

Summary

The Dutch shipping sector is highly internationally orientated, yet simultaneously important for other Dutch maritime sectors. The reason for this is not only due to the shipping sector's purchases in other Dutch maritime sectors, but also concerns non-financial relationships. Within the maritime cluster, the Dutch shipping sector's role is that of a pull-factor for innovation, as well as contributing towards providing other maritime sectors with personnel who possess nautical knowledge. In addition, the shipping sector likely contributes to cluster effects, such as economies of scale, image and agglomeration effects, although this effect is unquantifiable.

Insights into the relationship between shipping and the maritime cluster are necessary for evaluating shipping policy

The Ministry of Infrastructure and the Environment's current shipping policy is currently being evaluated and subsequently could be reassessed. A key note in the shipping policy initiated in 1996 was that shipping is not only an independent sector on itself, but rather part of and an influence on the entire maritime cluster. It is therefore necessary to update the available knowledge pertaining to the relationship between the Dutch shipping sector and the maritime cluster. What is the role of the shipping sector within the maritime cluster? How does this relationship develop in relation to future expectations and what does this mean for policy of the national government? This publication of the KiM Netherlands Institute for Transport Policy Analysis presents an overview of what is currently known about this relationship.

The Dutch maritime cluster

The Netherlands has a relatively large amount of maritime activity. The economic importance of the Dutch maritime cluster is measured annually in terms of indicators, such as added value and employment. In 2012, the maritime cluster generated approximately 2.5% of the Netherlands' direct added value; when indirect added value is included in this figure, the cluster's share is 3.7%. The direct employment amounts to approximately 138,000 people; when indirect employment is included, the total number of people working within the maritime cluster is 194,000.

In addition to the shipping sector, the Dutch maritime cluster consists of shipbuilding, offshore, inland waterways, ports, marine, fishing, maritime services (this includes bunkering, insurance and maritime research, among others), recreational sailing and maritime suppliers. In this research project, the shipping sector pertains to commercial vessels (deep sea and coastal) and tugs. Sea-going ships are also used in other maritime sectors, such as dredging, offshore and fishing. However, in accordance with other studies about the maritime cluster, they are not included in the definition of shipping sector for this study.

The idea behind government and industry's desire to cluster is that the cluster as a whole offers more than the sum of its parts and is an important means for the strengthening, in this instance, the competitiveness of the maritime cluster. There are two main types of clusters, which are also identified in the shipping sector (and in the maritime cluster as a whole):

- A network cluster that has mutually strong vertical and/or horizontal relationships between companies in a given sector, but which are not headquartered at a specific location whereby the companies in the cluster cannot profit from each other's proximity.

