THEMATIC REPORT

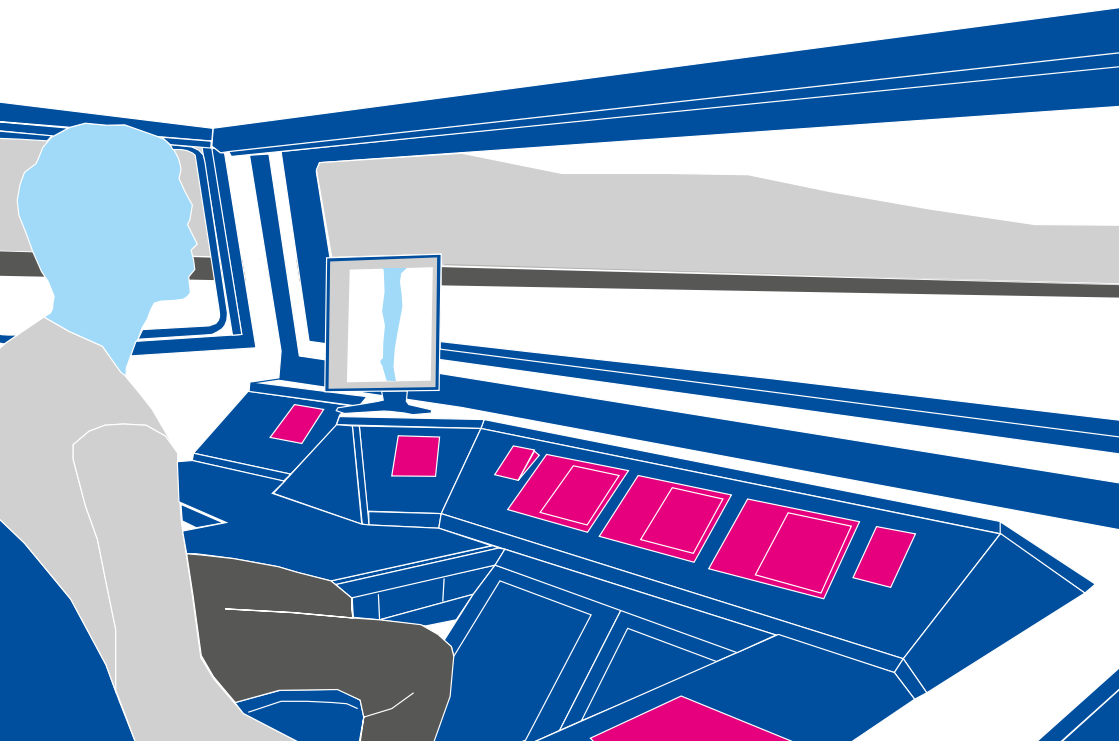
THE EUROPEAN INLAND NAVIGATION SECTOR LABOUR MARKET

PUBLISHED IN

FEBRUARY 2021

European Commission

CCNR
CENTRAL COMMISSION FOR THE NAVIGATION OF THE RHINE



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EXECUTIVE SUMMARY

The Central Commission for the Navigation of the Rhine (CCNR), in partnership with the European Commission, publishes annual and biannual reports dealing with the European inland navigation market. Thematic reports are now also published and cover certain aspects of the inland navigation market.

The monitoring of labour market indicators in a given sector is particularly relevant to assess the situation of human capital in this sector and its future development. Human capital is one of the most important resources and a fundamental precondition for a high-quality performance and economic growth of a sector. Given that no report providing detailed data on this topic at the level of the European inland navigation sector is currently available, it was decided to draft a thematic report with the objective of improving knowledge and information about the European inland navigation sector labour market.

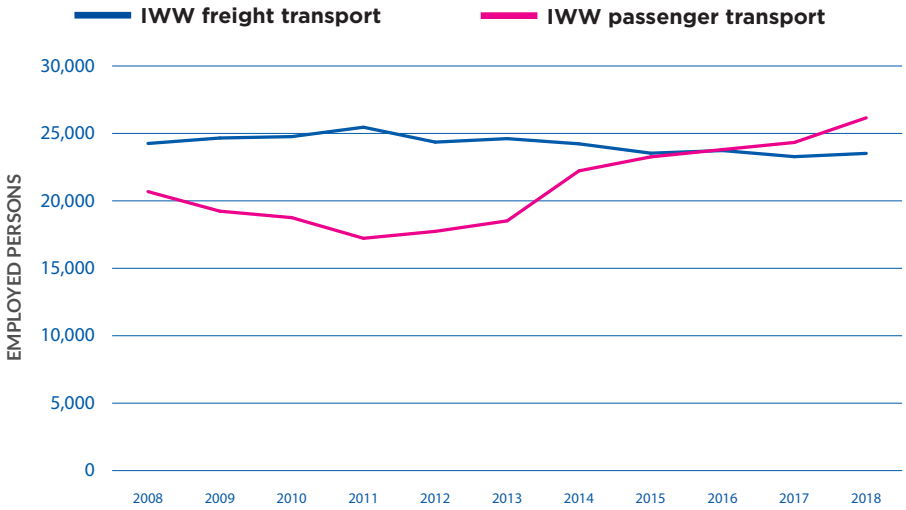
When investigating all possible sources (statistical offices, employment administration, social security organisations, waterway administrations, ministries of transport and of labour, etc.), detailed data about employment and labour market conditions in inland waterway transport were found. However, given that several sources of data sometimes exist for one and the same country, data might be more or less different for the same country depending on the source used. This is mainly because different methodologies are used by different organisations. In this report, priority was given to the sources which appeared to be the most reliable.

