



EMCC case studies

Transport and logistics sector: Rotterdam cluster, the Netherlands

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The Port of Rotterdam in the Netherlands is the largest port in Europe, with transport and logistics companies from all over the world choosing to locate in Rotterdam. This is due to the port's extensive size and easy access to western and eastern European countries. The port is also linked to more than 1,000 other ports worldwide. Some 58,000 people are employed in the harbour in all areas of the transport and logistics sector. The port continues to experience growth rates of about 5% a year and in the first half of 2007 the port handled 196 million tonnes of cargo. Rotterdam Port is facing a number of challenges in the future, such as the lack of space for expansion in light of growing world markets, rising oil prices, a shrinking European labour force, as well as the goal of creating a clean and sustainable port.

Introduction

The Port of Rotterdam in the Netherlands is one of the largest ports in the world and by far the largest in Europe. Transport and logistics companies from all over the world choose to locate in Rotterdam because of the huge size of the port, the massive amount of goods going in and out of the port, the surrounding infrastructure and its localisation in the heart of western Europe. From Rotterdam, companies have easy access to no less than 450 million consumers in Belgium, France, Germany, Hungary, Italy, the Netherlands, Poland, Scandinavia and the UK.

Moreover, the Netherlands offers flexible labour market legislation, beneficial tax regulations for highly skilled workers and companies, and straightforward visa requirements which make it possible to import labour from abroad. Being located in the Port of Rotterdam makes it easier to engage in networks with other companies, consumers, suppliers and supporting sectors such as the oil and energy industries.

For the production – that is, shipbuilding – and the administrative centres of the companies, a counteracting trend is also apparent as information and communication technologies (ICT) diminish the importance of localisation. ICT makes it possible for a multinational shipping company to locate its headquarters in almost any city. So far, the Port of Rotterdam is not experiencing very strong competition from other west European ports. World trade is forecast to grow significantly over the next 10 years and the most pressing problem for the cluster of Rotterdam is how to accommodate the future growth in trade volumes.

Cluster development

The Port of Rotterdam is a seaport cluster located in the heart of Europe, more specifically the Rijnmond region of the Netherlands close to the North Sea. The port is located at the end of the Rhine and the Maas rivers, which are the most important inland waterways in Europe (Figure 1).

Figure 1: Aerial view of the Port of Rotterdam



Source: Google Earth

From high above, the Port of Rotterdam is a maze of waterways, roads, pipelines and railroads with huge ships coming in and barges moving out of the river system. Visiting the port from the ground is like driving in deep canyons or valleys of containers with long rows of heavy trucks transporting the containers to every part of Europe. Some 58,000 people are employed in the harbour in all areas of the transport and logistics sector, which means that almost one out of 10 persons in Rotterdam are directly employed at the port (Table 1). The port is linked to more than 1,000 other ports worldwide.

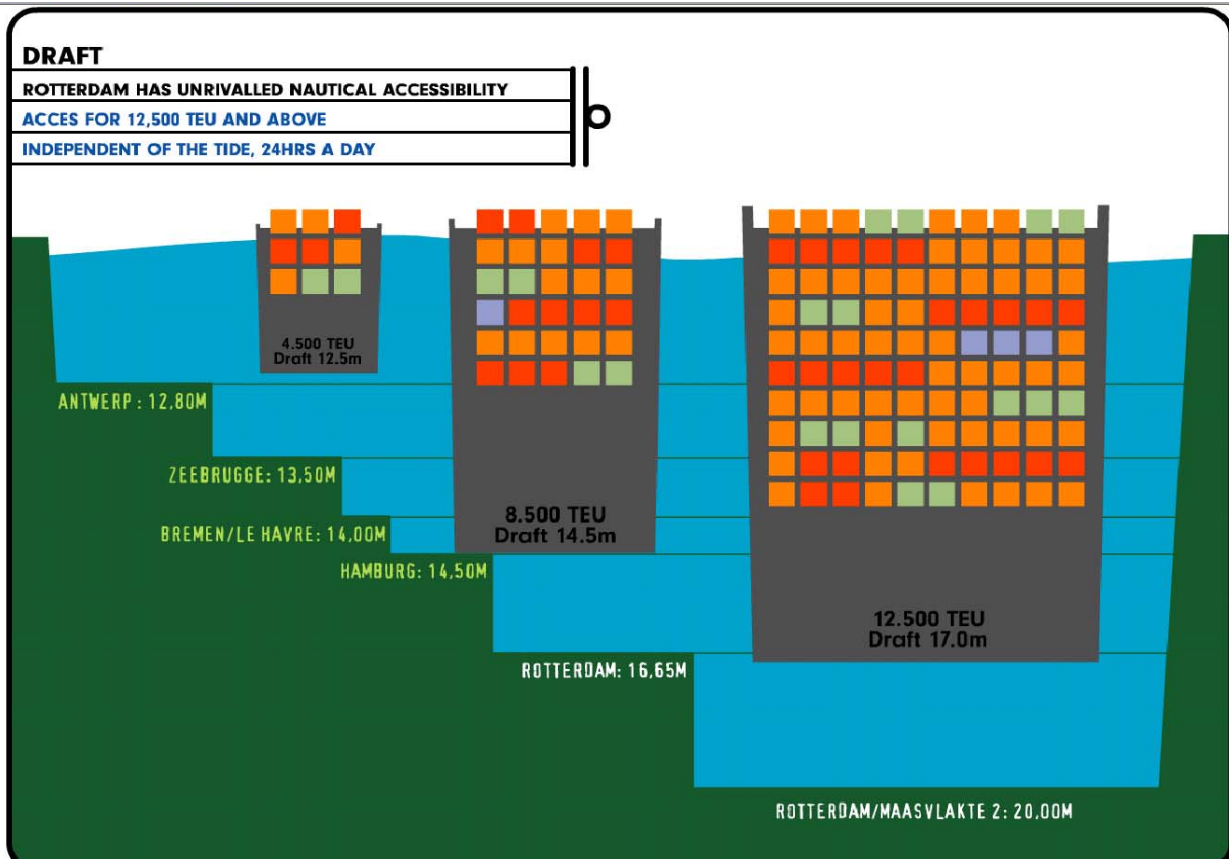
Table 1: General statistics on the Port of Rotterdam