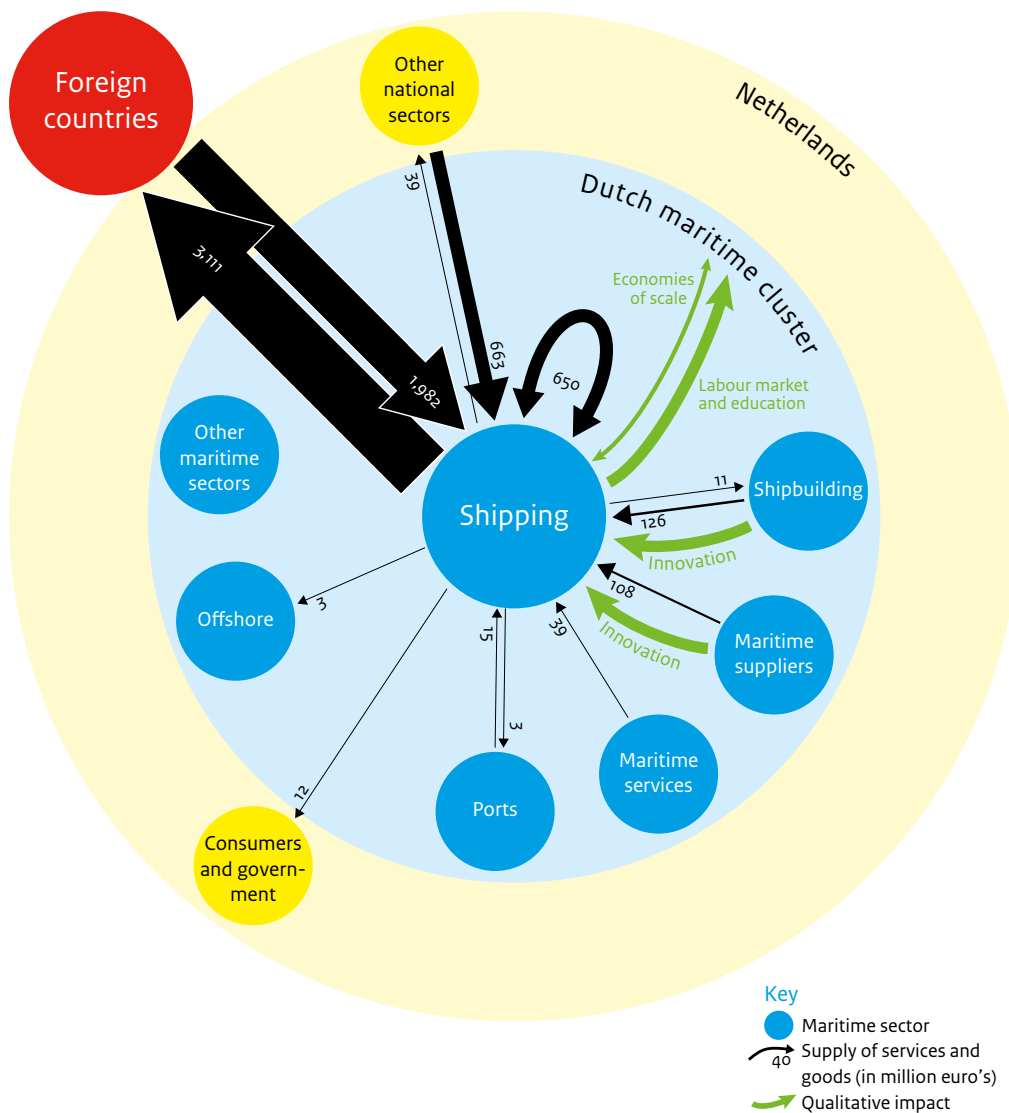
- A spatial cluster is headquartered at a specific location. In addition to the specific location and cluster advantages, a spatial cluster also offers proximity advantages and can result in network advantages when locating in or near a hub.

Based on these two types of clusters, the relationship between shipping and the maritime clusters are further elaborated.

Network cluster relationships in shipping: characterized by a highly international orientation

To the extent that data was available, the shipping sector's network cluster relationships have been mapped (Figure 5.1).

Figure 5.1 Network cluster relationships of the Dutch shipping sector (2012)



