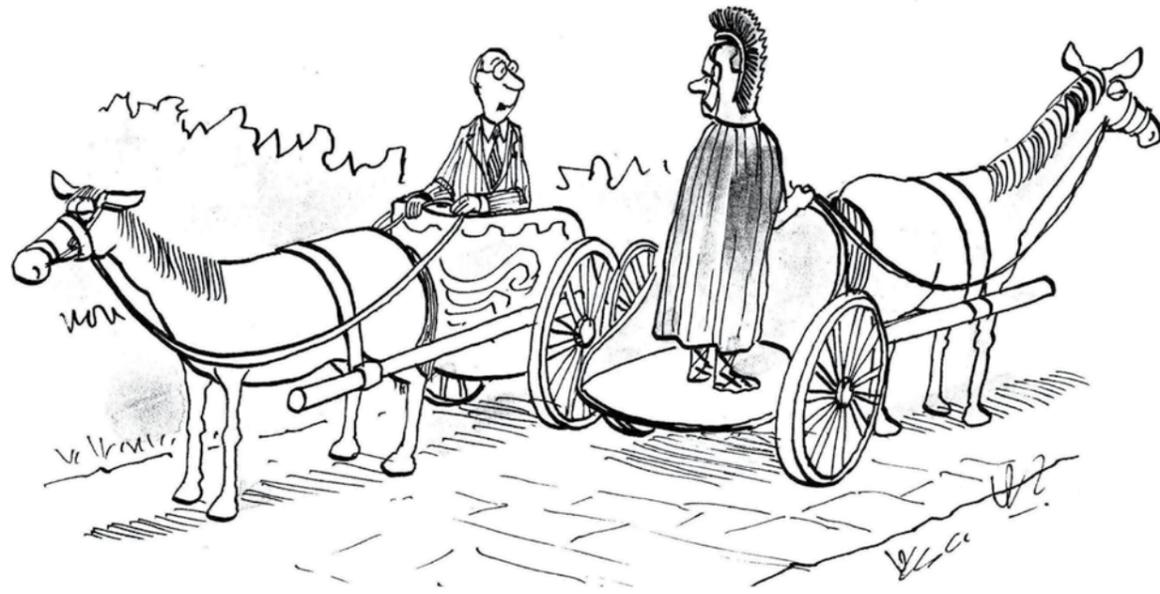


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"Yeah, yeah, hail Caesar ... listen, I got a meeting on the Third Hill at nine, what are my coffee options?"

TRANSPORT IN THE ROMAN EMPIRE

Road transport dominates

With the image of barge transport in Venice still in our minds, we stay for a little while in "bella Italia" and focus on the old Romans, who already knew the phenomena of the "modal split". For their freight transport the Romans were using different modes: road transport was certainly the leading mode, but rivers were used for freight transport and the sea was the transport playing field for transport which is close to "short sea" shipping of today.

The Romans used one- or two-axled, environmentally friendly means of transport without the harmful emissions discussed nowadays, when we generously ignore the several cubic feet of methane gas blown out by the vehicles pulling animals (CH₄), as well as the stuff the same animals generally leave on the road, because that was perhaps very eligible as fertilizer by the hobby gardeners of those days.

This means of transport, cow(s) or horse(s) pulling one- or two-axle vehicles dominated freight transport for many centuries. Until the middle of the 20th century these types of vehicles dominated the street view for both passenger services as well as freight transport, even



after the beginning of that century when smoky and noisy lorries opened the competition battle with the animal dominated fleet of vehicles.

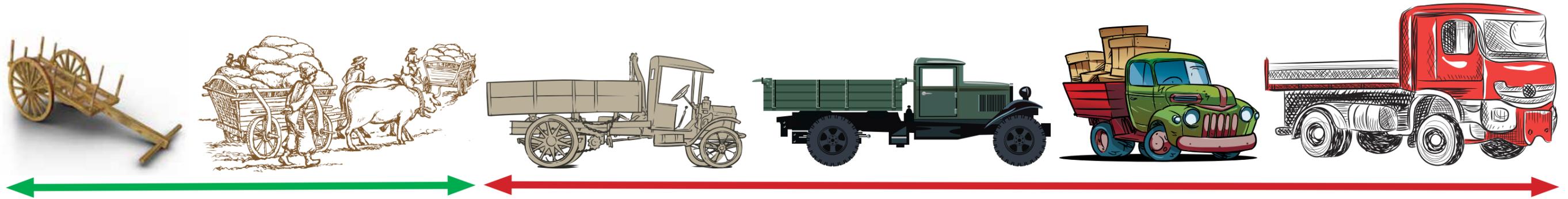
The oil and the internal combustion engine however prevented the 2000 years jubilee, according to the Christian calendar, of animal dominated transport, but undoubtedly it was already long before this calendar a successful, perhaps the most successful, means of transport.

The success of the internal combustion engine in transport services for passengers also generated applications for freight transport. In the early days of motorized road transport, first designs, as functional as curious, started po-

pulating the roads. Their load and cabin constructions spontaneously impose the question: how the drivers managed to do their driving and working job: without a radio and traffic information, never mind the navigation or even the air-con. Nowadays many hauliers decorate their receptions with these classic designs, of course in their own corporate style and colours, even when the company did not exist at the time of the particular vehicle.

After that the further developments took place very fast. Between 1950 and 2000 the truck has revolutionized freight transport, in this process the obvious split of the three functional parts of a truck has led to the overwhelming success of





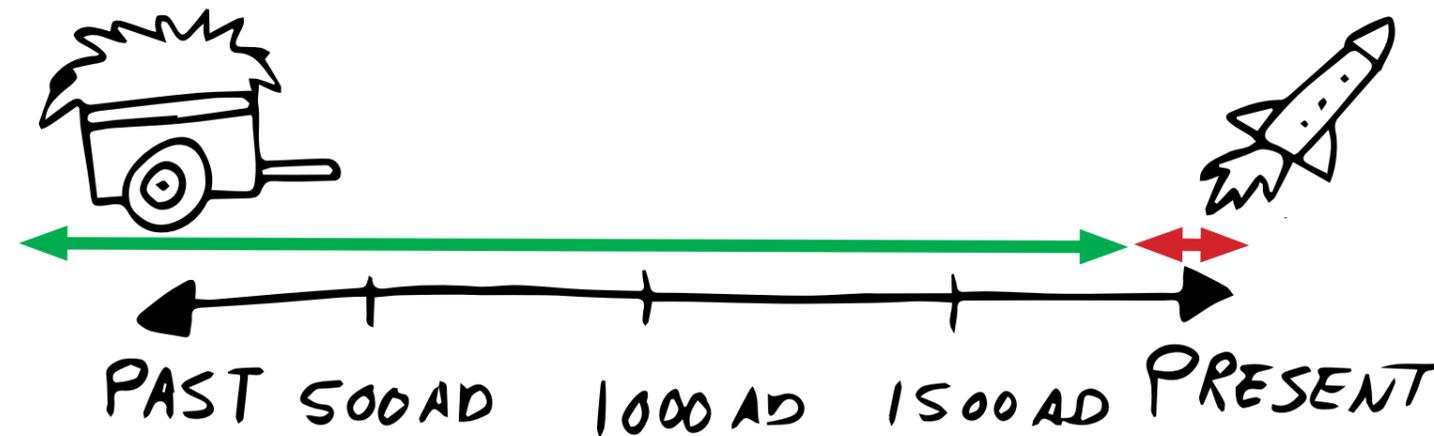
this modality: truck (traction), wheels and the loading part. How far the container was the catalyst for this development is difficult to judge, but it is obvious that the container is the split of the truck in itself, which came across the Atlantic to Europe: loading unit (= container), wheels (= container chassis) and the truck (= traction). With the trailers the split kept the wheels and the loading part together, so this (also widely spread) split-up has not got the maximum flexibility that the three-part split has.

Container transport has generated a transport combination (chassis, truck, containers), which functioned as an example for national and international road transport and stimulated the creation of comparable but more cargo specific applications, which over 50 years have convincingly proved that standardization (container or loading unit) combined with intermodal transport show overall a much better return on investment. Unthinkable that the same truck (not split) delivers waste, wheat and manure! The constructional split led to a highly flexible and multifunctional workability of the freight truck or, considering freight transport as a whole, to the most preferred transport mode.

The flexible three-part split explains the technical, operational and economic success of the road transport (from the cost price point of view!). On the other hand it caused and accelerated the decline of inland waterway transport, which was for centuries the most preferred means of transport. Considering the life-span of inland waterway transport investments –waterways as well as barge- these developments in

the road transport sector were breathtaking and pushed inland waterway transport into a downwards spiral.

Besides rowing boats, flat bottom boats and small freight sail ships, which were already used in Roman times, towed ships came into service: ships moved by the muscle power of animals and men.



After the introduction and development of inland steam ships with several regional specialties, the unstoppable march of the internal combustion engine generated engines which were perfectly usable on inland barges. In the first "post bellum" period the towing of inland barges was still the most preferred means of inland waterway transport, but step by step self-propelled inland barges conquered the market. The barge towing industry disappeared completely, but at the same time upcoming barge pushing systems took over several cargo flows from the

earlier barge towing operators. All this happened not very long ago.... and it also gives important information about the ageing process for these types of technical engineering and development!

Perhaps the circumstances of towed barging created the tight relationship between the barge and the living environment of the barge crew. A towed barge trip –up- or downstream- took much more time than

it takes now and a cabin on board is not only obvious it was necessary to manage long days and to continue with the next one immediately. With the invasion of self-propulsion the initially simple cabin developed to spacious apartments, sometimes with nearly all the luxuries of life nowadays.

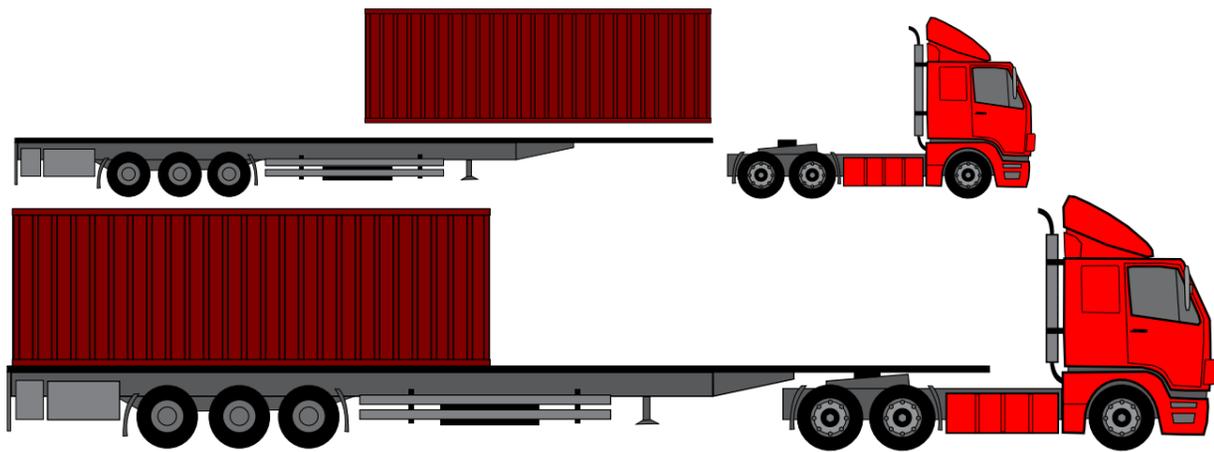
This apartment is the living space of the barging family, which is composed of persons who, generally speaking and depending on their age, do (or don't, if too young) have to each prac-

tise a different function on board of the barge, and who, like on farms, are not being paid with fixed wages. So, these inland barges have in economic respect a great advantage compared with barges with paid crew and a simpler designed living accommodation. In the inland barging market this situation –the wage costs advantage- has led to a greater market share. After the ending of the national regulated inland barge freight rates this situation got another boost with a 'monster' wave of new built inland barges.