Total port area	10,500 hectares
Port length	40 kilometres
Employment at the port	57,943 persons
Employment related to the port in the rest of the Netherlands	255,000 persons
Population of City of Rotterdam	590,000 persons
Population of Rotterdam Metropolis	1,200,000 persons

Source: [Port of Rotterdam Authority](#), 2005–2006

Rotterdam port is currently expanding into the North Sea. The planned 1,000 hectare extension of the port into the sea, [Maasvlakte 2](#), will be 20 metres deep and able to accommodate larger container ships than any other port in Europe. Figure 2 shows the importance of sea depths to the Port of Rotterdam.

Figure 2: Comparison of sea depths at various north European ports

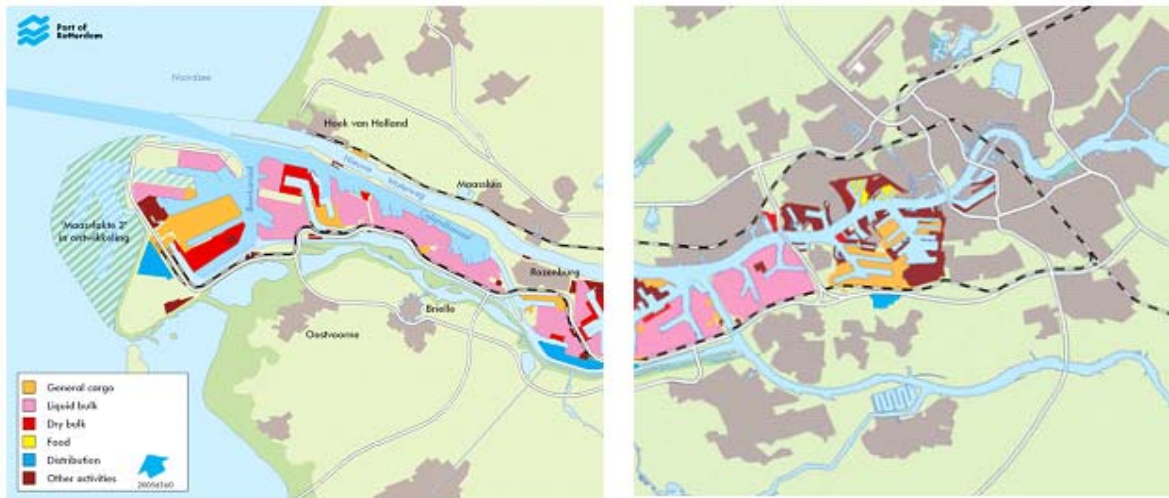


Source: http://www.maasvlakte2.com/mmfiles/070917_havendiepte_english_tcm81-13800.swf

Since the 14th century, the Port of Rotterdam has continuously grown and developed along the river from the city to the North Sea – and even into the sea (Figure 3). The Port of Rotterdam Authority illustrates the **development history of the port** on its website.

Up until 2004, Rotterdam was the busiest port in the world and hence a cluster study on the port is also valuable as an analysis of the globalisation effects on ports and the localisation of transport. The port is expected to continue to expand; the Port of Rotterdam Authority and Rotterdam Municipality have set out their future plans in **‘Port Vision 2020’**.

Figure 3: Map of the branches in the Port of Rotterdam



Source: http://www.portofrotterdam.com/en/facts_figures/port_maps/branches/index.jsp

The Port of Rotterdam itself is part of an even larger cluster of huge seaports located nearby in Antwerp in Belgium, Le Havre in France and Amsterdam in the Netherlands, and is not far from Bremerhaven and Hamburg in Germany. All of these ports are located at the end of the industrial export transport pipeline from central Europe to the rest of the world, and also facilitate the import of goods to European industries and consumers. A substantial part of world trade passes through these ports and the Port of Rotterdam is the largest of them (Table 2).