- **Financial relationships.** The shipping sector's most obvious network relationships are trade relations, whereby the shipowner provides a transport service and in turn requires certain means of production, such as ships, fuel and labour, in order to deliver these services. For these transport services, the shipowner receives a financial reimbursement. The data pertaining to export, import, and domestic spending and supplies, reveal that the Dutch shipping sector is highly internationally orientated. Approximately 73% of the services provided by shipping were exported; 15% involved deliveries within the shipping sector itself, for example the hiring of capacity. In 2012, deliveries to consumers, to other parts of the Dutch maritime cluster, and to other Dutch companies amounted to approximately 1%. Finally, there is a residual of approximately 10%, which pertains to inventorial effects and trade and transport margins.
If we look at the expenditures of the shipping sector in 2012, the total expenditure is 26% within the Dutch maritime cluster (of which 69% is within the shipping sector); 18% of the expenditures involve other Dutch products and services; and 55% pertain to the import of goods and services. There is seemingly a modest relationship with other sectors within the maritime cluster. However, if we not only consider the mutual deliveries but also the investments in capital goods, then the Netherlands shipping sector is accountable for nearly 15% of all shipbuilding deliveries (including export). The supply of shipbuilding to the shipping sector is in absolute terms the largest expenditure within the Dutch maritime cluster. Moreover, some of the mutual relationships are perhaps underexposed because, among the shipping sector's imported goods and services, there are (previously exported) Dutch product parts. This is for example the case if the Dutch maritime industry supplies components to foreign shipbuilders, which then in turn sells a ship to a Dutch shipowner. For shipbuilding and maritime suppliers, the Dutch shipping sector is an important, or indeed the most important, client within the Dutch maritime cluster.
- **Knowledge spillovers.** Knowledge spillovers occur if a company's knowledge improves the performance of another company without the company profiting from this knowledge having to pay for it. Knowledge spillovers consist of innovation and labour market effects:
 - The shipping sector benefits from innovation in, for example, shipbuilding and port transshipment activities. There is therefore an innovation-knowledge spillover to the shipping sector as requesting party. Shipping then functions as a pullfactor for innovation in other sectors. Conversely, the shipping sector, as supplier of innovation, is seemingly not especially important for the maritime cluster. In future, the shipping sector will also remain an important pullfactor for new innovations.
 - Of the annual outflow of employees from the shipping sector, approximately 45% find a new job in another segment of the maritime cluster. Offshore, dredging, ports and maritime service providers are the key 'customers' of these types of knowledge spillovers. The shipping sector, and its requisite preparatory education, is therefore important for the cluster, as this specialisation provides work for other maritime sectors. There is a shortage of well-educated seafarers. To all appearances, the present lack of available maritime knowledge will continue or even increase in the coming years.
- **Economies of scale.** Experts state that the maritime cluster as a whole generates economies of scale for itself and that sea shipping has a share in generating sufficient critical mass. The effects of scale are generally difficult to prove because they are included in the financial effects. This also applies to the shipping sector.

Spatial cluster relationships: proximity effects due to the presence of sea shipping companies; the fleet has little connection to Dutch ports

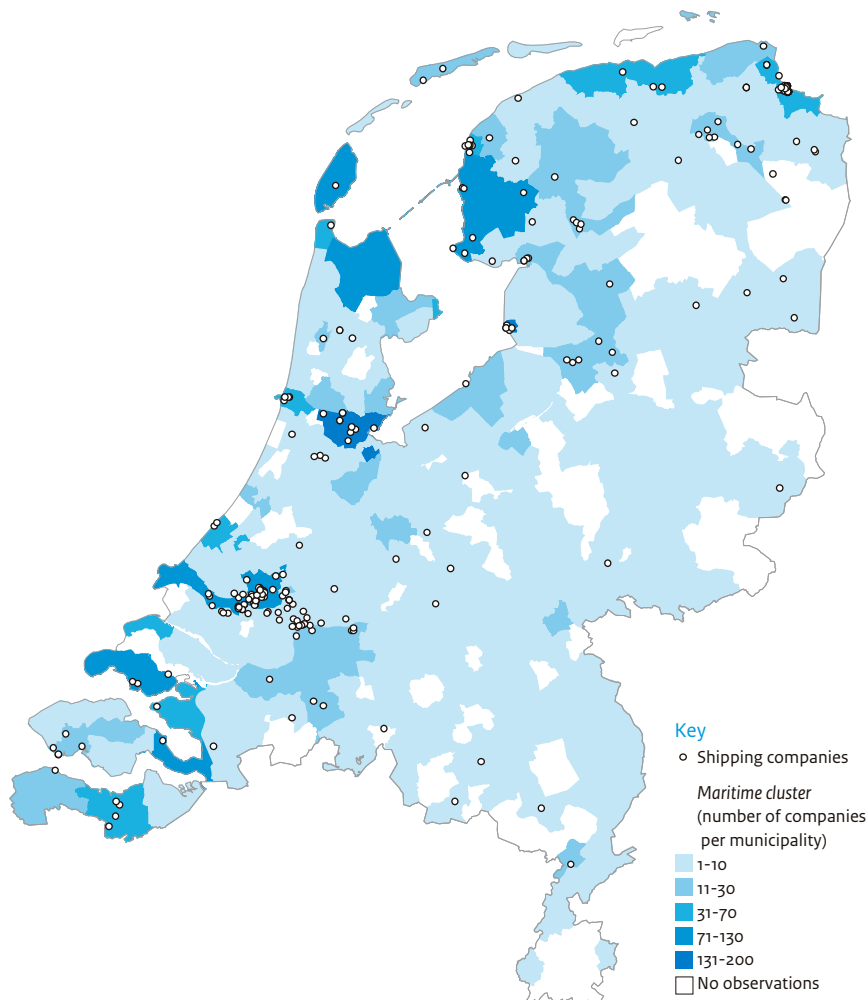
The proximity factor plays a role in the maritime cluster, either because proximity further bolsters the network cluster effects or because this factor generates agglomeration or image effects. The shipping sector's spatial connection to the Netherlands and the maritime cluster can be shown by the sailing patterns of Dutch ships and by the company locations of Dutch shipowners. Shipping is an atypical sector in that it operates daily on sea; only the shipping company offices are situated at specific locations.