The reliability of datasets from service record books or certificate of qualifications is often rather low. In that regard, the “European Crew Database” (ECDB) which is expected to be operational by mid-January 2022, should be of great added value to enhance the monitoring of employment indicators in the European inland navigation sector.

Based on quantitative data and qualitative information collected in the context of this report, the following main conclusions can be highlighted.

In inland waterway (IWW) passenger transport, employment increased in recent years, in particular due to the boom in river cruising. The growth in employment at the level of the whole EU was 26% between 2008 and 2018. Employment in IWW passenger transport reached 26,156 persons in 2018 and has overtaken IWW freight transport (23,520 in 2018) in terms of employment in the years 2015/2016.

FIG.1: **EMPLOYMENT IN INLAND WATERWAY PASSENGER TRANSPORT AND IN INLAND WATERWAY FREIGHT TRANSPORT IN THE EU**



Source: Eurostat (sbs_na_1a_se_r2)
Employment = Self-employment, employees and helping family members

This positive trend in IWW passenger transport employment is present in Rhine countries (e.g. Germany, Switzerland), Danube countries (e.g. Austria, Hungary, Romania) and also for Italy.

In IWW freight transport, the overall employment trend - with regard to the degree of employment - was rather negative in central and eastern Europe. This trend is demonstrated in the present report

by means of available data for Austria, Croatia, the Czech Republic, Hungary and Slovakia. For Romania, the largest IWW Danube country, the employment trend was found to be more positive. For western European countries, the employment trend in freight transport has not been positive over the last ten years. However, whether it was really decreasing or rather at a constant level largely depends on the database being examined.

Evidence shows that one main explanation for the negative employment trend in IWW freight transport in central and eastern Europe could be due to an overly low wage level. According to official figures, the average monthly gross wage in the water transport sector in the Czech Republic was 872 Euro in 2017, thereby 16% lower than the average wage level in the Czech transport sector and 23% lower than the average wage level in the whole Czech economy. In the Hungarian IWT sector, the average monthly earnings for IWT workers amounted to 602 Euro, which was about 29% below the average wage level in the entire Hungarian economy. In Serbian IWT the wage of IWT workers was 616 Euro in 2019.

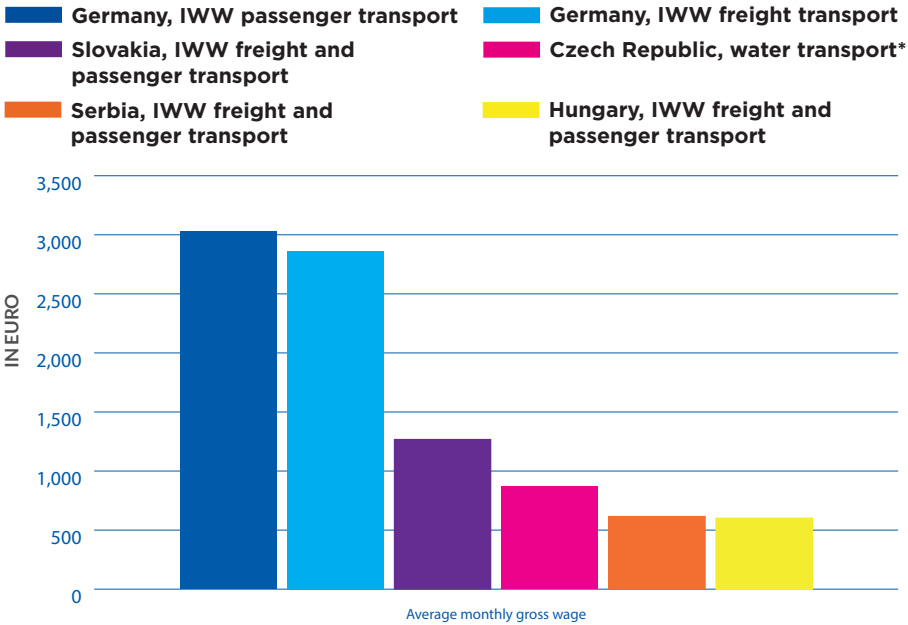
Compared to the wage level in western Europe, wages in eastern Europe are very low: the monthly gross median income for full-time IWW workers under the social security regime in Germany was 2,780 Euro in IWW freight transport in 2017 and 2,917 Euro in IWW passenger transport. Even if one takes into account the possibility that actual wages might be higher than the wages as stated in the official figures, it can be assumed that there is a significant wage gap between central and eastern Europe on the one hand, and western Europe on the other hand. This is confirmed by statistical data on the level of personnel costs per employee per country in the EU.