The ports of Shanghai and Singapore in Asia are now busier than the Port of Rotterdam, but the Dutch port is still experiencing growth rates of approximately 5% a year. Hence, in the first half of 2007, the port handled 196 million tonnes of cargo, corresponding to a growth rate of 4.2% compared with the first half of 2006.

Table 2: Largest ports in Europe, by cargo throughput

Port	Cargo throughput 2006 Gross weight (million tonnes)
Rotterdam	378.2
Antwerp	167.4
Hamburg	134.8
Marseille, France	100.0
Amsterdam/North Sea Canal Area	84.3

Source: *Port of Rotterdam Authority, 2006b*

The Port of Rotterdam is of paramount importance to both the Dutch and the European economies because it connects the oceans, surrounding seas and the hinterland. Transport by river barges, railway, lorries and pipelines makes it possible to reach most of continental Europe in a short time, short sea and feeder shipping connects Rotterdam with Scandinavia, the UK, Ireland and the Baltic states, while the ocean-going vessels connect Europe with important trading partners in the US and Asia. Moreover, the port offers a large range of logistics and support services.

Characteristics of a seaport cluster

A seaport cluster is a regional concentration of economic activities related to the arrival of goods and ships (de Langen, 2004), and this is certainly true of the area of Rotterdam Port. Seaport clusters like the Port of Rotterdam are particularly

interesting because port activities are more dependent on geographic localisation than other economic activities (de Langen, 2004). Hence, geographical conditions are the most decisive factor for the localisation of ports, although this does not exclude competition between areas with geographical conditions favourable for a port.

Clustering is more than a result of localisation of individual companies; it is also the result of political, economic and social institutions in the area – in terms of, for example, policy, legislation, labour supply and training – and the dynamics between various companies in the region.

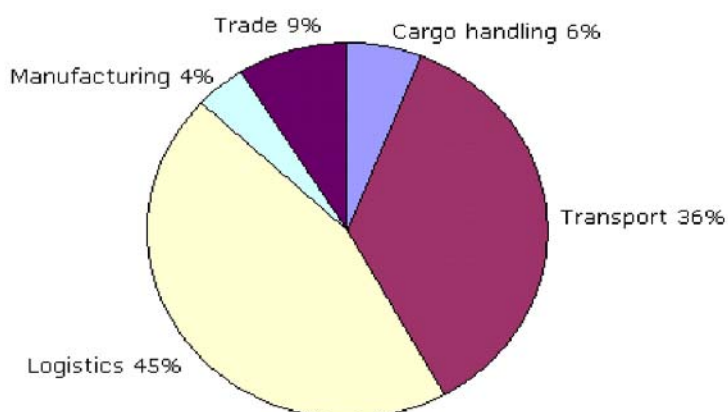
Peter de Langen at the Port of Rotterdam Authority has written a doctoral thesis on seaport clusters including that of Rotterdam. He summarises the clustering effects in the following way: ‘Skills, education, innovation, productivity and also sustainability reinforce each other in clusters; clusters have the potential to excel in these issues’ (de Langen, 2007).

Apart from various educational facilities such as the Netherlands Maritime University Rotterdam, Maasvlakte Maritime Training Centre and the Shipping and Transport College (STC), the port also has numerous other institutions working in its interests. Rotterdam has a port cluster association, **Deltalinqs**, representing more than 600 companies in the area, as well as the **Rotterdam Port Promotion Council** with 250 members and **Port infolink** working for the enhancement of information and communication technologies (ICT) at the port. Moreover, the Port of Rotterdam Authority is responsible for the public administration of the port.

Economic structure of the cluster

In 2002, some 3,550 companies were located in the cluster of the Port of Rotterdam and 87% of these enterprises were categorised as being involved in cargo handling, transport and logistics (Figure 4). Compared with the manufacturing sector of Rotterdam, which includes some large oil refineries, the transport and logistics companies are generally smaller in size.

Figure 4: Companies in Rotterdam Port cluster, by economic activity, 2002



Source: Bureau van Dijk, 2003, cited in de Langen, 2004, p. 97

The huge size of the Port of Rotterdam cluster also means that it attracts numerous companies whose primary activity is not transport and logistics but some other business which connects well with the transport and logistics sector. Hence, the Port of Rotterdam also hosts a cluster of energy companies and chemical companies, which now account for more than 50% of the revenue of the port (de Langen, 2004). Table 3 outlines the type of cargo that travelled through the port in 2002.

Table 3: Types of throughput in Port of Rotterdam, 2002

Commodity	Throughput (000 tonnes)
Dry bulk	83,427
Liquid bulk	155,925
Ro-Ro (roll-on/roll-off), that is, wheeled cargo (trucks)	9,669
Containers	65,849
General cargo	7,235
Total	322,107

Source: Rotterdam Municipal Port Management, 2003, cited in de Langen, 2004, p. 80

The Port of Rotterdam hosts a diverse set of companies and numerous multinational corporations have chosen to locate their headquarters in Rotterdam (de Langen, 2004). Moreover, the area has a number of leading companies spurring economic activities for other enterprises in the cluster; Table 4 outlines some examples.