The Dutch fleet is highly internationally orientated. The available statistics and the more qualitative research information do not indicate a unique position of the Dutch fleet for Dutch ports; the only possible exception to this is the short-sea sector, in which Dutch short-sea shipping companies claim a relatively large share of the market. Service provision, in terms of costs, and the reliability and

frequency of port calls, is determined by choices made by the shipper. Generally, the shipper's nationality plays no role.

Figure S.2 shows where shipowners and other maritime cluster companies are located in the Netherlands. It clearly shows that the shipping companies and other maritime cluster companies are situated in proximity to each other (especially in sea ports).

Figure S.2 Locations of shipping companies and other maritime cluster companies



Spatial concentration ensures that the network cluster effects are strengthened. The benefits of proximity for companies within the maritime cluster are part of the previously presented financial figures. The additional regional breakdown of these figures reveals that the ports in the Rotterdam area claim the largest share of the indirect effects of the shipping sector's expenditures. In addition, the key 'beneficiaries' of the shipping sector's economic effects are the other areas of Zuid-Holland and Brabant, Groningen and Noord-Holland. Therefore, an important share of the indirect effects (44%) arrive outside the port areas. This view is confirmed by maritime cluster experts who were consulted in the framework of this research project. In their expert opinions, immediate proximity particularly plays a role in daily operations, such as bunkering. On a strategic level, thus the non-daily operations, such as sharing knowledge and large investments, 'proximity' means that companies are situated within a 100 kilometre radius of each other.

In addition to the proximity benefits of the own maritime cluster, benefits may also be derived from an agglomeration with companies outside the maritime cluster. In such cases, the diversity found in the surrounding companies, especially in terms of knowledge and ideas, may also result in increased productivity for a company. Such companies could be other clusters, as well as service providers in areas of financing, administration and ICT support.

For Dutch sea ports and the Netherlands as a whole, shipping, the mainports and dredging are image-defining factors. Moreover, the Netherlands is increasingly regarded as a maritime cluster country. Shipping contributes to this overall image.