According to Eurostat figures[1] the seven countries with the lowest personnel costs per employee in IWT in the EU are (in ascending order regarding the cost level): Bulgaria, Serbia, Croatia, Romania, Czech Republic, Hungary, Poland. Personnel costs per employee in German IWW freight transport are around three to five times higher than in these countries, which matches approximately the relationship between wages from national wage data as shown in figure 2.[2]

[1] *Structural business statistics [sbs_na_1a_se_r2]*

[2] *See also: Inland navigation in Europe, Market observation, annual report 2020: https://inland-navigation-market.org/wp-content/uploads/2020/09/CCNR_annual_report_EN_2020_BD.pdf, page 125*

FIG.2: **AVERAGE MONTHLY GROSS WAGES FOR EMPLOYEES WORKING IN IWW FREIGHT AND IWW PASSENGER TRANSPORT PER COUNTRY IN EUROPE**



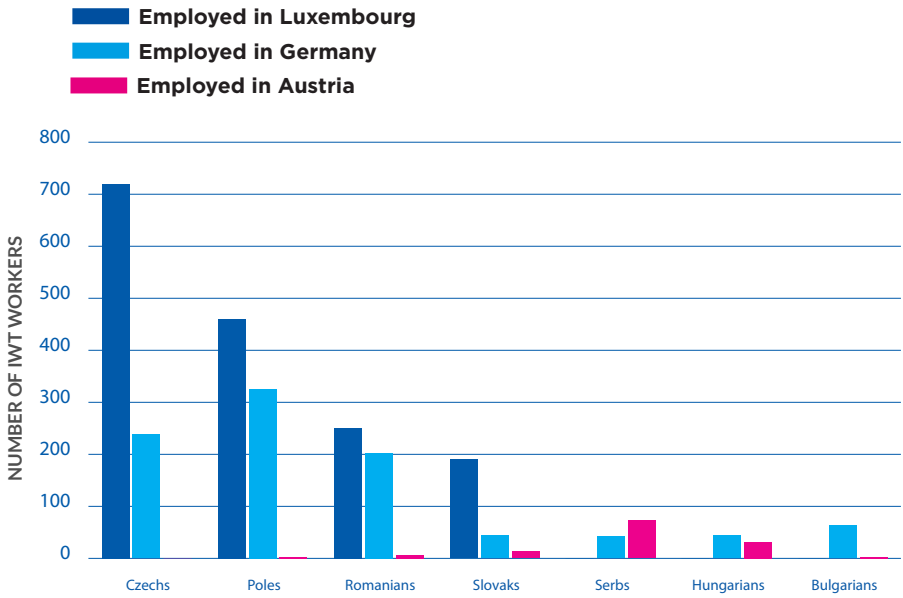
Sources: German Federal Labour Agency, Statistical Office of the Slovak Republic, Czech Ministry of Transport, National Statistical Office of Serbia, Hungarian National Employment Service

**For the Czech Republic, employment and wage data concern NACE sector 50 (water transport) in general, but around 99% of the employed persons in Czech water transport are estimated to be employed in inland water transport.*

Statistical data suggest a rather high rate of migration of inland waterway workers from central and eastern Europe to western Europe. This type of migration tends to increase, for instance in Germany, a major country of destination especially for Czech, Polish and Romanian IWT workers. A similar observation can be made regarding Luxembourg, where a high number of IWT workers from the Czech Republic, Poland and Romania (but also from western European countries) work for companies established in Luxembourg. Serbs and Hungarians are often employed in the Austrian and the German IWT sectors.

Figure 3 presents data on the number of workers (employees) with a nationality from central and eastern Europe, and being employed in Luxembourg, Germany and Austria. Hereby only the nationalities with the highest frequencies are shown. For Switzerland and the Netherlands, two other countries with a high share of foreign IWT workers, there were unfortunately no detailed data according to nationalities available.

FIG.3: **NUMBER OF FOREIGN WORKERS FROM CENTRAL AND EASTERN EUROPE IN THE IWT SECTOR IN LUXEMBOURG, GERMANY AND AUSTRIA***



Sources: German Federal Labour Agency, Inspection générale de la sécurité sociale sur la base des données du Centre commun de la sécurité sociale, Austrian Public Employment Service

** Data are for 2019 (Austria, Germany) and for 2020 (Luxembourg). Nationalities with small frequencies are not shown. Serbs in Austria include persons with former Yugoslavia nationality.*

In Germany, the east-west migration leads to a rising share of foreigners in freight transport employment, mainly from Poland, Czech Republic and Romania. The share of foreigners among employees (social security regime) in the German IWW freight transport sector is 34.7% (2019) and therefore significantly higher than in the whole German transport sector (18.7%) and also higher than in the German IWW passenger transport sector (11.0%). This might reflect a rather low employment attractiveness of the freight inland waterways transport (IWT) sector for Germans. Although the Austrian IWT sector is significantly smaller than the German IWT sector, it has an even higher share of foreigners with 41% (freight and passenger traffic together). Luxembourg clearly has the highest share of foreigners of all countries, with 99.5% of all IWT workers in freight transport being of a nationality other than Luxembourg.