Table 4: Leading companies in Rotterdam

P&O Nedlloyd	P&O Nedlloyd contributes expertise to the establishment of a port information system. The company also initiated the European Rail Shuttle, which is now the largest European rail container operator. Moreover, the company has contributed to the development of the Rotterdam transport education infrastructure.
Maersk/Sealand	Maersk is a leading partner in the European Rail Shuttle project and has been at the forefront of promoting deregulation in the Netherlands and the EU.
Europe Container Terminals (ECT)	ECT is an important container operator and is advanced in developing new terminal technologies. The company develops inland networks and is engaged in projects to reduce landside congestion at the terminal. However, ECT has now been taken over by a Hong Kong company.

Source: de Langen, 2004, p. 143; Nijdam, 2007

Environment

Sustainability is increasingly important for the Port of Rotterdam Authority. The authority, the port industries and the government try to reduce emissions of particles and noise, and to reduce air, water and soil pollution. The Port of Rotterdam Authority encourages the use of wind energy, industrial waste heat recovery and green power generation.

Concepts of cleaner technology and industrial symbiosis are being discussed. Mr de Langen (2007) explains:

'We aim to approach the ideal of an industrial ecology, which means that bi-products from one company are used in another and so forth. In this way, a coherent system is developed where different industrial plants are connected and resources, intermediates and utilities flow easily between all companies. This can be achieved by investing in infrastructure such as pipelines that connect the companies in the chemical cluster.'

The environment plays an important role in the Maasvlakte 2 project, and 'Clean port' is one of six targets in Port Vision 2020.

According to the [Port of Rotterdam Authority website](#), a clean and sustainable port is important to attract companies: 'No company would seriously consider a location in polluted surroundings.' (Port of Rotterdam Authority, 2007c).

Localisation strategy

Size of the port and potential markets

A decisive factor for localisation in the Port of Rotterdam is the size of the port and its infrastructure (Nijdam, 2007). Although some Asian ports are now larger than the Port of Rotterdam, companies transporting freight that has to move through Europe will find it compelling to locate in Rotterdam simply because of the range of services available and number of business partners.

Moreover, Rotterdam is located centrally in Europe with relatively short distances to most of continental Europe and the UK. The combination of being located between the North Sea, which is the most navigated sea in the world, and Europe with its 450 million consumers also adds to the favourable conditions of being located in Rotterdam.

Textbox 1: Localisation decisions of Stolt-Nielsen Transportation Group B.V.

The multinational company Stolt-Nielsen Transportation Group B.V. is one of the largest parcel tanker operators in the world; parcel tankers are fitted to segregate a large number of products. Stolt-Nielsen Transportation Group B.V. was founded by a Norwegian and had its headquarters in Connecticut, US, up to 2005 when it was decided to move to Rotterdam. The decision to move from the US to Europe was primarily related to the increasing business with Asia. Placed between the US and Asia, Europe as a localisation has the advantage of time zones which makes it possible to communicate with Asia in the morning and the US in the afternoon. Rotterdam was chosen as the most favourable destination within Europe because of the size of the port, the flexible labour market legislation, visa requirements and tax regulations.

Source: *Website of Stolt-Nielsen Transportation Group and interviews with Human Resources (HR) Director, Anke Shouten, and Relationship Manager, Steve Kretsch.*

Downsides also emerge, however, regarding Rotterdam as a location: demand for land is high and congestion issues are on the rise. One example of this experience is the Waalhaven Group B.V. located in Rotterdam. The company is now developing outside the Port of Rotterdam because of land prices, more room and better access to infrastructure. This development has attracted new customers to the Waalhaven Group.

Textbox 2: Waalhaven Group B.V. expands outside the Port of Rotterdam

The logistics company Waalhaven Group B.V. specialises in operating container terminals and intermodal transport. The first tri-modal terminal has been established with Barge and Rail Terminal Born in the town of Born in the southernmost Dutch province of Limburg. The tri-modal terminal was located in Born, 200 km away from Rotterdam, due to greater availability of space, cheaper land and better access to infrastructure.

Figure 5 is an aerial view of the Waalhaven Group's tri-modal terminal. The area has been extended to include the fields further behind in the photograph.

Figure 5: Aerial view of the tri-modal terminal, Born



Source: *Overdevest*, 2007

Intermodality and infrastructure

In order for a port to be attractive in terms of localisation, it is also paramount that the area offers an effective infrastructure and that it is easy for shipping and logistics companies to shift between different modes of transport according to needs and cost-effectiveness. The Port of Rotterdam offers inter-modality between sea-going vessels, inland-going vessels, pipelines, rail and road. It is crucial to facilitate getting the freight from the port into hinterland Europe or by short sea shipping to the UK and northern Europe, and vice versa.

Textbox 3: Sea-rail hub

Every week, 300 railway shuttles link the Port of Rotterdam with central European destinations such as Belgium, France, Germany, Hungary, Italy, Germany, Poland and Slovakia. The 160 km rail freight connection from the Port of Rotterdam to Germany was opened in 2007, and the EU has currently decided to support the further development of this 'Betuwe Route' (named after the central Dutch district through which it passes) with funding of €5 million to extending the line to Poland. The total estimated amount of EU contributions is €136 million.