As long as the crewing family is showing solidarity, this model will work. With a shrinking family size and a growing number of temptations from the land side –jobs, leisure time and activities- this model gets under pressure. These changes can be handled for a while with labour immigrants, but communication and exchange of the workers also leads here to increasing labour costs and limits the duration of this solution.

The upscaling was another adjusting screw to influence the production costs per transport ton and caused the monster wave of newly built barges, which were mainly in the range of highest barge tonnages. The main argument for building the bigger sized barges was certainly to break the ongoing wage cost increases and so improve the results by the transported volumes.

Looking back it is definitely surprising, that the fight against the wage cost increases did not lead to a new trend or a rethinking. When capital and wage cost are the main cost positions



(beside fuel) in barge transport, then pushed barge transport is definitely the way out, because precisely there the loading and the traction parts are physically and financially divided – in the case of small as well as huge models.

Pick-ups of pushed barges for third parties is part of the daily routine on various waterways in Europe, but convoys composed of pushed barges for different third parties, and so being (like trucks with pallets for different receivers) a delivery service in XXXI-size, are business as usual on the Mississippi, but not in Europe. Here the operators are transporting sunflower seeds, hard coal or building materials in their own personal control and operation. Varied convoys composed out of huge and small pushed barges (which, for an efficient operation, must be standardized) does not (yet) exist.

The optimizations in inland barging during the last decades, which were partly celebrated with royals and state minister as forward-looking innovations, were at the bottom line no more than “more of the same” solutions instead of innovations: bigger, longer, wider. This is like the growing of tomatoes and paprikas, where greater dimensions later resulted in vulnerable over-dimensioning. This inland barging megalomania generated a huge (newly built) inland barge

fleet, which is operationally usable only on the greater waterways and struggles in tough competition due to overcapacity. European inland barging is bobbing up and down on the ground floor of the 28 transport statistics and will need decades and a lot of good ideas to climb up from that position. Even when regional statistics show now and then some upward developments, inland barging has, because of its infrastructure, become more and more a European issue and should because of that be developed further from that point of view, in order to let as many European parties as possible share in any initial steps forward, however small.

In the wage costs competition the inland barge and the truck meet each other, even when their stories and topics are not completely the same. The competition and the price pressure stretch the price spiral continuously and finally result in the battle against proportionally increasing wage costs.

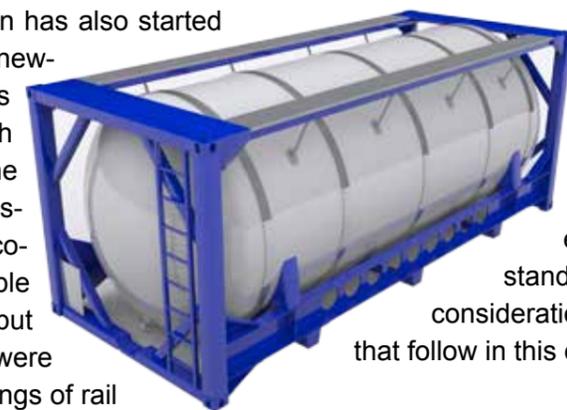
When we park the possibility of “driverless” trucks in near future, then the truck has a small relief with the “long truck” (which carries 3 TEU instead of 2 TEU), but after that no further up-scaling possibilities. The 44 tons maximum total weight must be driven by a driver and delivered safe and sound to the final destination. The in-



land barge has restrictions due to volume and the size of the waterway, but through integrated transport it has nearly unlimited options with upscaling and long-lasting development possibilities.

During these considerations rail transport really does not get suitable attention! Rail has only existed for the past 200 years, because the Romans focused on the use of steam for heating their baths rather than other useful applications!

The wage costs pressure in rail transport –compared with inland barging and trucking- is running in a different direction, remembering the nearly weekly strikes of the engine drivers in Germany. Nevertheless this item plays a role of importance and influences final decisions for which traction supplier. Interesting anyway is that the splitting up of the rail vehicle into loading unit, wheels and traction has also started here and that the private newcomers are keen to use this split up as the flexibility which brings them advantages in the competition with the established rail operators. The locomotive was already separable from the rest of the train, but wheels and loading units were real unities since the beginnings of rail transport and of course different unities for



different products: liquids, dry bulk, cars, etc. The maritime container certainly has stimulated the process of rethinking rail transport. The number of railcars and loading units which have been and are being developed is growing; they all focus on optimizing weight and/or volume and thus offering shippers technical cost advantages, but no decrease in wage costs. Wage cost advantages can sometimes be realized by using private rail operators instead of the public or national operators. The difference is like the one in the inland barging: a private operated inland barge or an inland barge operated by a shipping company. The private operated barge has, besides the issue of the lower wage costs, generally the lowest operational costs because the out-of-pockets must be earned by the same ship which needs them. Shipping companies must finance their organisations and generate profits for their share holders, private operators may exploit themselves and their families.

We hope that this short review and insight on freight transport will enable a better understanding of the thoughts and considerations on inland barging that follow in this edition.

Jos W. Denis



Huge prospects for small inland barging

Introduction

Looking at an inland waterway from a container perspective, then the size of the inland barge which is able to sail on a particular inland waterway is the main starting point. There is some choice: a Kempenaar (55 m x 6.60 m), a Dortmund-Ems (80 m x 8.20 m) or a Rhine-Herne (85 m x 9.50 m) canal barge or a great Rhine barge (110 m x 11.40 m).

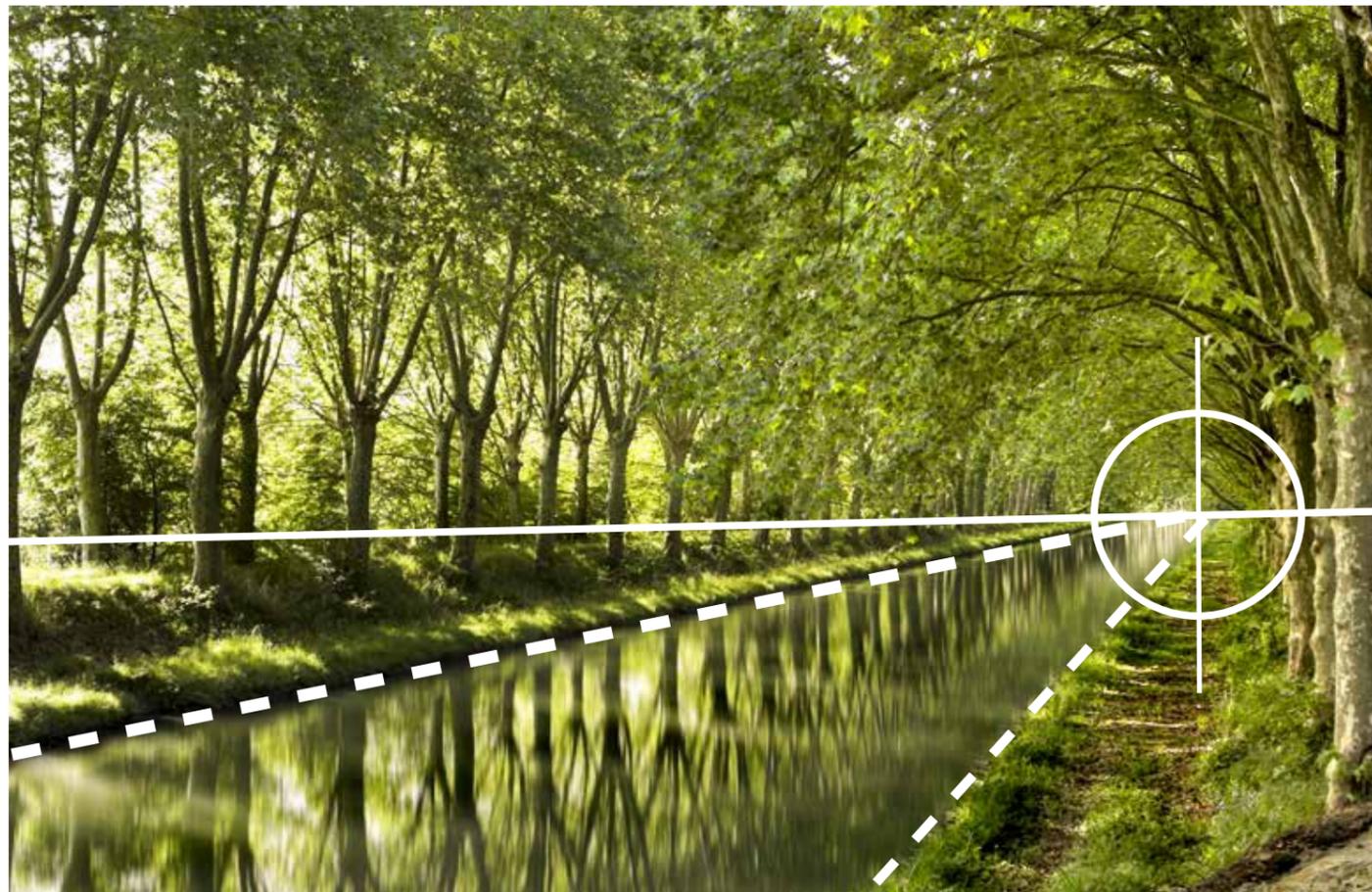
It is of course not a coincidence that the various barge types are named after particular waterways: the Dortmund-Ems canal, Kempenaar (Kempish canals), etc. because inland barges with particular dimensions have a perfect fit with those waterways.

Selection downwards

The inland barge accessibility is a downwards selection procedure: the bigger the inland barge the more limited its area of reach, the smaller the inland barge the bigger its area of reach.

The smaller inland barges –with their specific dimensions- were operationally used in restricted regions. There was no compulsion to use them outside or elsewhere in Europe. On the political agenda it wasn't an issue of great importance, but since the ECCS (European Community for Coal and Steel), followed by the EEC (European Economic Community), which is now the EU – it is becoming more and more a common issue.

The construction of infrastructure (ports, road, rail, waterway) is expensive, thus also the construction of inland waterways. The calculated



budget for the 106 km new inland waterway Seine-Nord-Europe in France was originally 4 billion €; a few years later it was corrected to 7 billion €. When the initiators manage to take all the political hurdles and realize this project of the century, the final totals of the costs will be very interesting. It is good to realize the financial and political impact of such infrastructural investments; everyone knows the razor-sharp political debates and the newspaper parrotting for even smaller amounts or decisions!

Inland waterway windows

Taking a closer look at the inland barging infrastructure, you can distinguish the inland waterways as such and the constructions (bridges, locks, weirs). The waterway gets a profile (depth and width, bevelled edge or bank reinforcement) which later on can mostly be made wi-

der and/or deeper. To adapt the bridge windows (air draft) later is much more complicated: here and there bridges are being put up; which is for traffic bridges easier and cheaper than for rail bridges. Enlarging lock windows later ultimately means the construction of a completely new lock, because moving one of the walls of a lock is not a common method and it does not seem to be not a cheaper solution than the construction of a complete new lock, which also keeps the traffic running.

Waterways with bridges, locks and weirs have, as a rule, a long life time. In the case of regular waiting times at certain junctions the waterway authority knows that there is a need for infrastructural action: a bigger or a second lock (e.g. Gent). On the other hand the interest in a waterway also can decline and its constructions decay, due to sporadic use (Almelo-Nordhorn).

In the initial design of rail infrastructure in Europe, sometimes with the purpose of military strategic reasons, a different rail width has been chosen in neighbouring countries (Spain, Russia) or the construction of rail bridges over main rivers prohibited with the purpose to make the river crossing as complicated as possible in order to prevent a smooth crossing by rail in war time (e.g. in Duisburg-Homberg). It is possible but not obvious that these kind of considerations played a role in the field of inland waterways, because the primary function of the waterway is to get water away.