Another phenomenon of the IWT labour market is the ageing process. Detailed long run data for Belgium show that ageing is particularly a problem within the group of self-employed barge owner-operators, although also within the group of employees. This higher degree of ageing amongst the self-employed begs additional explanations, which were found during expert interviews amongst banks. They point to a combination of social, economic and cultural influencing factors.

In particular, living on a vessel comes with specific challenges and it can be observed that many young people favour land-based jobs with regular working hours and weekends at home. This factor is highly relevant, for example in western Europe, where around 80% of IWW freight companies are independent owner-operators, whose working hours cannot be restricted to a regular schedule.

Altogether, the factors described above lead to a certain shortage of labour in inland navigation, a concern for both the passenger and freight inland navigation market, which can in particular be observed for qualified personnel at management level and qualified boatmasters in the liquid cargo segment.

Other factors contributing to this observed shortage of staff are of a technical nature. As the work required from crew members is becoming more and more technical, inland navigation companies often seek even more specialised profiles than before, and these are difficult to find.

The overall economic framework conditions in different market segments of IWT are also influencing factors. The inland navigation passenger transport market, in particular its river cruise segment, has been following a positive trend over the last years. Passenger numbers in river cruising in the EU increased by 10% in 2019 compared to 2018, and between 2012 and 2019 figures more than doubled, reaching 1.8 million passengers in 2019.[3] In freight transport, the development is less positive overall, with a decrease of total IWW goods transport performance in the EU of 7% from 2014 to 2019.[4] Of course, differences according to market and goods segments exist. The development and the outlook are for example more difficult in parts of the dry cargo market, and more positive in the liquid cargo or the container market. Already now, these differences in economic development of market segments are reflected in the employment figures.

In light of the above, ways to strengthen the attractiveness of the sector must therefore continue to be a priority. More fundamental measures with an effect on all these factors (may they be socio-cultural, economic or financial) should be taken into account in order to increase the attractiveness of the IWW labour market, in particular for the younger generation. Several options were outlined during interviews with banks engaged in IWT financing. For instance, the reorganisation of the logistical supply chain, with more backward and forward vertical integration as a way of strengthening the position of IWT within the whole supply chain and to increase its bargaining and economic power. The development of cooperatives was also seen as an important option to better align economic necessities (efficiency, profitability, high workload) with social and cultural aspects (private and social life, family, etc.) of inland navigation workers. Of course, the continued promotion of the range of possible job opportunities in the sector, both on board and ashore, is also essential.

[3] See: Inland navigation in Europe, Market observation, annual report 2020: https://inland-navigation-market.org/wp-content/uploads/2020/09/CCNR_annual_report_EN_2020_BD.pdf, page 133
[4] Eurostat [iww_go_atygo]

INTRODUCTION

Inland navigation market observation activities are carried out by the CCNR in partnership with the EU Commission, the Danube Commission and IWT industry associations. In this context, the CCNR market observation team was tasked with the drafting of a study on the labour market in European IWT.

The objective of this report was to provide an EU overview and where possible a more detailed country by country analysis of the IWT labour market in Europe, based on statistical data and qualitative information. Several aspects of the European IWT labour market were also examined, such as the main legislative development related to the European IWT labour market, the passenger and freight market structures, their respective economic and employment trends, education in the sector and its attractiveness, company succession and posted workers.

Although the report refers to the Covid-19 crisis in some places, the main datasets that constitute the statistical basis for this report predate the Covid-19 crisis. It therefore cannot be excluded that this crisis will have an impact on some of the trends presented in this report. However, such impacts cannot be anticipated or further analysed until a critical mass of data is available.

It is also important to note that the Covid-19 crisis was a supplementary hurdle to overcome when it came to data collection. Indeed, the data analysed in this report were not always directly accessible for statistical offices or other offices providing data. It often required them to carry out some specific data research in a situation where those offices were already overwhelmed with requests related to the impact of the Covid-19 crisis. This is also true for many players with whom we have been in contact in the context of this report and we are very grateful for their cooperation and availability.

In the introduction to this report, it appeared important to outline the other main difficulties encountered. In particular, no exhaustive database is currently available to monitor all the labour market aspects of the European inland navigation sector. In addition, for some

aspects, such as those relating to the posting of workers in inland navigation, very little quantitative data is available.

Another difficulty lies in the fact that, depending on the countries, labour markets are also organised differently, and sometimes relevant competencies are also decentralised or transferred to specific agencies. Identifying the right contact point depending on the type of information requested and the geographical area under study, can therefore become quite a challenge.