Source: *Website of the Betuwe Route*, 2007

Competitive position in a global economy

Globalisation and liberalisation of the world economy imply increased fragmentation of production, and hence airports and seaports are vital in securing the increasing world trade. The Port of Rotterdam and the other large European ports are expected to experience high growth rates over the next five to 10 years, although differences arise for the various ports located in the Hamburg–Le Havre axis.

The growth of the Port of Rotterdam is mainly based on increasing container traffic, whereas the Port of Hamburg is the largest in terms of handling goods from China, and the Port of Antwerp handles the largest volume of trade with Singapore and the US.

Offshoring and outsourcing

The shipyards of the Port of Rotterdam are disappearing and most ships are now being built in China where the costs of labour, land and utilities are cheaper. However, mostly economic activities with low added value are relocated in Asia or eastern Europe.

Michiel Nijdam is a lecturer in transport and port economics at the Department of Regional, Port and Transport Economics, Erasmus University, and has wide research knowledge of port economics and particularly the Port of Rotterdam. According to Mr Nijdam (2007), the consequences of moving production for the labour force vary according to the time perspective. Relocating shipyards in China has serious short-term consequences for European workers in the shipbuilding industry. However, Mr Nijdam notes,

'Recently we had a big shipyard going bankrupt because of competition from China, but most of the workers got new jobs. In the last five years, ships for dredging and offshore companies have been built in the re-opened shipyard in Rotterdam. These more advanced vessels are being built here and people working there are earning much more money.'

Hence, the shift of production might have a positive impact on a majority of the shipyard workers in the long term. The offshoring trend also reveals that the economic activities of the Port of Rotterdam are becoming increasingly specialised.

External relations

One of the advantages of being located in a cluster can be the vast opportunities to engage in networks with universities, training suppliers and other companies (de Langen, 2004; Nijdam, 2007). Enterprises mostly engage in relations with their customers or suppliers and to some extent also with research institutions and suppliers of labour. Hence, the role of the cluster institutions, such as Erasmus University, mostly has an indirect impact by monitoring the cluster and gathering knowledge (Nijdam, 2007).

According to Mr Nijdam, the port provides a beneficial business climate with a good supply of skilled labour, utilities, infrastructure, moderate taxes and transparent environmental legislation.

Experience and innovation

Employees as a source of knowledge

Looking at the example of the multinational company Stolt-Nielsen Transportation Group, its employees are the main source of know-how, and hence it is vital for the company to capture the experience of the personnel. In order to utilise this staff knowledge, the management emphasises that it should be systematically organised, for instance by using ICT.

Incremental innovation

Innovation in the cluster is primarily an incremental process where existing technologies are steadily improved and enhanced. However, the Port of Rotterdam is a good test case for new technology because so many different companies and materials are at play. Often the materials used in the Port of Rotterdam need to be stronger than required elsewhere. For instance, stevedore companies need much stronger steel than other industries, and hence a test on a stevedore company is a good test of a new type of steel (Nijdam, 2007).

Profile of the workforce

The labour market environment at the Port of Rotterdam offers high flexibility for companies to hire and fire workers, while also providing a safety net for the workers if they are made redundant or fall ill (van Welzen, 2004).

In 2005, some 57,943 people were directly employed in port-related work at the Port of Rotterdam, ranging from stevedores to public employees in the Port of Rotterdam Authority and seafarers (Port of Rotterdam Authority, 2006b). Table 5 shows the distribution of employment over a four-year period.

Table 5: *Areas of direct port-related employment, 2002–2005*

	2005	2004	2003	2002
Loading/unloading (stevedore work)	5,441	5,741	6,558	6,524
Transport	14,421	14,422	13,879	13,503
Storage and distribution	2,559	2,634	2,701	2,751
Intermediates (chemical processing substances)	7,784	7,671	8,133	8,094
Transport-related services	5,817	5,204	5,807	6,001
Port industries	13,608	14,391	15,049	15,536
Public authorities	4,926	5,384	5,271	4,802
Other	3,387	3,292	3,280	2,816
Total	57,943	58,739	60,678	60,027

Source: *Port of Rotterdam Authority, 2006b*

Disagreement arises as to whether the Port of Rotterdam will experience labour shortages in the near future. Currently, a lack of seafarers is evident in Europe and there seems to be a tendency for Europeans to be less willing to take a classical seafaring job (European Commission, 2007c, p. 3). In western Europe, the workforce is shrinking but this might be accommodated by the import of labour from the new EU Member States. In a 2007 interview, the Managing Director of Waalhaven Beheer (Barge Centre), Jan Overdeest, surmises:

‘The shrinking workforce might turn into a problem in some years, but I expect the enlargement of the EU to include the Czech Republic and Poland could be a solution. But of course there would then be a language barrier – and also some additional training might be necessary.’

Training

Large variations emerge between companies in the type and quantity of training they offer to their employees and this largely reflects qualitative differences among enterprises. Some of the factors that influence the training needs and choices of a company in the cluster are the globalisation of the company and the type of goods that it transports. The following examples illustrate the diverse training requirements.