Kempenaar, Dortmund-Ems, Rhine-Herne, great Rhine barge

The naming of the barge types has a regional background and the particular barges are perfectly fitting to the waterways which names they carry. Transporting hardcoal with a Dortmund-Ems barge is possible, but does not make sense because of the relatively small volume which this type of barge can carry.

Germinating seeds of European unity can not be found in these regional names; most of them date from the end of the 19th and early 20th century, while with the ECCS (European Community of Coal and Steel) in 1952 the first thoughts about cooperation in Europe get started. Even then the keeping up with partner economies (which is "daily" business today) was at that time at least one bridge too far!

One might say, that the inland waterways and the different fleet components are just a conglomeration, in which the entrance of the container (since 1976), was, so to say, a foreign body (before then, people had never come across bridge heights as a main topic!). On the one hand, the arrival of the container spread optimism in the whole inland waterway sector but on the other hand it created financial irritation (bridge heights) for the waterway authorities.

€-BASTA

Would it make sense to think about a European barge? A standardized barge which can sail on the Rhine, Maas, Danube and all the other rivers and most of the canals? The reach and the standardization also offers possibilities for scaling up and thus a wide range of logistic challenges for inland barging. The earlier question was (from my point of view) rhetorical and with pleasure we will show the full perspective of such a development and by adapting it the growing attractiveness of inland barging for shippers.

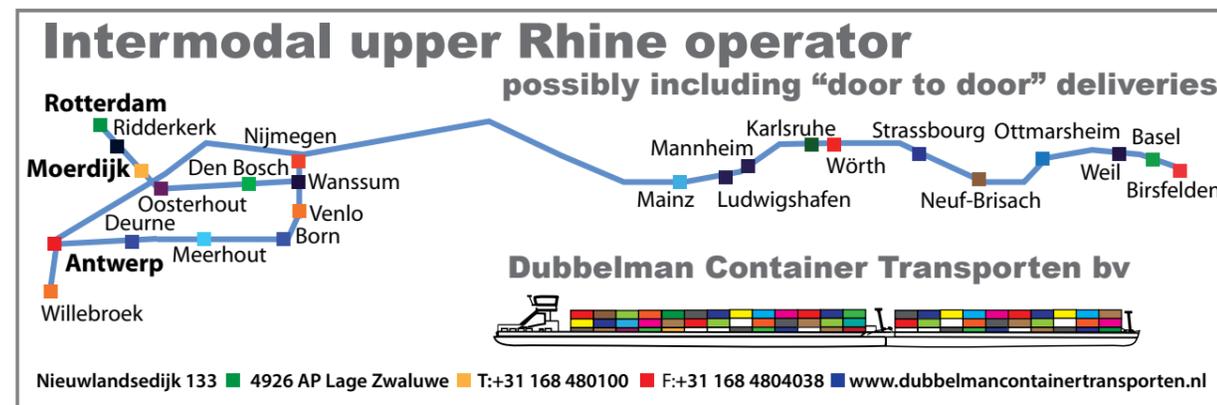
In other ideas and projects one can find similar thoughts, so they are not new. What is new is this approach in combination with a standardization of the fleet and in a logical second step the waterways and the constructions (mainly the locks). We will show a selection of other initiatives in the second inland barging edition, noting that this is a selection only and that there will be many more thoughts and ideas.



ceed a width of 11.40 m which is more or less the standard width for a great Rhine barge (110 m x 11.40 m) and this combination of the two Kempenaar barges side by side is not suitable for a lot of the “big” locks.

A more slender Kempenaar is technically perhaps constructable, but operationally far from ideal (too narrow gangways) especially when palletwide containers (2.50 m outside gauge) side by side must be loaded in the inland barge, without squeezing!

Watching the inland waterway infrastructure with European glasses and thinking about the future for this sector, a standardization of the fleet is obvious. As a first step instead of a width of 11.40 m a size which –for example- is the double width of a Kempenaar class barge, makes sense and offers immediately a lot of operational advantages. When pushed barging is already getting a higher presence the standardization will be the icing on the cake.



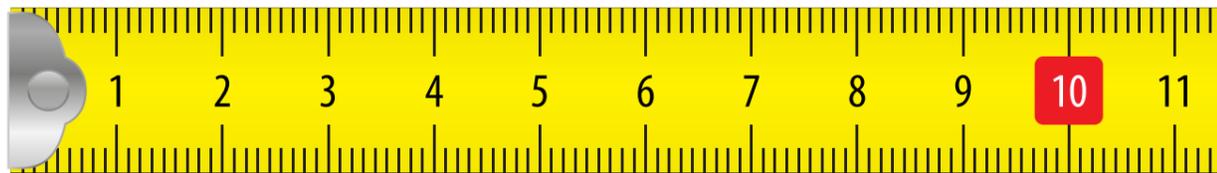
A fascinating thing in these thoughts and ideas is the fact that –thinking about the inland barging future- the traction (wheelhouse, engine, propeller) and the loading part of the ship is seen and thought about separately: so pushed inland barging.

Standardization or individualisation?

Now there are barge types referring to regional standards, which are unfortunately not compatible: two Kempenaar barges side by side ex-

What do we achieve with a standard?

Replacing the current fleet step by step by pushing barges based on the Kempenaar-standard resp. dimensions – small Kempenaar-based pushing barges, which can be put together building a greater convoy or which in combination with greater pushing barges (also Kempenaar-based, but with for example double width and length) can be formed into a huge convoy carrying different sized pushing barges.



With the Kempenaar one can not reach every inland waterway destination, but that is a matter of priorities – the Kempenaar covers > 80% of the European waterway network and can also take 2 containers side by side. So, smaller but highly frequented waterways must at least be up-scaled to the Kempenaar standard and till then be happy with the smaller barge types available.

The creation of a Kempenaar waterway route in regions where inland barging is not possible or not yet in that scale, is certainly in every respect a more realistic hurdle than trying the realize 110 x 11.40 m barge windows – for which the employment presumably is not there.

The Kempenaar standard offers a wide range of inland waterways which are navigable with its size, it offers also –for unreachable regions– an easily and more understandable costs hurdle than for the bigger barge sizes. For locks it will be possible to soon work with standards through the whole of Europe, which will certainly create substantial cost improvements in the infrastructure.

With the Kempenaar standardization in combination with the ongoing split of traction and loading part, this important trend, which made road transport so succesful for years and is now also

penetrating the world of rail transport, will finally also be picked up in the inland barge world. The inland barging product will become more and more an international product and for the formats which are bigger than the Kempenaar standard, it will make no difference to design the big inland barge formats as a multiple of the Kempenaar standard resp. and to do so in a pushed barge format.

A European standard for inland barges, for locks, for a fleet which is operational in the whole of Europe and thus a further reaching is a much more attractive transport offer, because smaller transport volumes can cover a part of the transport distance in bigger convoys and reach the final receiver without additional handling.

The Kempish canals and the Kempenaars once carried a third of the whole Belgian inland barge volume – so this barge type already has a memorable history behind it.... and now also in front of it!

Jos W. Denis

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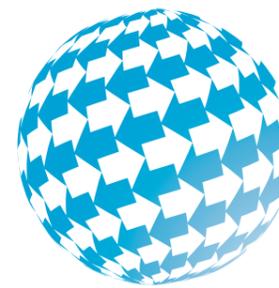



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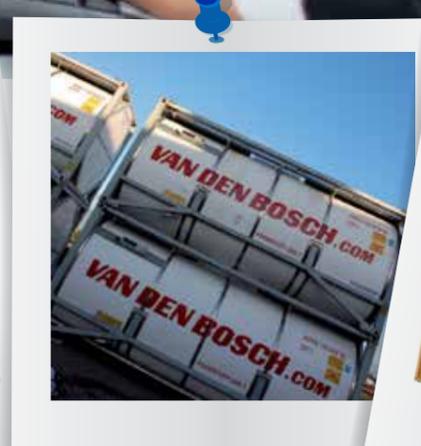
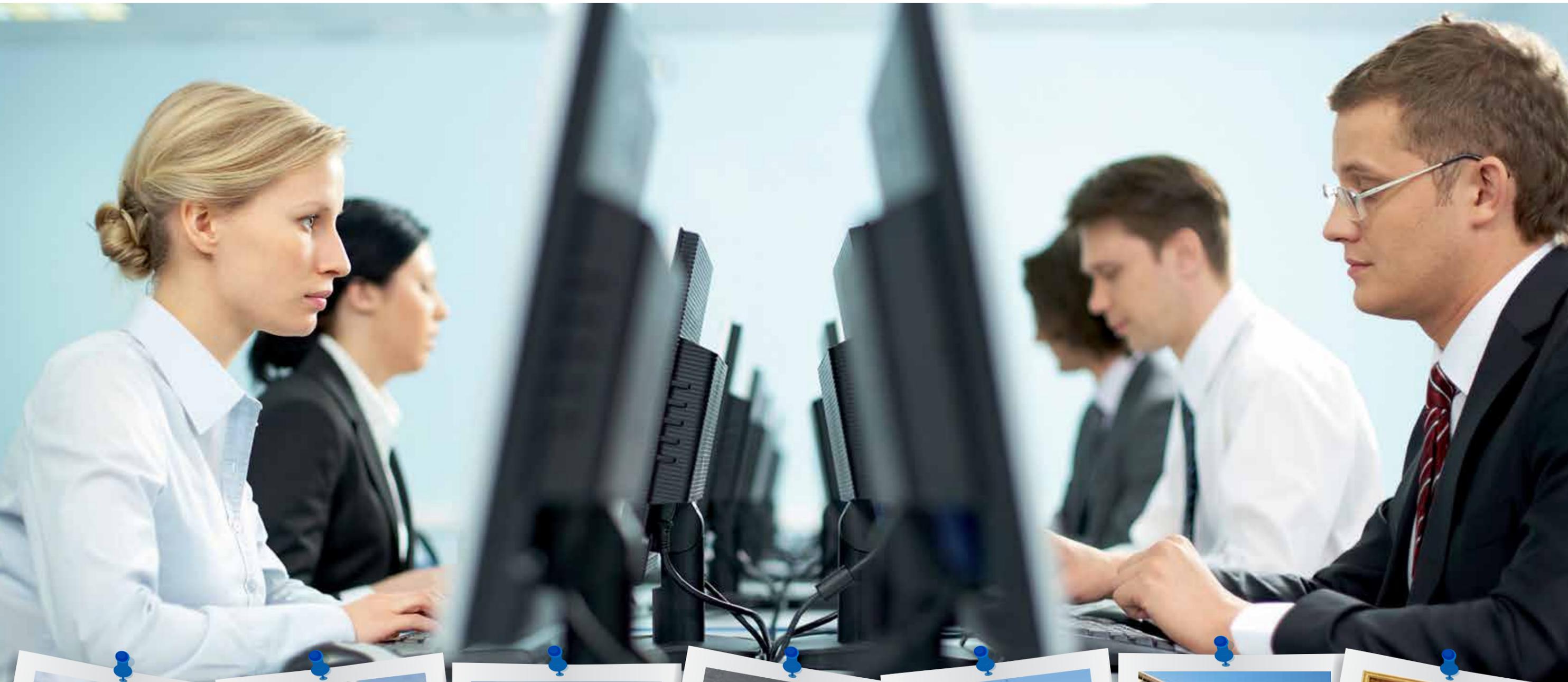
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ECA report May 2015

European court of
auditors
Luxembourg (ECA)

Inland waterway transport

The European court of auditors in Luxembourg (ECA) analysed the inland waterway transport sector in order to investigate the effects and results of the long term policy of the European Commission (EC). As is well known, the policies aim to shift freight traffic from road to environmentally friendlier modes, among them inland waterway transport, and to solve infrastructural bottle necks.

In order to realize its strategy the EC has co-financed projects in member states and the ECA from its side analysed the efficacy of the projects over the period 2001-2012. The main focus was on the coherence of the EC strategy and the solidity of the base on which it was built, and in addition whether co-financing has contributed to substantially increasing the share of inland waterway transport through increasing the total freight volume.