Even in the case where many different sources for one and the same country were found, the methodologies were sometimes different, making it difficult to deduce certain trends regarding the level of employment over time. Besides, structural comparisons between different countries were not always possible, as the definition of an indicator or the exact breakdown of a variable was sometimes different from one country to another. Whenever possible, an explanation was given in the report as to the type of source chosen and the reasons for choosing one source over another. For instance, it was decided to use the Eurostat structural business statistics (SBS) dataset when providing an overview of the IWT labour market in Europe, as they allow for comparability of data at EU level between countries. However, the scope of such data is limited (i.e. employment in loading/unloading activities of goods in ports and employment in operation of transport infrastructure not included; people working for companies with primary activities other than IWT not counted as employed in IWW even if they work on a vessel) and can be incomplete for some countries. Another hurdle was the lack of reliability of service record books and certificates of qualification which was identified at first as an important source of information for this report. However, as it is explained in more detail in the report, such sources do not allow to differentiate between active and retired workers and risks that IWT workers registered in such databases are counted twice (or even more) are high.

In light of the above, while all efforts were deployed to obtain as much information as possible, it was not always possible to gather data with the same level of detail and based on the same indicators and methodology for all European countries.

01

PASSENGER AND FREIGHT MARKET STRUCTURE, ECONOMIC AND EMPLOYMENT TRENDS

Information about the market structure, economic and employment trends, are essential so as to understand and interpret quantitative data available regarding the European inland navigation sector labour market.

RIVER CRUISE MARKET AND EMPLOYMENT STRUCTURE[5]

River cruises in Europe have been in existence since the 1960s. While there were only 50 cruise vessels operational in Europe in 1995, by 2019 there were already 378.[6]

According to European Inland Waterway industry associations, competition between companies in this sector is fierce. Economically, the river cruise market is a flourishing sector, which is confirmed by analysing three main indicators. The river cruise fleet in Europe has constantly increased since 2004 and the newbuilding rate is high. In 2019, 19 new river cruise vessels entered the market in the EU. The number of active cruise ships on EU rivers increased by 55% between 2012 and 2019, up to the above-mentioned number of 378 vessels in 2019.[7]

Demand for river cruises has been growing for several years, and between 2012 and 2019 has more than doubled, with up to 1.79 million passengers in 2019, highly driven by cruisers from non-European countries. River cruise vessel traffic has also increased. The yearly number of cruise ships passing the lock of Iffezheim on the Upper Rhine has increased from 1,603 ship transits in 2012 to 2,929 transits in 2019 (+83 %).[8]

[5] *Sources used for this chapter: IG River Cruise position paper on the situation of the western European river cruise business environment, October 2019. IG River Cruise represents around 2/3 of the total fleet capacities of European river cruises (it represents companies having in total 240 vessels) management companies included Interview with the European Transport Workers' Federation (ETF) and with AQUAPOL. Further input (written comments) from European Inland Waterway Industry Associations (EBU and ESO) and DG MOVE.*

[6] *Source: Hader, A. (2020) The River Cruise Fleet Handbook*

[7] *See: Inland navigation in Europe, Market observation, annual report 2020: https://inland-navigation-market.org/wp-content/uploads/2020/09/CCNR_annual_report_EN_2020_BD.pdf*

[8] *See: Inland navigation in Europe, Market observation, annual report 2020: https://inland-navigation-market.org/wp-content/uploads/2020/09/CCNR_annual_report_EN_2020_BD.pdf*