Verenigde Tankrederij: VT transports chemicals, heavy fuels and lubricants, which are all hazardous goods. Therefore, safety demands are very strict and the company sends its staff away for training three weeks a year. The training is arranged in cooperation with the Shipping and Transport College (STC). Besides environmental learning, the staff are trained in languages, ICT and technical issues. The company has 200 employees.

Waalhaven Beheer: Workers from Waalhaven Barge Centre are truck drivers, train drivers and workers handling containers. Handling 70–100 tonne heavy containers takes special training. Skilled workers are recruited but most need about one week of training before being ready to handle the containers. Usually workers are trained in-house but certification is provided from outside.

Stolt-Nielsen Transportation Group: Stolt-Nielsen has 4,700 employees, 3,500 of whom are out on the sea. Since the company is international in terms of workforce and economic business, international suppliers – often in Asia – train the employees. According to the company, training in the Netherlands is too nationally focused, whereas the company needs its staff to have an international profile.

STC is the most widely used Dutch supplier of vocational education and training in the transport and logistics sector. The college provides pre-vocational (*voorbereidend middelbaar beroepsonderwijs*, VMBO) and secondary vocational education (*middelbaar beroepsonderwijs*, MBO) in fields such as port management, inland shipping, transport and logistics. The Dutch Ministry of Education, Culture and Science (*Ministerie van Onderwijs, Cultuur en Wetenschap*, **OCW**) has acknowledged STC as the only Dutch specialist institution providing education and training for the shipping, transport and logistics industries.

Every year, 500 students participate in the pre-vocational programmes at STC while 3,000 undertake the secondary vocational programmes. STC also cooperates with Rotterdam University, the Nautical University and the Netherlands Maritime University Rotterdam in providing higher level education in maritime and shipping issues.

Future developments and organisational changes

Several different developments are taking place currently and in the near future which will have significant implications for the workforce in the Port of Rotterdam area. Overall, two important trends can be identified in this respect. Firstly, ICT is changing the organisation of work and the competencies demanded from the workforce. Secondly, the supply of labour is becoming more global.

New organisation of work and new competencies

The organisation of a shipping company, for instance, is slowly changing as a result of ICT and globalisation. ICT enables the administrative centre of a shipping company to be in direct contact with the captain offshore and with customers. Likewise, the customers can often monitor their goods as they move around the world. Thus, relations between the ship, administrative centre and customers are all changing.

Textbox 4: New relationship between customer and company – the Ship2Report

Verenigde Tankrederij B.V., also known as VT, is a 75-year-old company specialising in the transportation of heavy fuels, petrochemicals, lubricants and bunkering (heavy fuel oil). By using the ‘Ship2Report’ system, the company has made it possible for clients to follow all ships in real time on a map and access detailed information on the ship and its operations. Messages can be given directly to captains by email. The Managing Director, Niels Groenewold, explains:

‘Ship2Report means that we can be ready with bunker oil when ships get into harbour and the coordination is much better than before. Time is money to our clients.’

According to Mr Groenewold, the crew was initially reluctant to embrace the new ways of monitoring work on board, but today the new technology is accepted and even perceived as a handy tool.

Sources: [Royal Dirkzwager \(1.3Mb PDF\)](#) and interview with Mr Groenewold, 2007

In the case of Ship2Report, the new technology has wide implications for the relationship between the company and the customer. However, ICT is also changing the work organisation on board the vessels because seafarers increasingly need to be able to apply ICT and communicate directly with customers.

Textbox 5: Changing nature of work on the vessel – from deck to desk

As ICT moves onto ships, it is becoming possible to control more onboard. Meanwhile, much of the physical work has become or is becoming automated. Therefore, the modern captain is not just an expert on the sea and the ship but also expert in using ICT to communicate with the rest of the company and customers.

The Rotterdam company VT has already placed cameras on all of its vessels. This means that customers can now see what is happening on the ship. It also means that, in the future, the captains will be able to do some of the ship management which is currently taking place on shore.

Undoubtedly, ICT is growing in importance. HR Director Anke Shouten from Stolt-Nielsen Transportation Group explains that the future captain will need some entirely new management skills:

'A ship crew is normally controlled by a strict hierarchy with the captain at the top, but the future captain might also need to communicate with other parts of the company and customers, and then the classical hierarchy is not in place any more – the modern captain needs new tools for managing the work.'

ICT also changes the organisation of work at the administrative centre of a company like VT or Stolt-Nielsen. The HR departments are responsible for training and retraining staff with new competencies for communication and work organisation. New demands concerning ICT and language skills have to be addressed. Moreover, the company management and HR departments need new organisational strategies both internally in the company and for external communication with customers.

Global labour supply

The pool of labour is becoming wider due to globalisation, migration and ICT. In an era where seafarers are in short supply, the ability to recruit east European or Asian labour is an advantage for the multinational companies in the transport and logistics sector. However, the globalisation of the labour pool also has significant implications for high-skilled labour in Europe: workers are increasingly competing with high-skilled labour from the Middle East or Asia.