After studying the corresponding strategy papers of the EC, as well as visiting and being informed about 12 projects in the EU, the ECA has come to two clear conclusions: in the first place the strategically decided "modal shift" has not been realized to the extent expected, not even partially, and secondly the navigability quality of the waterways has barely been improved. Thus the inland waterway strategy of the EC has not been executed effectively.

It has been said of the projects that they were not always compliant with the set goals and only



a few of them aimed for structural waterway improvement. The isolated approach to various bottlenecks often just created new bottlenecks because a coherent approach was missing. The question of guilt is difficult to answer. If someone does what somebody else recommends and does not know that this recommendation is based on incomplete information, than it will be difficult to achieve a good outcome.

It is a matter of fact, that a lot of funding has been wasted, without any step in the direction of the awaited "modal shift", which has been decided and wanted by a majority of EU members! What must also be underlined is the need for the creation of a long term and stable functioning inland waterway sector, instead of an opportunistic sector which needs a break up settlement every 25 years.

ECA statement

"A single cargo vessel on a river can replace hundreds of trucks on the road and therefore reduce congestion, pollution and accidents in the whole EU. Shifting freight traffic from roads to the network of rivers and canals can be beneficial to all EU citizens. However, more than a decade after the EU declared it a priority, development of this mode of transport lags behind road and rail," said Iliana Ivanova, the ECA Member responsible for the report.

"A connected Europe with a sustainable transport strategy requires greater effort by the EU to improve its waterways and create a more balanced share of options across road, rail and water."



Iliana Ivanova
ECA Luxembourg
© ECA Luxembourg

INE Brussel

Inland Navigation Europe

Summary of the reaction of Karin De Schepper on the ECA conclusions

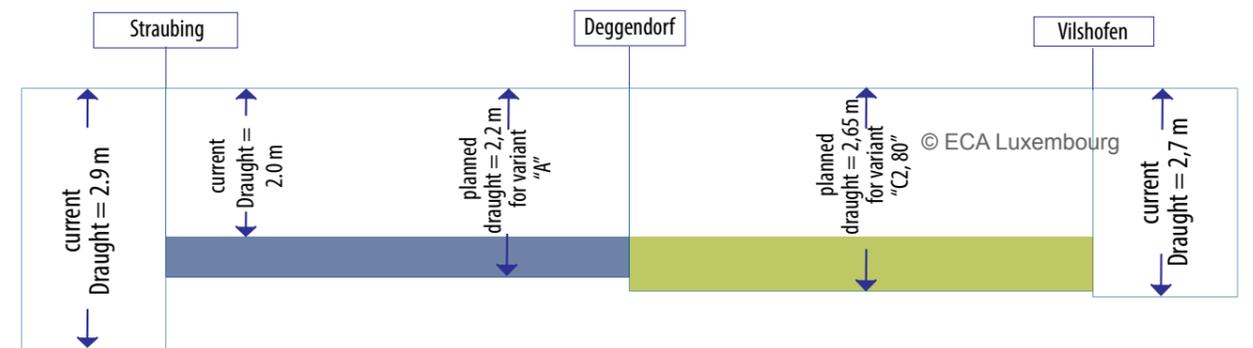
Strong

The ECA report is a "wake up call" from a decisive authority in the EU. Nevertheless the number of inland waterway projects inside TEN (=Trans European Network) during 13 years has grown from 1.5% to 10% now!

The investments in inland barging have been falling back as a result of the recent crisis, but shippers ring the alarm bells: because of capacity issues and overdue maintenance inland

barging is no alternative for the moment, although politicians want it that way.

The necessary coherence is missing in the network of waterways, and in the different inland waterway projects it is always the same countries that participate. A strong coherence in the strategy is "a conditio sine qua non" for a functioning network of waterways and especially because of the limited or even lack of funds, this is perhaps the perfect moment to push rethinking and changing processes instead of endlessly continuing with lots of small incoherent projects.



Danube draught between Straubing-Vilshofen

Poor

The ECA has taken general conclusions from spot checks and thus minimized the seriousness of the situation. A pity!

The economic crisis does not get the appropriate attention in the report and the inland barging sectors which show growth did not get any attention at all!

Where on a national level the importance of a coherent development has been understood, one can watch positive developments, but not where this understanding is still missing.

Where it is not or nearly not existing, inland waterway transport generates more problems than one may think: in its own country there is no inland waterway transport lobby and no pioneers, in the neighbouring countries –with inland waterways- this causes a lot of frustration because the neighbours don't act.



"As all coherent strategy has failed, we turn to you."

realized, unfortunately the international coherence, which would make such an application really worthy and give it a European character, is often missing.

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All these facts plead for a European approach for inland waterway infrastructure as well as capacity issues. In the sector itself there are great differences in eagerness to experiment and pioneering companies, and those who continue to do what they have done already for years. As a result of innovative projects now and then requests for waterway modifications come up (higher bridges, wider and/or longer locks) and when they can be



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more advantages!*



Small waterways, less barges

Headache record or chicken-egg situation?



The kings of the road

In regions with high industrial activity and a dense concentration of companies involved in manufacturing as well as distribution, on the roads to and from the area you will always see lots of freight carrying lorries. This is logical because raw materials, semi-finished products and final products must be transported to and from the region. Even when a navigable waterway is available in such a region only a small percentage of the regional transported goods will find its way on the water.

Eggs: We don't transport them, but we could! Well dream on....

Years ago Stinnes Reederei AG Duisburg drew a full page photograph collage of a loading hold of an inland barge completely filled with eggs their inland shipping expertise under the attenti-



on. Despite the extremely original presentation of this message, it was hubris at the same time, as we will see in the next lines step by step.

For doors, empty drinks cans, waste glass, household waste containers, building materials, agricultural products, etc., it is the lorry which is being called in to transport freight. Inland barging is not left standing – it just did not fit anymore with the logistical scripts demanded by the market for these and lots of other goods.

Margarine as substitute for expensive butter, worked out as a success in the market and in Oss (NL), new margarine factories sprung up:a-



Among them the factories of van den Bergh and Jurgens as the best known. After unsuccessful pleadings to create an inland port in Oss, to reduce transport costs for raw materials and

end products, van den Bergh decided in 1890 to move his factory to Rotterdam, followed in 1929 by Jurgens. A few years later the competitors decided to join forces and became partners, which was the beginning of the Unilever group.

As this historical example shows: not so long ago the inland barge was the most frequently used transport medium, for transport of people as well as household and food products carrier to the weekly market, but the lorry changed that because of its flexibility, speed, reliability, its capability to combine and to carry tailor made portions for the industry.



Sugar beets: once a barge domain.....

Then a battle cry

Better late than never, must have been the thought, because in their struggle against the massive modal shift the inland barging community chose following battle cry:

TRANSPORT VIA WATER, THE RIGHT WAY!

But the answer from the other side came quicker and more embarrassing than expected:

ROAD TRANSPORT, AS QUICK AS WATER!

Veni, vidi, vici

The share of road transport in the total volume of cargo traffic has grown fast and dominantly, with partly evaporating market shares of inland barging, and different kinds of side effects generating further worries one by one whilst considering how to regain market shares for inland barging. An example of such a side effect: the general volumes and weights lorries can carry (regardless of the particular product) have been developed to the portions which have been fully integrated in the industrial processes. For this



.....but less damage per truck!



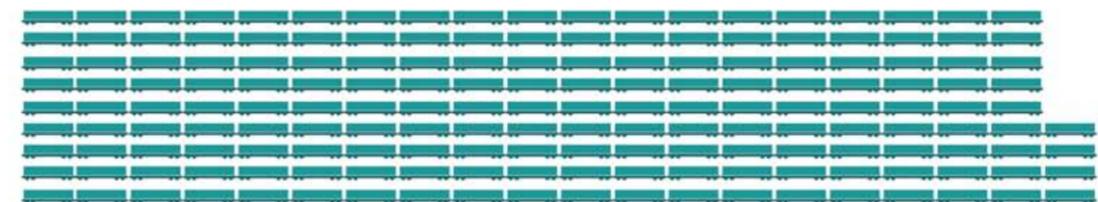
reason barges carrying 365 or 750 ts of cargo aggravate the evaporation of their own market, because, to keep it simple, a full truck load (e.g. 15-25 ts) developed to be the average freight portion on a lorry and the workable volume for most of the manufacturers and factories, certainly scientifically supported by different "supply chain" theories and experts.

It is logical that, caused by this development, the main part of all further growth in freight volume is realized by road transport, whilst inland barging as well as rail transport bob up and down in the lowest segment of the European transport statistics without the dynamic upward movement which both road transport as well as short sea show very clearly with their figures.

1 convoy with four pushed lighters: 7 000 net tons



175 railway wagons at 40 net tons each

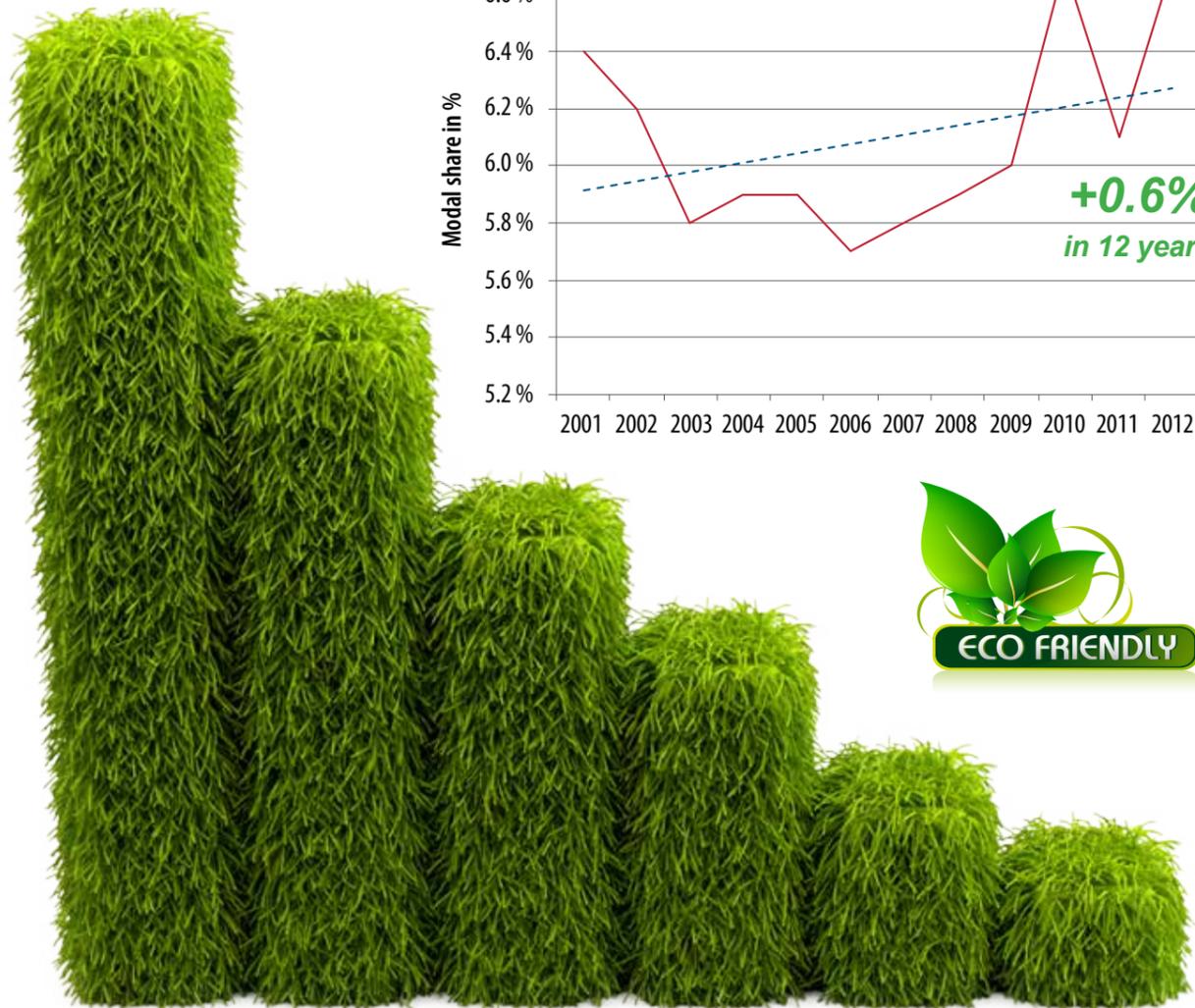


280 trucks at 25 net tons each



Inland vessels beat road and rail in terms of transport capacity

© via donau Wien



Lost complete markets, but still environmentally friendly

To try and get more growth in the inland barging sector, it was argued over several decades that this was a more environmentally friendly solution to transporting freight by road, but this argument was far-fetched and 'clutching at straws'. Supported by politically coloured subventions (the number CO₂-reductions supporters was growing) a massive window dressing operation was started: window displays, seminars and projects were organized: Choose inland

barging, it is the green alternative! The social, political and economic arguments as a rational base were supplied as well, and when the arguments were not firm enough the issues involved were moved a bit more into the background – as for example with the comparison of the exhaust gases of lorries and inland barges, which was and still isn't in favour of the old fashioned engines used in inland barges. Because of the noisy and smoky image and reputation of trucks and forced by the growing environmental importance truck engines have been developed permanently.