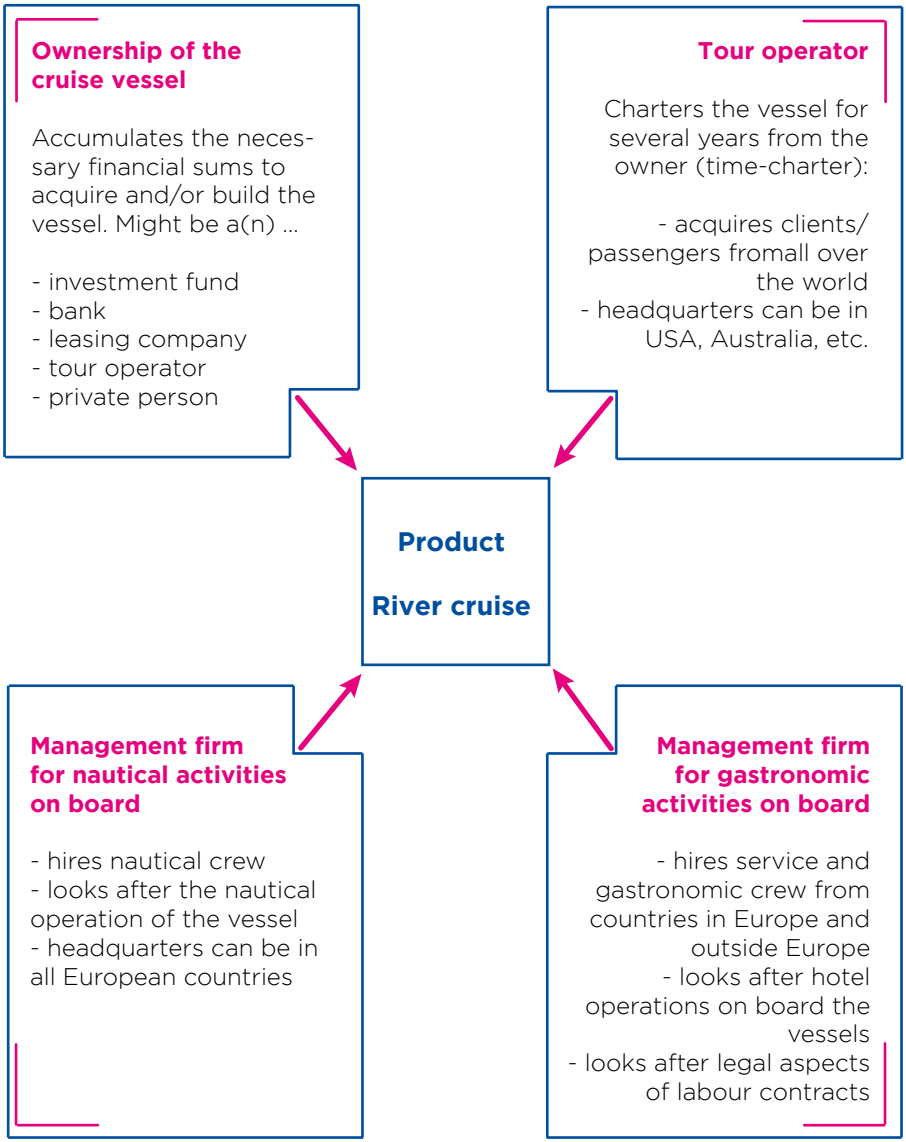
The fact that the river cruise sector is booming, with an ever-increasing passenger demand, is reflected in employment figures for the whole passenger transport sector, which follow a positive trend in Europe. However, in a sector where labour force shortage is a concern, ways to strengthen the attractiveness of the sector is also an important challenge in order to meet the rise in demand for river cruises in Europe.

The impact of the Covid-19 crisis will be felt in the years to come, including, most certainly, the way in which the labour market evolves.

The river cruise industry is characterised by international and rather complex company structures. For example, a river cruise vessel may be registered in Switzerland, with a crew having Cypriot employment contracts, hosting guests from Europe and overseas, and then might cross several countries during its journey.

In contrast to the early days when a ship owner also dealt with all the main aspects of a river cruise (hotel management, nautical aspects, etc.), four main types of players running a river cruise business can nowadays be identified.

FIG.1: **GENERAL OVERVIEW OF ORGANISATIONS INVOLVED IN RIVER CRUISING AND THEIR FUNCTION**



Source: CCNR based on IG RiverCruise

The IG River Cruise (Association of the leading European River Cruise Companies representing 239 cruise ships) points out that Cypriot, Maltese or Swiss employment contracts for employees on river cruise vessels sailing on the Rhine and Danube, reflect the maritime history and knowledge of navigation matters in these countries.[9]

However, there are serious concerns about this argument. It is indeed questionable why employees working on a river cruise vessel sailing on the Rhine or Danube should be employed by a company registered in Malta or Cyprus. One simple reason why this is questionable is the fact that these two countries do not have any navigable rivers and therefore no river cruises are proposed in these countries. ETF and AQUAPOL raise serious concerns regarding such company models, based on their experience. They report a lower wage and social security level for the staff employed within such company models. They also report that communication with the labour market authorities in Cyprus and Malta is very difficult.[10]

Regarding employment figures, IG RiverCruise estimates that there are currently 12,000 persons active in accommodation and gastronomically related activity on European river cruise vessels, compared to 2,500 persons who are working in the nautical field. According to this same association, recruitment concentrates on traditional navigation nations (both maritime and inland) such as Bulgaria, Hungary, Romania, Slovakia, the Netherlands, France, and Asian countries. Despite efforts deployed to attract workers of other nationalities, Germans, Spanish and Portuguese are less willing to work on river cruise vessels.

Indeed, a main difference lies in the fact that crew members cannot return home in the evening, which represents a specific working condition that is different to hotels ashore. European inland waterway industry associations advise that crew members can earn a substantial income in just one cruising season, live off this money, travel or enjoy other activities during the winter months, which makes work on board

[9] Source: IG River Cruise website (https://www.igrivercruise.com/pdf/Positionspapier-V2-en.pdf), October 2019

[10] If employees working on river cruise vessels in the Rhine or Danube region are employed by a company in Cyprus or Malta, both ETF and AQUAPOL report that this goes hand in hand with a lower level of social security for the workers. In addition, both organisations report that, in cases of employment and labour law disputes, the relevant public authorities in Cyprus and Malta barely show any willingness to cooperate with ETF and AQUAPOL, with the result that it becomes very difficult to defend the interests of the worker in such a case.

a cruise ship quite attractive for many crew members. On the other hand, AQUAPOL reports on police controls in 2018 on river cruise vessels in Passau, Germany, which revealed that employees working on these cruise vessels (at least on those that were controlled in Passau) earned a wage that was clearly lower than the legal minimum wage in Germany.[11] These rather alarming results were also reported by 'Bayerischer Rundfunk' (Bavarian Broadcasting), the public-service radio and television broadcaster in Bavaria, and by the Dutch journal 'INVESTICO', a journal for investigative journalism.[12]

In general, crew members live on board on the lowest deck, while the upper deck is reserved for the tourists. In modern cruise vessels, two crew members generally share a cabin (three to four crew members on older cruise vessels). These older vessels are however being progressively phased out of the market.