Future

The literature study - in combination with the expert session - does not indicate that one should expect a major shift in the role that the shipping sector plays for other sectors in the maritime cluster. There are however certain risks as well as opportunities:

- Measured in terms of added value and employment, the share of the shipping sector within the maritime cluster is limited. Nevertheless, as a purchaser of products and services from shipbuilders and maritime suppliers in particular, the Netherlands shipping sector is, in financial terms, important for the rest of the maritime cluster. It is expected that also in future shipping will perform volatily in terms of added value, as the sector is highly sensitive to international economic developments. The share of shipping purchases within the Dutch maritime cluster is therefore never a certainty.
- In terms of the shipping sector as an entity that requests innovation, it is important to know if in future Dutch shipping companies will make more purchases abroad. In such a case, the risk is also that innovation knowledge spillovers will no longer be generated in the Netherlands.
- The continuing presence of a satisfactory flow of ex-seafarers with specialised knowledge to jobs ashore is also a point of concern. A shortage has already existed for some time. This shortage is expected to continue, because the outflow of personnel due to retirement and the demand for specialised knowledge will ultimately only increase.
- With regard to the limited role of Dutch shipowners in the maritime transport network of Dutch ports, the colour of the flag does not matter. What matters are the costs and quality of the service provisions, such as the frequency of port calls. There is a spin-off for other Dutch sectors only when the running of an own fleet would also lead to lower costs and a higher degree of connectivity in Dutch ports.
- Due to developments in information technology ('death of distance'), information is far less place-specific; proximity is increasingly becoming a relative concept. The experts we consulted stated that the fact that virtually the entire Dutch maritime sector is situated within a 100 kilometre radius is sufficient for speaking of a cluster in proximity terms. This competitive advantage is important for the positioning of the Dutch maritime cluster.

Key points for shipping policy, specifically focused on the relationship with the maritime cluster

The presence of positive externalities, such as strengthening of competitiveness, is an argument for government involvement in cluster development. Our conclusion is that particularly the knowledge spillovers - thus the role of shipping as pullfactor for innovation and the availability of ex-seafarers for the rest of the maritime cluster - are key points for additional (new) policy:

- The shipping sector is a purchaser of products and services from shipbuilders and maritime suppliers, and as such serves as a spearhead for innovation and knowledge development in other maritime sectors. In addition to the direct benefits for the shipping sector (improved competitive position), the reduction of external effects (environment and safety) there are also positive externalities of innovations for the entire cluster. In addition to the trade relations within the maritime cluster, the government and industry face the challenge of ensuring that innovation initiated by the shipping sector remains permanently bound to the Netherlands. An example of this would be to consider playing a greater role in the creation or financing of innovative, environmentally-focused investments in sea-going vessels. Such action would also simultaneously contribute to sustainability policy.
- The education and supply of qualified seafarers is important in order to provide shipping, and the rest of the maritime cluster, with qualified personnel. In this sense there are direct benefits for the shipping sector but also positive externalities for the rest of the maritime cluster. Given that shortages exist,

the national government can contribute by encouraging people to enrol in shipping education. This primarily concerns the continuation of existing policy, with joining in the human capital-top sector policy as a logical step.

- The shipping sector contributes to the image and business climate of the maritime cluster and this will remain the case in future. At issue here are not per se the specific business locations in the Netherlands, but rather the Netherlands as a maritime region. It is therefore plausible that the national government has a role to play in monitoring and promoting this image and studying how the shipping industry can (remain) connected within the confines of a level playing field.
- The effectiveness of possible new policy directions for promoting business relationships within the maritime cluster by only improving the competitive position of the shipping sector is unlikely to be substantial, given the internationally orientated nature of the shipping sector. Although Dutch shipping is important for Dutch shipbuilders and maritime suppliers, a large share of the shipping sector's expenditures occur abroad. This does not alter the fact that the effectiveness of current policy focused on shipping sector's competitive position, particularly the fiscal instruments and labour market policy, has been substantial for the sector itself. Moreover, this policy is also focused on the promoting the offshore and dredging sectors, which play an increasingly important role within the maritime cluster. In addition, the traditional borders between the shipping, offshore and dredging sectors are vanishing.
- From the perspective of the maritime transport network of Dutch ports, the role of Dutch shipping is limited. Promoting the economic growth of ports is therefore also not a future argument for stimulating the Dutch shipping sector.