For the EU, this means that political attention needs to focus on the availability and employability of European labour if Europeans are not to lose ground to highly skilled Asians. The Dutch government has addressed this challenge by making favourable tax agreements for high-skilled labour in addition to more flexible visa requirements for high-skilled non-Europeans in order to accommodate business demand. Combined with flexible labour market legislation, this means that the Port of Rotterdam and the Netherlands have competitive advantages compared with countries like France and Germany in attracting and retaining high-skilled labour.

The globalisation of labour supply also has implications for companies in terms of recruitment. On the one hand, the total pool of high-skilled workers has increased but, on the other hand, so has international competition for this much needed labour. Hence, a multinational shipping company such as Stolt-Nielsen Transportation Group may be located in Rotterdam but it may also have to accept that one high-skilled employee might want to live with his or her family in Dubai, while another would never dream of leaving the Netherlands.

Textbox 6: Company recruitment strategies in the context of a global labour pool

'The globalisation of labour is a paramount issue for multinational companies. For critical labour with a higher education background, our labour pool is global and we have to take that into account in our recruitment strategies. Remuneration packages and labour regulations are very different across national borders but for the critical labour it is often other issues we have to deal with in terms of recruitment. We are still experiencing and testing our recruitment strategies under the conditions of a global pool of labour. We need to think of new ways of recruitment, new ways of paying wages.'

Source: Interview with Mr Shouten and Mr Kretsch, Stolt-Nielsen Transportation Group

Future challenges

A number of challenges to the Port of Rotterdam and its companies have been identified. These are described under the following headings.

Fair competition

In Europe, policy at EU level is the setting for addressing issues of fair competition and legislation among European ports (European Commission, 2007b). However, even if much general legislation stems from the EU, considerable national variations still arise in the implementation and transposition of legislation related to seaborne transport and logistics. This diversity poses a challenge for the many transport and logistics companies of Rotterdam because most of them have to navigate across several borders. According to the European Commission, a vessel travelling across borders is subject to much more complex and time consuming regulations than a truck (European Commission, 2007b, p. 8).

As regards international competition and the regulation of labour, the European Union has asked its Member States to ratify the **Maritime Labour Convention 2006** of the International Labour Organisation (**ILO**) before 2010 (European Commission, 2007c).

Growth in world trade and lack of space

A total of 90% of Europe's trade with other continents is carried out by ship; thus, the ever increasing world trade has huge implications for the demand for shipping. Moreover, increasing globalisation and economic growth also has an impact on intra-European shipping or short sea shipping. The most important challenge for the Port of Rotterdam is how to accommodate the massive growth in trade flowing in and out of the port in the future. Mr Overdeest from Waalhaven Beheer (2007) notes:

'This year we have seen a 30% growth in turnover. I think the challenges of the future will be the environment and congestion. Politicians will be unwilling to invest further in infrastructure and it is difficult to find the room for it. On top of that, energy prices are rising.'

The problem for the Port of Rotterdam is the general lack of space in the area around the port, and the corresponding lack of physical space for the expansion of inland transport. There is no room for containers, terminals, roads and railways, and this problem will affect most of the companies located in Rotterdam. Mr Nijdam (2007) states:

'Companies are complaining a lot about the non-existent solutions to the problem, but until now no politicians have addressed it. The port authority will probably be the first to deal with the issue. The solution for this will have to be at national level, but if nothing happens it can affect all of Europe because the Port of Rotterdam is used as a European gateway for goods from the rest of the world.'

However, the EU has addressed the issue and put forward a common ports policy (European Commission 2007a; European Commission, 2007b, p. 8).

Oil prices

Oil prices are expected to continue to rise and this will have significant consequences for the shipping industry, which is highly dependent on crude oil. Most ships and barges still use diesel fuel and consequently there is room for both economic and environmental improvement in this regard.

Creating a clean and sustainable port

Environmental issues are becoming more important both at political level and for business (European Commission, 2007a; European Commission, 2007b, pp. 7–8). The transport and logistics sector is highly dependent on fuels and is a serious offender regarding emissions of carbon dioxide (CO₂), nitrogen oxide (NO_x) and sulphur dioxide (SO₂). The political attention to CO₂ emissions is also now being felt in the shipping sector, as emissions from ships had been sidelined for a long time. However, the European Maritime Policy has addressed the issue of maritime transport's impact on the environment and, at the 2007 Bali Climate Conference, emissions resulting from marine bunker fuels were also addressed (SBSTA, 2007).

The increasing importance of global competition also means that political and regulatory issues have to be dealt with at a higher political level. Mr de Langen (2007) explains that some regulatory issues – such as pollution from ships and maritime safety – cannot be dealt with at merely European level because shipping is a global industry.

Shrinking workforce

In terms of demography, the shrinking west European workforce is an important trend which is forecast to be even more significant over the next 10 years. However, for the companies experiencing a diminishing workforce, the solution becomes easier with increasing globalisation and the enlargement of the EU. Companies will hire east European or Asian workers instead of west Europeans and in the long run not only for positions such as seafarers and port workers but also, for instance, as high-skilled economists working in a multinational company and even chief executive officers (CEOs).