According to IG RiverCruise, the large river cruise management in the European river cruise market (River Advice, G&P, sea chefs and others) employ around 4,000 persons active on European cruise vessels.

With regard to working hours, IG River Cruise reports that fluctuation is high, mostly at the beginning of the season, when the personnel has to adapt to the specific rhythm and culture of a river cruise working life. This is also confirmed by the data presented in the following chapters. Uneven and long working hours are a challenge for the entire hospitality industry. There are indeed times when the staff have to work considerably more than eight to ten hours a day. However, according to IG RiverCruise, this is only temporary, and compensations are provided whenever possible in the form of days off, which in general are spent on board the vessel. Other reasons given by IG RiverCruise to explain long working hours are the irregularity of some jobs on board, such as bartenders, and the lack of space on board, preventing employers from having more than three extra staff members on board. Working hours are also controlled by official authorities and are governed by legislations (e.g. Directive 2014/112/EU concerning certain aspects of

[11] Since 1 January 2020, the legal minimum wage in Germany is 9.35 Euro per hour (gross wage). This gives a legal minimum gross wage of 1,621 Euro per month. Source: Federal Ministry of Labour and Social Affairs: https://www.bmas.de/DE/Themen/Arbeitsrecht/Mindestlohn/Rechner/mindestlohnrechner.html

[12] Source: Article in the Dutch journal Investico (2018), Rijncruise drijft op arbeidsuitbuiting, https://www.platform-investico.nl/artikel/rijncruise-drijft-op-arbeidsuitbuiting/ and an article on the website of the Bavarian Broadcasting: Bayerischer Rundfunk (2018), Auf Flusskreuzfahrtschiffen weiter gravierende Mängel entdeckt: https://www.br.de/nachrichten/bayern/auf-flusskreuzfahrtschiffen-weiter-gravierende-maengel-entdeckt,Qwtunaf

the organisation of working time in inland waterway transport[13]).

The subject of working conditions of crews on board river cruise vessels is debated and claims are also raised on the part of workers' federations, such as the European Transport Workers' Federation[14] (ETF). Indeed, workers' federations also explain that some river cruise companies take advantage of the EU single market rules to hire workers from countries with limited economic opportunities in an attempt to minimise wage costs, their wages thereby not reflecting the hardships of the work on board a cruise vessel.

Similarly, as reported above, there are instances when controls by official authorities reveal that some companies are likely to circumvent law. While in other instances, such non-compliance situations might result from a misinterpretation of the complex set of rules that apply in this sector, this complex set of rules can also result in some river cruise companies exploiting the situation. ETF regularly alleges abuses on the part of some river cruise companies, with recent scandals in Germany or in the Netherlands for instance, relating to unacceptable low wages, excessive working hours, unpaid overtime, and appalling working or living conditions on board. Such situations might also be exacerbated by the fact that river cruises have been experiencing a boom since 2013, mainly due to the large number of US-American tourists booking river cruise holidays, with an ever-increasing passenger demand. It is at least possible that the rapidly increasing activity in the sector created such a rapidly increasing demand for labour, that the needed amount of labour (personnel) could not be found, resulting in the above-mentioned phenomenon, such as the heavy workload and large amount of extra-hours.

Awareness of these issues exists both on the side of employers and workers' representative organisations. As an example, in July 2019, the European Barge Union (EBU), the European Transport Workers' Federation (ETF) and IG RiverCruise signed an agreement, committing to work together on measures that support fair employment in the European river cruise sector.[15]

[13] *Council Directive 2014/112/EU of 19 December 2014 implementing the European Agreement concerning certain aspects of the organisation of working time in inland waterway transport, concluded by the European Barge Union (EBU), the European Skippers Organisation (ESO) and the European Transport Workers' Federation (ETF) Text with EEA relevance, OJ L 367, 23.12.2014, p. 86–95*
[14] *https://www.etf-europe.org/our_work/inland-waterways/*
[15] *https://www.etf-europe.org/ebu-etf-and-ig-rivercruise-sign-agreement-regarding-river-cruise-activities/*

IWT FREIGHT MARKET STRUCTURE AND COMPANY SUCCESSION

The economic development of a given sector is - sometimes with a timely delay - reflected in the labour market developments. While passenger transport figures have been following a positive trend in recent years, the number of freight transport companies and volumes of goods transported decreased between 2014 and 2019 in western Europe. According to Eurostat[16], transport performance (in tonne-kilometres) in inland waterway freight transport in the EU decreased by 7% between 2014 and 2019, and transport volume (in tonnes) by 5%. To a certain degree, this is a rather different background for employment trends in freight transport compared to the growth in demand in passenger transport.