ECA Report: co-fundings with poor results

The recently published report of the ECA (European Court of Auditors in Luxembourg) with the title "Inland Waterway Transport in Europe: No significant improvements in modal share and navigability conditions since 2001" summarises the conclusion (for those who do not have the time to read all the 56 pages of the full report) in its title. For those who follow the statistics their conclusion was of course not a surprise, even with the awareness that some European countries do not take

the obligation of providing figures to Brussels with the highest priority and accuracy.

In the meantime great amounts of project funds have gone to various inland barging projects with the aim to increase its use in freight transport, but for which the "bottom line" is that it did not have the intended effect and

also the funding EU authorities have not any reason to be happy with their support. This gives rise to the question of whether this ECA-report is a common

European initiative which has been already started earlier in some countries on national level?



Optimizing and maximizing

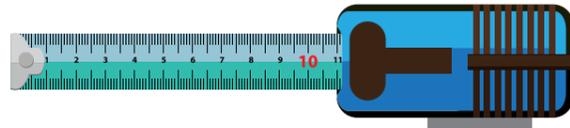
Looking at the structure of this sector one can hardly speak about “the inland barging”; an inland barging company (just one ship operated and managed by a family) is in its structure very similar to a farmers company: high investments and capital costs, wage as rear light. Although



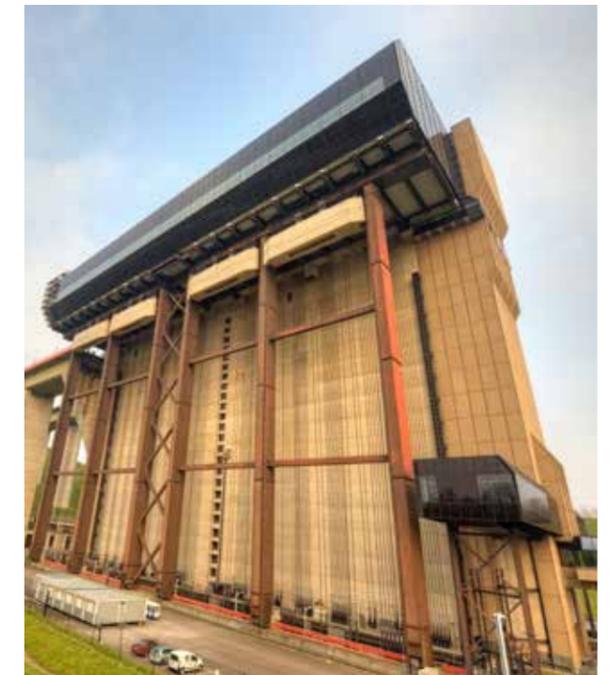
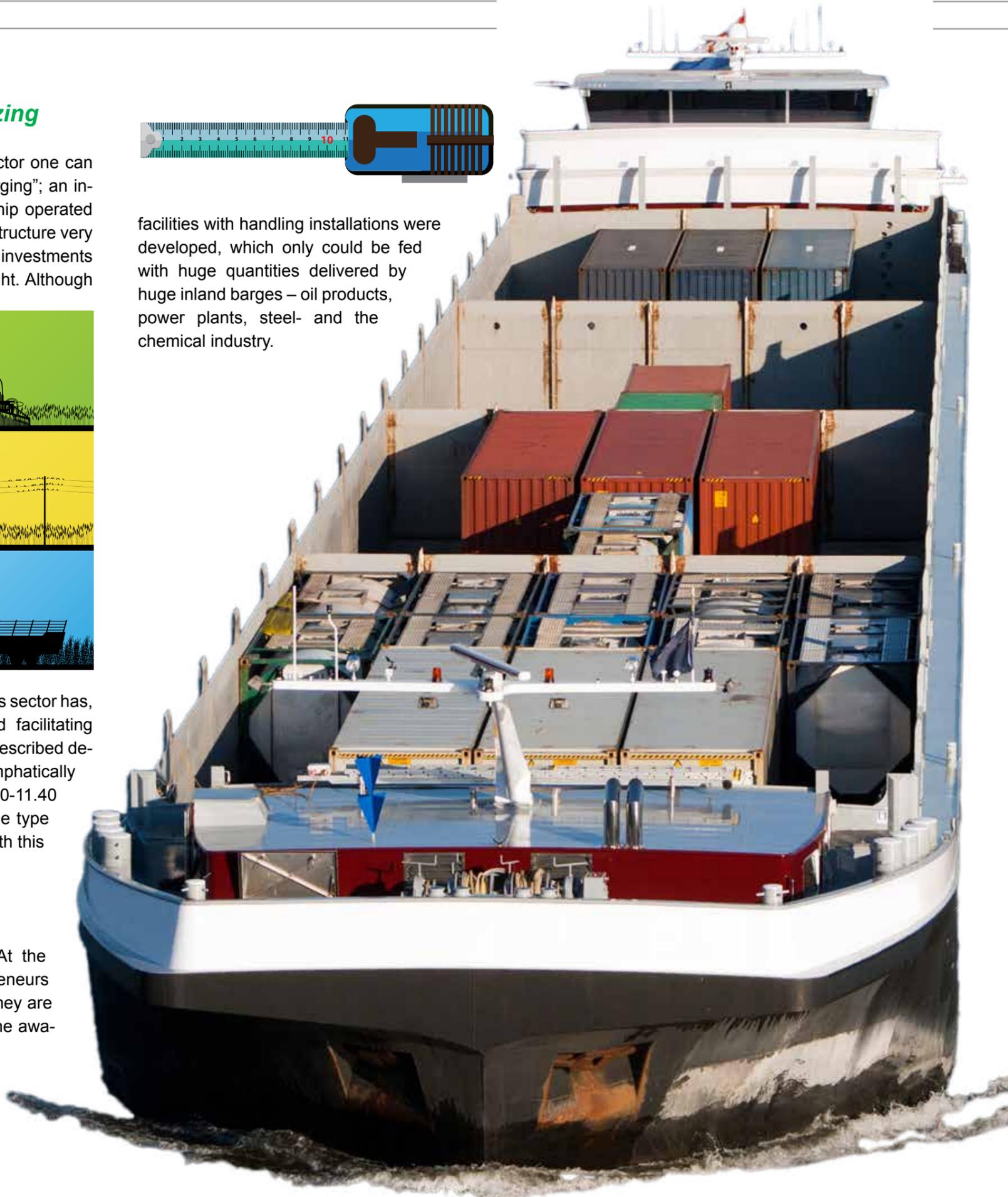
has the inland barging as a business sector has, together with its surrounding and facilitating business sectors, aggravated the described development by putting its focus emphatically on upscaling. The abbreviation 110-11.40 as size indicator of an inland barge type is still more or less synonymous with this focus.

110 x 11.40 m

Big and bigger became trendy. At the start single inland barging entrepreneurs decided for this development, as they are used to being on their own; later the awareness in the sector grew that upscaling was the magic position to get the asphalt invasion stopped. On the land side, where possible and reasonable,

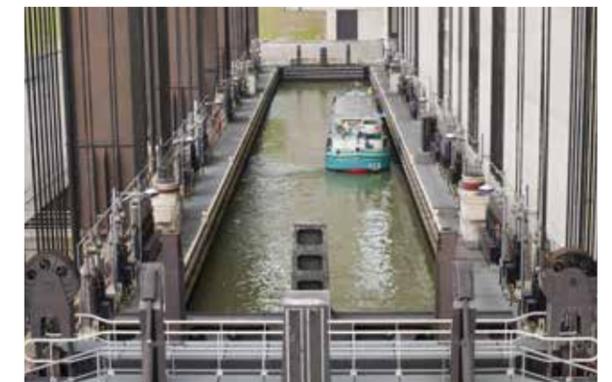


facilities with handling installations were developed, which only could be fed with huge quantities delivered by huge inland barges – oil products, power plants, steel- and the chemical industry.



**Small inland barging:
no investments
just monument protection**

While growing coal and container traffic on the river Rhine distracted everyone’s attention, the inland barge on the smaller waterways became more and more of an oddity. Furthermore, the inland barges on the small waterways have more of a museum like appearance than the standard “just in time” outlook, which is expected in the logistics market of today. The selection criteria for museum pieces are certainly more focused on nostalgia than on efficiency!





This may seem exaggerated, but the hardware the market offered and is still offering (for example, the container barging in the river Rhine) compared with the barge hardware offered for the Mosel or the Scheldt (smaller waterways) is completely differently equipped: the Rhine over- and the other totally under-equipped.



Of course this situation leads to a market niche with a “false flat” economy, but overall with a stagnating and decreasing demand and without any tools to develop the slumbering potentials along these waterways. The small waterways

became impoverished because of the focus on upscaling. The upscaling effect was only in the building of huge inland barges; only a few small inland barges have been built and this is too few to keep that part of the sector in an up-to-date shape.

Market observations are being held to follow the developments in inland barging, the main focus of these observations centre of course on the bigger waterways. Meanwhile, lost and unexploited markets and their potential and perspectives remain unattended to because these you can't observe...

This impoverishment consists partly in the aging of the small inland barge fleet –sailing museum artefacts-, but more importantly because of the creeping growth of “unpracticedness” with this segment of the inland barging infrastructure. Soccer players improve their kicking technique over years by practicing it on a daily basis – which is also the most important issue for musicians or cabaret artists: practice, practice, practice. These practiced skills you will find with just a few market parties and of course also they are in combination with a fleet of inland barges which is predominant ready for the museum. The difference in equipment generates a complete different organization of the transport... to express it in football idiom: different kicking techniques!





The fact is that the owner has in all perspectives the biggest archive and because of that the best view. The canal Almelo (NL) - Nordhorn (D) with a length of ca. 40 km was opened in the early 20th century (1902) and was closed 60 years later. With its very rich flora and fauna the canal itself became a museum. To what extent the bilateral initiators and owners at the time of its closing (1960) actively searched for new users or stimulated the use of the waterway when they saw that the expectations were far from the reality, does not help now, but it can be the template for the future of lots of comparable waterways in Europe. Governmental deficits, poor performance statistics, a decreasing and

aging fleet, less transport movements, postponements of maintenance and representatives of

Maintenance and development of small waterways: low priority

A third aspect in this decline is the maintenance of the small waterways. When the number of passing inland barges is going down the necessity of renewing an old lock or even maintaining the waterway becomes superfluous. In the countries with a vast inland barging tradition representatives of the sector already raised their voices as such test balloons were lifted. The authorities, as owner and administrator, are doing the splits: the for years exposed "green" image of inland barging has been evolved into a widely supported political strategy, but the daily traffic bottle-necks as well as the performance statistics do not plead for investments in green, but in black roads and surely not for expensive maintenance of limited or hardly used waterways.



with



the business sector who generate little besides loud protests.... well, than the museum is lurking!