Asian work culture

According to the multinational company Stolt-Nielsen Transportation Group, an important change as regards the workforce is the changing corporate culture. Today, most multinational companies might have Asian employees but the management is predominantly Western, and consequently the company culture is closer to Western traditions and ways of doing things – such as the ways of doing business, working, and interacting with customers and colleagues. However, Mr Shouten can see that this is starting to change:

'Suddenly there is an Indian CEO who is just as brilliant as any European CEO. The issue for Europeans will then be to adapt to the Asian way of doing things rather than the opposite. This poses a big challenge for Europeans because they are less willing to adapt than Asians are.'

New technologies

Technologies are changing rapidly and with an impact on most economic sectors. The seaport cluster of Rotterdam has already been affected fundamentally by technological changes: ICT has led to everyone now using mobile phones and computers, and much physical work on ships and ports has been automated. Rapid technological development is likely to continue during the coming years with new forms of ICT implying pervasive computing, radio-frequency identification (RFID), nanotechnologies and other innovations. Some of the interviewees for this study doubt that major technological changes can be forecast in the next five to 10 years since shipyards are fully booked and the ships are already designed (Groenewold, 2007). However, this view contradicts the common experience that competition will introduce technological change, and fully-booked shipyards will be looking for ways to improve productivity.

RFID technology

RFID technology makes it possible to place small electronic tags on various goods, machines and other products, and thereby tracking them. The tag contains information about the product and its history. RFID technology is not new, but the technological refinement of it has made it more cost-effective. Currently, RFID technology is still very costly and is likely to be further refined. Therefore, the international transport and logistics company Samskip B.V., for example, has decided to postpone the application of RFID until the price has fallen and the quality improved (Interview with Samskip Chief Operations Officer, Paul Swaak, 2007).

From another perspective, Mr Nijdam (2007) explains how being in a cluster can help the advancement of a technology like RFID. The car-handling company Broekman from the Port of Rotterdam has showed other companies a successful experiment of large-scale application of RFID technology. Thus, being in a cluster has been an advantage because several companies have now seen an implementation of RFID technology and it is possible to call Broekman to ask for help regarding this innovation.

Contact details

Companies and organisations interviewed

Company name: Stolt-Nielsen Transportation Group B.V.

Interviewees: Anke Schouten, Human Resources Director; Steve Kretsch, Relationship Manager

Website: <http://www.sntg.com>

Address: Westerlaan 5, Haven No. 190

3016 CK Rotterdam

Country: Netherlands

Phone: (31-10) 299 66 66

Email: Anke Shouten: asc@sntg.com

Steve Kretsch: ssk@sntg.com

Company name: Verenigde Tankrederij (VT) B.V.

Interviewee: Niels Groenewold, General Manager

Website: <http://www.vtr.nl>

Address: Nijmegenstraat 1, 3087 CD Rotterdam

P.O. Box 59005, 3008 PA Rotterdam

Portnumber: 2181A

Country: Netherlands

Phone: (31-10) 487 62 00

Email: vt@vtr.nl

Company name: Waalhaven Beheer (Barge Centre) B.V.
Interviewee: Jan Overdeest, Managing Director Waalhaven Group
Website: <http://www.waalhaven-group.nl>
Address: Waalhaven West Zijde 62
3089 KR Rotterdam
Country: Netherlands
Phone: (31-10) 428 74 81
Email: Secretary Marjan van Heezik: mvheezik@waalhaven-group.nl

Company name: Samskip B.V.
Interviewees: Paul Swaak, Chief Operations Officer
Johan van Zeelt, Human Resources Director
Website: <http://www.samskip.com>
Address: Waalhaven O.Z. 81
3087 BM Rotterdam
Country: Netherlands
Phone: (31-88) 400 15 00
Email: Paul Swaak: paul.swaak@samskip.com
Johan van Zeelt: johan.van.zeelt@samskip.com

Organisation name: Erasmus University
Interviewee: Michiel Nijdam, Researcher and lecturer in Transport and Port Economics, Department of Regional, Port and Transport Economics
Website: <http://www.porteconomics.nl>
Address: Burgemeester Oudlaan 50
3062 PA Rotterdam
Country: Netherlands
Phone: (31-10) 408 14 10
Email: mnijdam@few.eur.nl

Institution names: Port of Rotterdam Authority/Erasmus University
Interviewee: Peter W. de Langen
Websites: <http://www.portofrotterdam.com>, <http://www.porteconomics.nl>
Address: Port of Rotterdam Authority (Havenbedrijf Rotterdam N.V.)
Human Resources department
Postbus 6622
3002 AP Rotterdam
Country: Netherlands
Phone: (31-10) 252 20 83
Email: pw.langen@port.rotterdam.nl

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Organisations

Dutch Ministry of Transport, Public Works and Water Management (*Ministerie van Verkeer en Waterstaat*)

Erasmus University

European Transport Workers' Federation

International Commission on Shipping

Labour Foundation (Stichting van de Arbeid)

National Port Council (Nationale Havenraad)

Netherlands Maritime University Rotterdam

The Port of Rotterdam Authority

Rotterdam Harbour Training Centre

Rotterdam Municipal Port Management

Shipping and Transport College

Stig Yding Sørensen, Josina Moltesen and Jens Henrik Haahr, Danish Technological Institute (DTI)