Collision: CEMT-classes and container transport

An additional Babylonian discussion is the question what exactly defines a small waterway, because the CEMT-classification is only of limited use – where do you draw the line?

The beautiful waterway map of Promotie Binnenvaart Vlaanderen Hasselt (www.binnenvaart.be) shows the different waterway classifications in different colours. The highest classification –class VII- is less frequent in Europe than on other continents. When you can sail on a waterway with a coupled inland barge (inland barge with a coupled pushed barge in front) with a total length of 172 metres and carry 5,000 tons of cargo during one voyage, then you would think: This is a big waterway!

When you use the same inland barge combination on the same waterway for the transport of containers, you will see that the loading capacity of that very same barge halves – instead of

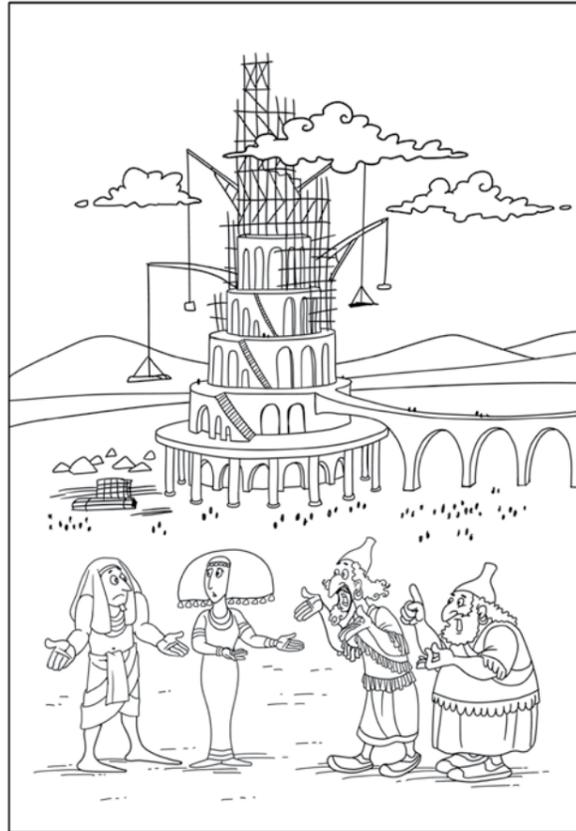
320 TEU (1 TEU = 1 20' container) which you could load on 4 layers, the combination of the average load per TEU and the height of the bridges halve this figure. So again: Is this a big waterway or a small one? From the perspective of container transport this is a small waterway, because you can use only a limited part of your full capacity.

Where is Babylon?

A further discussion is getting Babylonian qualities from the moment that the multilateral waterway administrator declares that 230 days a year it is possible to carry containers on the waterway in 3 layers (so 75% utilization instead of 50%).

This statement –based on historic waterlevels of the waterway- may be hydrologically 100% correct, but inland container barges carry completely different weights every voyage they make, even when they carry optically the same volumes. Insiders will immediately think of Mosel, but this is an issue on more waterways than just the Mosel.

Thus, Babylon along the Mosel!



in Europe but globally. Reducing production costs (in the production of steel, current, etc.) is consequently a central issue in the approach of transport as a whole and inland barging in particular – bigger barges must result in lower transport costs.

Nothing wrong so far, but there is a "but". In the supply and demand mechanism of inland barging there is a substantial dynamism: daily changing freight rates would be exaggerated, but you may speak about daily freight rate movements without a detailed and neutral gathered availability of those movements for the whole market.

Daily fluctuating freight rates

Consequently the rate dynamism –the movements- concentrates on the price paid for the transport. The freight rate for a shipment of coal from a sea port to powerplant in the European hinterland is an amount in € per ton. When we skip possible surcharges for low water or fuel,

Market observations what they do and don't do

Looking back (what market observations do) and looking forward (what they do in a very limited way), we see that this development is totally in line with the economic process which has taken place in the last decades, not only



then you may take for granted that the freight rate has been calculated out of the costs structure of that particular inland barge:

cost price plus profit margin. The supply and demand dominated market disturbs this mechanism of rate calculation permanently. And although the abbreviation 110-11.40 is more or less the standardisation of a barging type, in the daily movements of freight rates you don't recognize any kind of standards. This is because under different kinds of pressure and not voluntarily shooting from the hip, freight rates are made on the phone with the consequence of wave movements into the whole market: up and down. In the $\geq 110-11.40$ dry and liquid markets such movements are inevitable because of the huge capacities and the fluctuating and sometimes stagnating cargo volumes. In the $< 110-11.40$ inland barging mar-



ket the picture, because of the earlier mentioned issues,

is varied and so rather different from the $\geq 110-11.40$ segment, that during the last crisis you could watch two worlds of rates; one suffering and in great trouble and one stable, all just caused by supply and demand. Because of the fixation on volume, upscaling and cost reduction, the role of "value adding" has been underestimated and partly disappeared. In the $\geq 110-11.40$ segment sector the "value adding" could play also an important role, but here the rate wave movements are always dominating in the foreground, the rest –like the "value adding"- is "another building site". The upward rate waves are being expected with wringing one's hands – hoping for the upward waves and trying to survive the downward periods.



The purple crocodile normally would be enough, but the green hangover seems to be the cream....

With projects, promotion and “window dressing” only –as the ECA found out-, “no significant improvements in modal share and navigability conditions since 2001” have been realized. So the green image choir should continue to sing their repertory but more in the background, because to realize the substantial change needed to revive, to regenerate and to rationalize small inland barging there is more needed than just repeating well known but aged promotional statements. The performance statistics told over



¹ A child forgets its inflatable purple crocodile in the indoor swimming pool. When the mother arrives at the counter, she sees the crocodile in the office of the pool attendant already. She explains him: “My child forgot that crocodile leaving the pool, could you please hand it over to me?” The attendant starts moving, but not to hand over the crocodile but to search for the lost notice paper, which he then hands over to the mother. When the mother with the paperwork in her hand tries a second time to explain and to point at the crocodile, the attendant just points at the paper in her hands and closes his counter. This scene, from an insurance commercial, has been known since its broadcast as “the purple crocodile” and represents bureaucrats and bureaucracy.

decades already a clear message, which incredibly did not play any role in political, promotional or trade strategies.



Digging out the issue of the small waterways and its barges, does it have to be now? The business is slowly finding its way back to more or less normality and the headache from the “green hangover” has not reached its highest point! Nevertheless after a crisis such as the recent one there is a certain need to express, word and exchange something like “The lessons



learned”. The issue of the small waterways has the interest of several project groups in different countries. Without having the illusion that here a complete “roll out” can be given of thoughts, ideas, tests and proposals which are being developed, it is interesting to discover the central theme, to define the economic key figures and to enrich the whole context with further input and to roll out this view on small inland barging along possible routes.

restrictions on the smaller waterways. Because of the fact that it is only possible with modular options (convoys with pushed barges), the effect of upscaling will be limited as well and will, unlike what we saw on the river Rhine, not lead to the excesses which finally generated one of the greatest crises

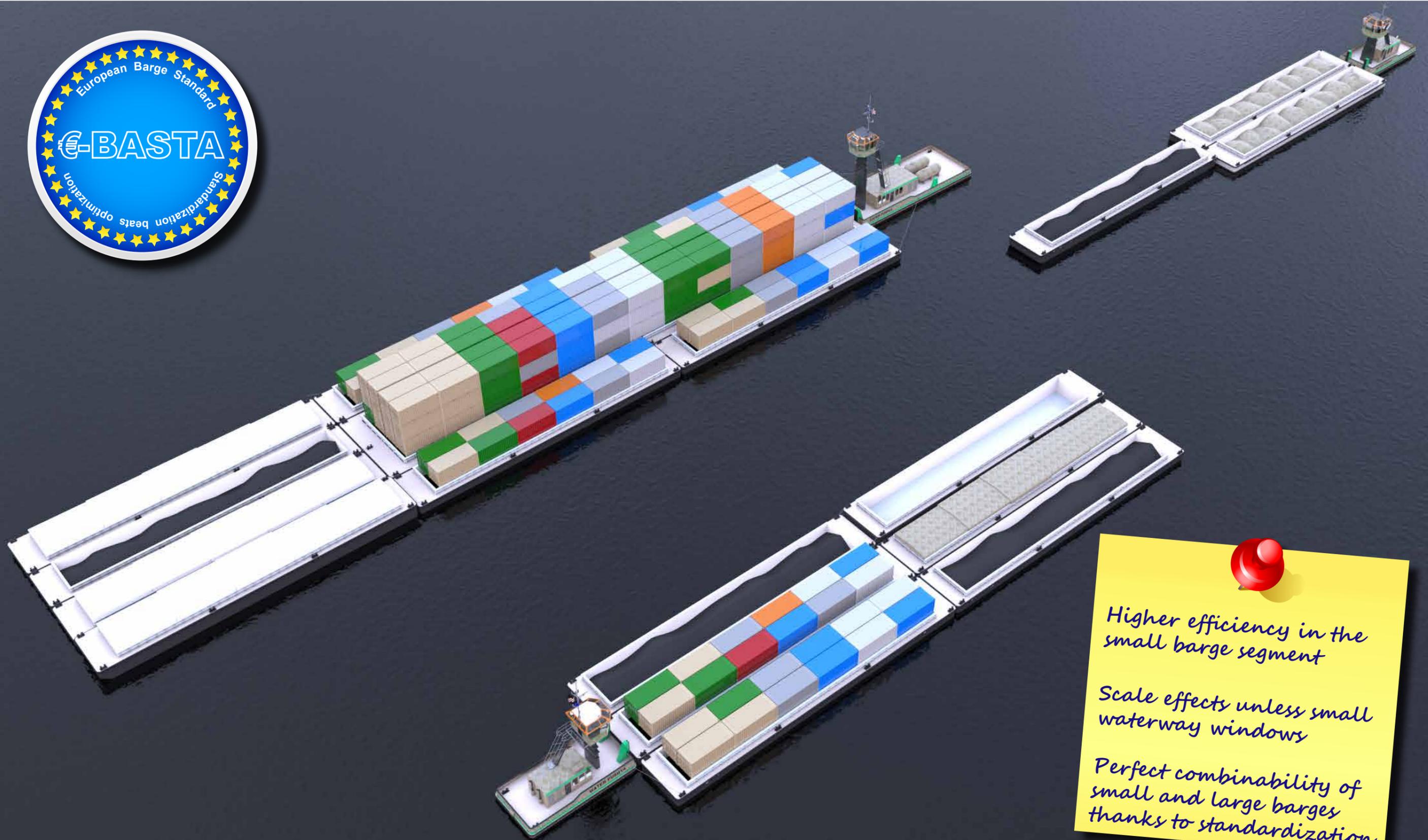
in its history. In a modular scale up for destinations along small waterways the mix of the convoy and the destinations will have a greater heterogeneity and because of that less fluctuation and less erosion in the freight rates.

Standardisation enables effective production

The future cannot offer more challenge than the recent past!

Looking back to inland barging development during the last 25 years, you see that in the strategy which led to the recent catastrophe the main challenge for small inland barging has been hidden: the upscaling unless the different profile

Shaping and designing such a small modular inland barge will be lead by the actual waterway profiles. In respect of the dimensions the smallest waterway to be served will be the starting point, because the modular concept allows such and the penetration of the whole sailing system can be maximized. In order to let all cargo types participate in the advantages of the modular system and containers can be trans-



Higher efficiency in the small barge segment

Scale effects unless small waterway windows

Perfect combinability of small and large barges thanks to standardization

ported in two-wide loading, the “Kempenaar” has the right dimensions. Companies without a water connection can still be integrated with this system: unloading at a neighbouring public quay with “last mile” delivery by a crane equipped lorry.

To create a successful small inland barging sector several issues of importance must be tackled. With standardisation and serial production of both main components –pusher and pushed barge- you can reduce the building costs and compared with the common and rather individual way inland barges are being built, realize serious improvement on the investment amount per ton. Nevertheless this will not affect a breakthrough with the necessary financial incentives needed to encourage shippers to step over from black to green traffic routes.

Barge split up

By splitting the cargo hold and drive, the small inland barge becomes a more attractive investment and ultimately cheaper, although the combination of just 1 pusher and 1 pushed barge may result in a slightly higher investment than the traditional inland barge.

The modular small inland barge is able to be at different locations at the same time and instead of awaiting the unloading another part can sail and deliver or pick up pushed barges. This of course asks for a different approach in organization as well as rules for unsupervised loading and unloading – this seems however more complicated than in the end it will be: the small waterways are canalized without any current.

Financial incentives

The necessary financial incentives come in reach by the logistical use and implementation of this modular structure and can be worked out in an offer for inland barging on small waterways with financial incentives. Inland barges are capital-intensive and loaded barges which are laying or waiting are not productive even when demurrage is being paid for this unproductive period. Besides that, two economically important components of

the barge are being distracted from the economy: the crew and the engine. In a modular concept these parts can be separated and the barging “factory” stays productive.

Portions and a portion providing ability

During a recent inland barging congress a representative of a shippers organization dropped a concrete –as he said- shipper’s request to get transport offers for 125,000 ton raw material on yearly basis for a small inland barging destination; adding that he needed a real sharp price otherwise the goods would stay on the road where they actually are.

In an attempt to analyse and calculate this cargo flow in a different way (modular shipment), several emails were sent after the congress to the representative, who

of his request. The “What will it cost from A to B?” question is the most common approach of “service providers”, when a benchmark is done or alternative transport options are being investigated.

This “A to B” approach is not only a simplified report of a part of the “supply chain”, it is wrong as well and will never lead to the best result. Alternative options and benchmarks start from the running business, parties offering their options do not necessarily start from the same point and so you are comparing apples and pears: from road to short sea combined with road transport, from road to direct rail or rail combined with road transport, etc.

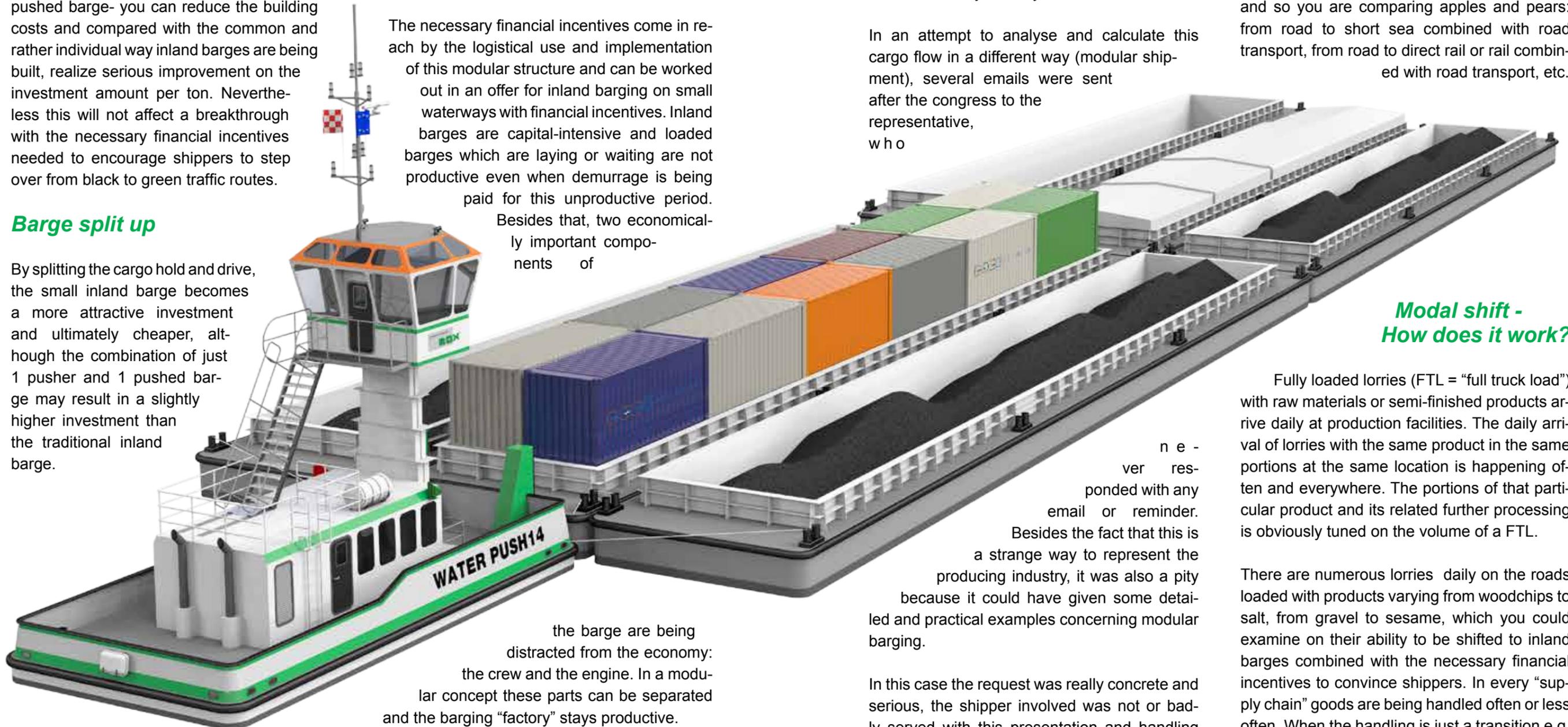
Modal shift - How does it work?

Fully loaded lorries (FTL = “full truck load”) with raw materials or semi-finished products arrive daily at production facilities. The daily arrival of lorries with the same product in the same portions at the same location is happening often and everywhere. The portions of that particular product and its related further processing is obviously tuned on the volume of a FTL.

There are numerous lorries daily on the roads loaded with products varying from woodchips to salt, from gravel to sesame, which you could examine on their ability to be shifted to inland barges combined with the necessary financial incentives to convince shippers. In every “supply chain” goods are being handled often or less often. When the handling is just a transition e.g.

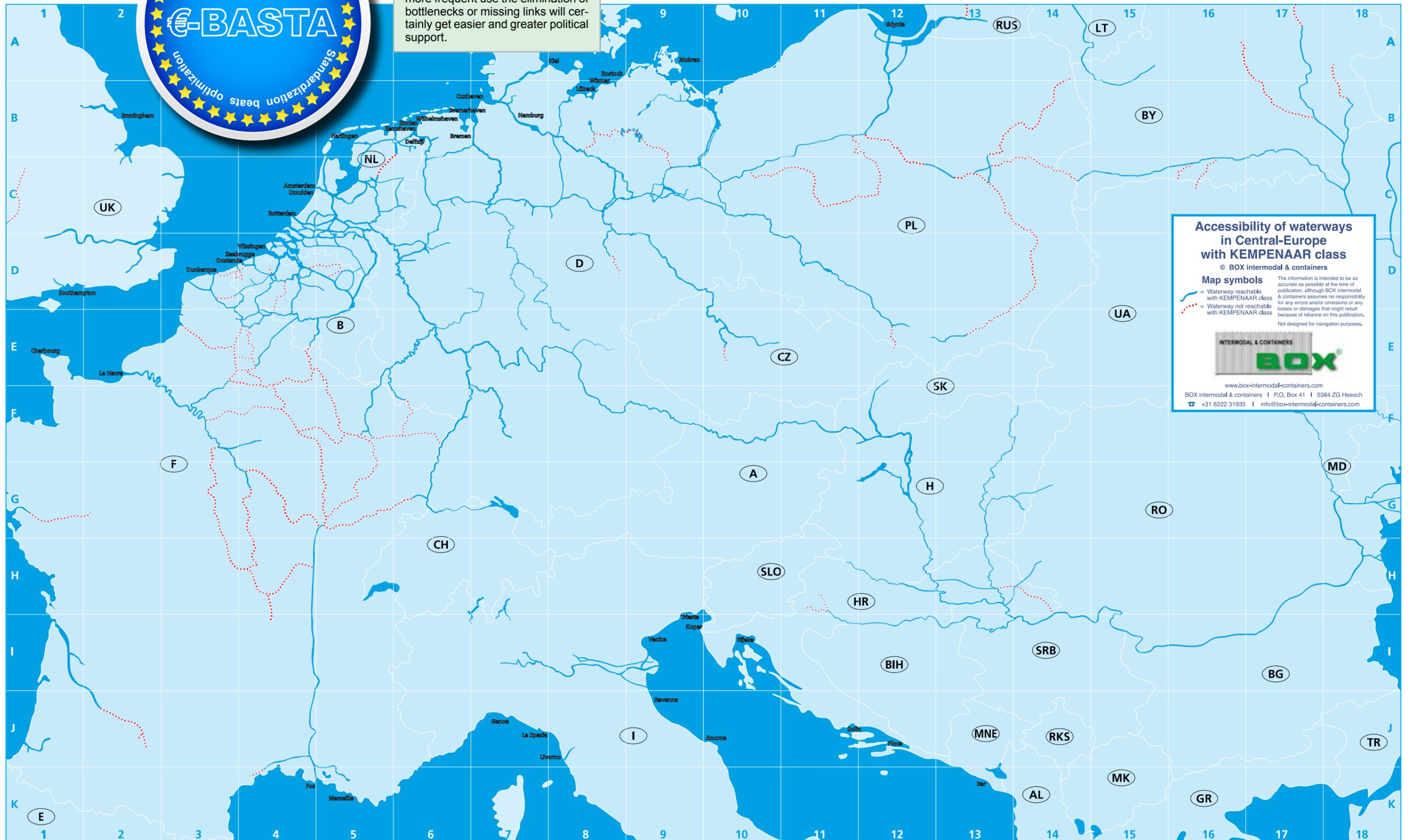
never responded with any email or reminder. Besides the fact that this is a strange way to represent the producing industry, it was also a pity because it could have given some detailed and practical examples concerning modular barging.

In this case the request was really concrete and serious, the shipper involved was not or badly served with this presentation and handling





The European waterway network, from the perspective of the KEMPENAAR standard, has already been connected appropriately and with a more frequent use the elimination of bottlenecks or missing links will certainly get easier and greater political support.



Accessibility of waterways in Central-Europe with KEMPENAAR class
 © BOX intermodal & containers

Map symbols

- Waterway reachable with KEMPENAAR class
- ⋯ Waterway not reachable with KEMPENAAR class

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No miracle cure, but until now an ignored concept in the inland barge logistics, which should be intensively investigated.

What's needed? Small rentable barges through the whole of Europe (like truck chassis), a forwarding mentality in the inland barge sector and co-operation for the traction of the stretches.

Utopia?

from barge to lorry, a change in the logistic chain could result in a reduction of the handling(s). In the case that goods –after the handling- make a pause (temporary storage) before they continue their way into further processing, then it makes sense to think about barging options especially modular options. When the supply comes from overseas it is not plausible that the portions are the same as the lorries carry. More plausible is that for example portions of 500 tons arrive and go into temporary storage with daily delivery to lorries according the demand of the further processing. New supplies arrive regularly from overseas; sometimes a little bit less or more for climate reasons (winter, monsoon) or other causes (strikes, danger of war, etc.).

Small modular inland barging

Goods can be handled directly in modular inland barges: on the location where they have been produced (mud from a sewage plant, wood chips in mill, etc.), but also alongside a sea vessel. The modular inland barge is both storage and transport medium, can be dropped at the quay of the receiver, and the goods in the module delivered according the processing needs. In the case that the receiver does not have its own quay, then the same operation can be realized from a neighbouring quay supported by a crane-equipped lorry to bridge the “last mile” to the production location.

The modules offer the receiver the opportunity to receive the goods in the portion size he is used to processing (lorry sized) and furthermore give him a bonus on the transport costs (transport costs of a module are lower than transport via the road) and last but not least, substantial cost savings in handling and contemporary storage. The modules sail on the great waterways as a convoy together, pushed by a correspondingly bigger pusher and close to the entry point of the smaller waterway the convoy is split up into single or sets of two pushed barges with a small

pusher at the rear. The whole convoy can be destined for locations along that canal but it is also possible to deliver pushed barges to different entry points of different small waterways.

Small container barging

Container barge operators who are active on various small waterways in Europe of course can profit from this modular approach in different ways.

From the pusher’s point of view the loading and unloading operation is sped up because only the modules (single barges) will be exchanged. The total volume of container handlings which the terminal has to do will be reduced drastically because the main containers will be handled directly onto truck or vice versa.

The formation of bigger convoys outside the small waterway will, compared with the current barges of 24 TEU, surely offer some scale up advantages. Sorting and grouping modular pushed barges from a number of inland container terminals with the “same content” (containers for the same deep sea terminal of sea vessel) is, because the pushed barges have a capacity of 24 TEU only (= 12 x 40’ or 24 x 20’), simple and in the main possible without extra sorting handling. A certain co-operation between regional container terminals is of course necessary for this “value adding” grouping. Picking up bulk goods from another neighbouring location with transport to the container terminal in order to discharge them and load them directly in containers to use in this way has the advantage of higher loading weights (the container will not touch the road anymore).

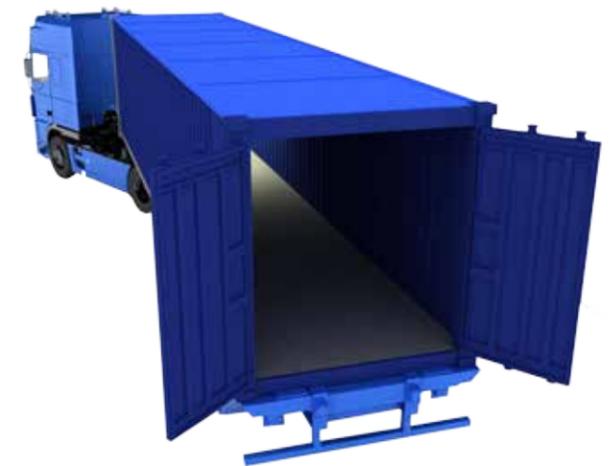
In the same way convoys with a combined assembly (containers and bulk goods) support the bulk goods operator as well as the container terminal operator to discover new cargo flows and handling possibilities.



One of the BTT Terminals in Tilburg (Netherlands), which is served by 24 TEU barges

The “last mile”..... so extremely important

Of course the final or starting road distance is the only exception, but the idea to combine rail, inland barging and short sea with road transport in the segment of loading units (containers, tanks) was brilliant: the shipper still got what he was used to “the lorry” but now in combination what a scaled up way of transport and so with a reduction in costs. There are approximately 600 intermodal terminals in central Europe, which all vary in size, but all have built up their own “last mile” package of containers or loading





units. Only the further development of all these terminals shows you astronomical figures: each 1,000 extra containers per terminal per year

generates 600,000 "last mile" road trips (while they do already 6,000,000 trips when we assume 10,000 is the average per terminal per year – which is certainly far too low).



The assumed 600,000 trips as yearly development volume of this virtual infrastructure also means a road volume of 450,000,000 tkm (assumed 15 tonne weight and 50 km length in average)... just for the yearly development! The volume of road kilometres saved (assumed to be 6 times the earlier mentioned 50 km) by this infrastructure counted in tkm will make you dizzy: 27,000,000,000 tkm!

And this figure is surely much too low because 10,000 "last mile" road trips yearly is just



the volume for a starting terminal. Double the figure, triple? Shortsea and the long rail services of course deliver further huge volumes to these estimations. Such perspectives probably help to fight the political headache concerning the general approach and to a lot of postponed infrastructural works.

By the way: statistics!

The identical "last mile" logistics with all specials –tilt chassis, low loader, shuttle, side loader, etc.- can of course also be offered in combination with small inland barges for both containers as well as bulk goods joining the modular system.

The "last mile" service perhaps has been the most important success factor for the whole scene of intermodal container transport:

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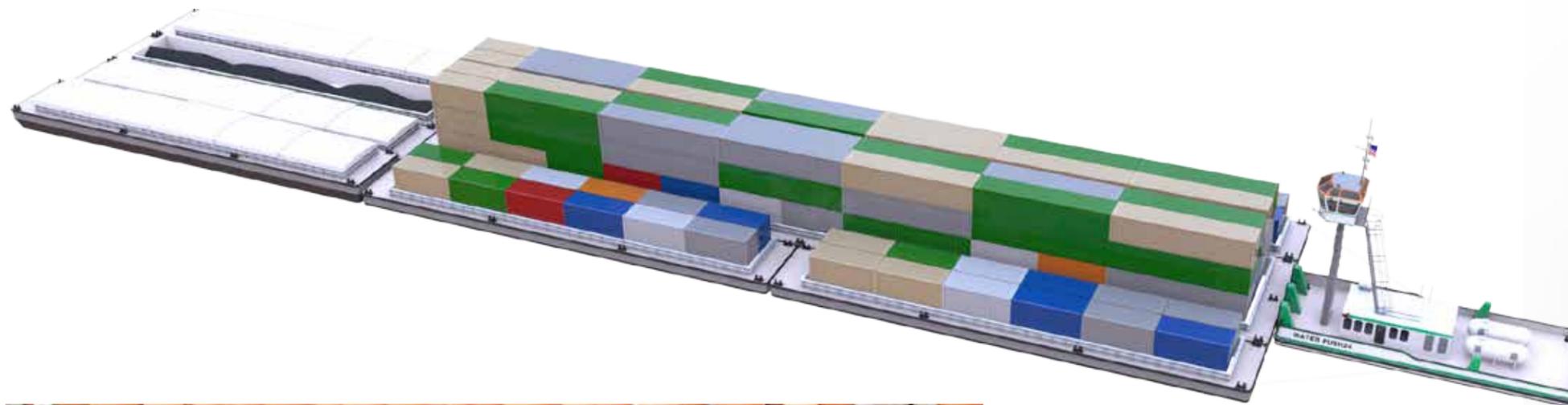
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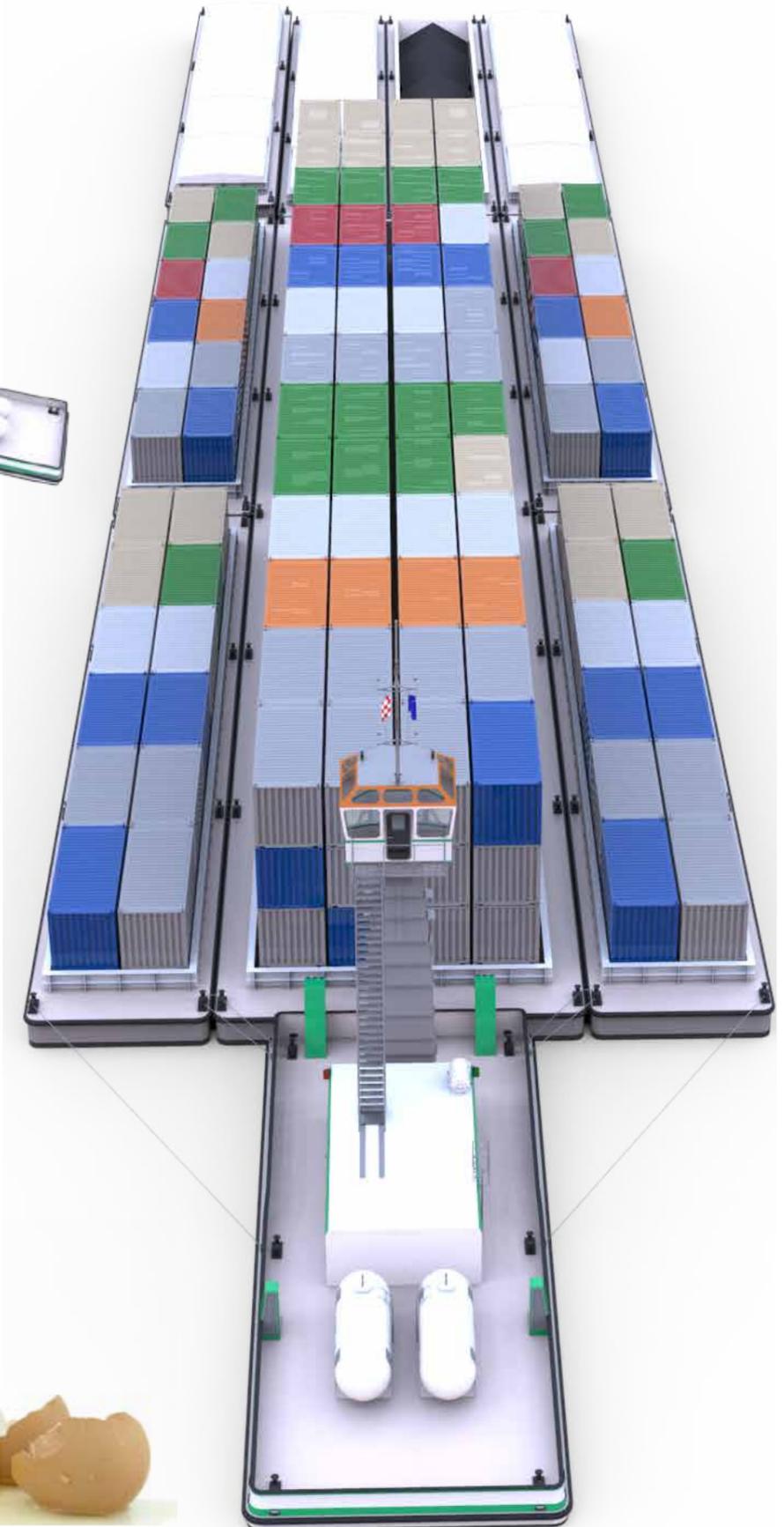
barging, short sea and rail and easy to understand as well: the shipper used to the lorry still gets the lorry but now in combination with cost reductions thanks to the great volumes carried over long distances with one of the three modes. The missing “last mile” concepts along the

Danube are probably a better reason for the poor and frustrating intermodal development there, than the shallows on the lower Danube which are presented in Brussels -nearly daily- as the biggest hindrance for the inland barging in this region.

And..... what about barging the eggs?

No problem, but better in reefer containers as eggs must be kept fresh and handling them as bulk would give a huge mess, not even usable for scrambled eggs!

And the small waterways? Well, traffic jams are not to be expected for the short term, but a more intensive use is possible with the available infrastructures and, as shown, with a more efficient fleet offering a complete range of connections and surely the necessary financial incentives.

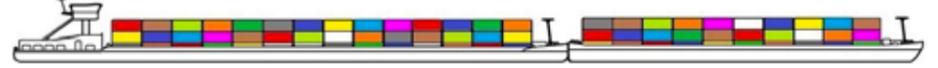


Convoys of big barges prove that the concept works, thus with small or mixed barges it will work as well. Demanding barge planning isn't science fiction!

As a result, lots of different and new inland barge logistic products can be developed and revive lots of small nearly forgotten waterways.



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