This is reflected in the data presented in the following chapters which show a decrease in the overall number of persons employed in the European IWW freight transport sector. However, the situation also differs depending on the countries, the years and the market segments under study.

IWW freight transport market trends and possible outlook considerations are a good indication as to how employment might evolve in the future.[17] Overall, it is expected that the energy transition will continue to have an important effect on transport volumes in inland navigation. In western Europe, this concerns coal in particular. Liquid mineral oil products are expected to continue to be an important component of inland navigation volumes, but a gradual decline is underway in certain regions. A stagnation or even a decline is expected in IWT iron ore transport in western Europe. Concerning the Danube region, steel production is however expected to grow further. For chemicals, the outlook is overall positive in Europe and IWW chemicals transport exhibits high growth rates, in particular in the Netherlands. Regarding agricultural products, food products and foodstuffs, it is expected that a certain regionalisation of production and a change in consumer habits to more regional products will influence long-

[16] *Eurostat [iww_go_atygo]*
[17] *Source of this outlook and trends: Inland navigation in Europe, Market observation, annual report 2020: https://inland-navigation-market.org/wp-content/uploads/2020/09/CCNR_annual_report_EN_2020_BD.pdf*

distance transport. A further slowdown of world trade is expected to have an influence on the growth rates in container transport on the Rhine, although a high dynamic in national container transport in Belgium and in the Netherlands is foreseen. Drawing on these findings, employment figures in the dry cargo sector might develop less positively than in the liquid and container IWT market segments, particularly in western Europe, unless IWT succeeds in conquering new market segments. In addition, it cannot be excluded that the Covid-19 crisis might have a negative impact on employment in the IWT sector in the years to come.

The overall decrease in the freight inland navigation labour market, also described by many IWT actors, can be explained in the short term by the financial crisis, which had a negative impact on the volumes of goods transported and therefore on the demand for nautical personnel. Over the last decades the shortage of labour force could partly be counterbalanced by technological innovations as well as the enhanced mobility of crew members from countries inside and outside Europe. However, in the long run, a shortage due to fewer new workers on the market compared to those retiring should become more intense. Therefore, the aging of the workforce is a great challenge for the inland navigation labour market of today and tomorrow.

In addition, equipment and technology used on inland navigation vessels are becoming more and more complex. Therefore, inland navigation companies are seeking to hire more specialised and better qualified crew members. An example relates to the additional provisions concerning the expertise of crew members of inland vessels fuelled by liquefied natural gas (LNG), for which a specific certificate of qualification is now required. The shortage of such competencies is due to employers who recruit from the same pool of employees across all inland navigation sectors.

The high technological level of the vessels, the level of qualifications required and the more modern accommodation that is now available on board the vessels might not always be recognised by people who are not active in the sector.

Regarding the liquid cargo segment in western Europe[18] in particular, it is perceived as having certain advantages, such as job security, career opportunities both on board and ashore as well as quite an attractive salary. In parallel to the general trend, according to which operations on board of vessels are becoming more complex - and specifically in the liquid cargo segment - the transport of dangerous goods has also become far more complex in the last ten years and important steps have been taken in the field of safety and quality, thereby further increasing the requirements and qualifications necessary to work in this field. Another interesting development relates to the changing corporate structure of tanker barging companies, moving away from the traditionally family-owned company towards a structure with shareholders.

An important topic for the long-term economic and employment trend in freight transport is how to organise the succession between generations within freight companies. As has already been pointed out, around 80% of all IWW freight companies in western Europe are small independent barge owner-operators. The succession of the activity in these companies must be seen in the light of economic and social aspects. Company succession in inland navigation is directly influenced by several factors, in particular:

- economic factors: demand evolution and economic outlook in a given market segment, overall economic framework conditions, etc.
- labour and social factors: age structure of a given segment, working conditions, appropriate work/life balance, previous knowledge of the sector concerned, etc.
- company and asset related factors: characteristics of the company such as its size and profitability, the type of assets concerned and the technical features (old or modern vessel, large or small, green or polluting), financing conditions for investments.

[18] *Information collected based on an interview with the Director of CITBO, Alain Devos*

In this chapter, expert interviews from the banking sector were carried out in order to identify those critical factors influencing company succession in the IWT sector. Overall, such interviews allowed to draw the following main conclusions:

- The dry cargo market is a more difficult market for company succession compared to the liquid cargo or container market which benefit from better economic framework conditions.
- Whether the vessel is modern or not and whether "greening" investments have already been made appear as critical issues for company succession.
- Social factors and working conditions have increasingly become key factors. Indeed, there is a low incentive for younger entrepreneurs to take over an existing business if it entails a heavy and demanding workload, if the economic outlook of the market segment is difficult, and if costly technical investments in the vessel have to be undertaken. This is generally the case for smaller barge owners-operators who tend to work long hours away from home, possibly combined with wages that are not very attractive.
- It is generally observed that sections of the younger generation favour land-based jobs with regular off-times and weekends at home, in comparison with their parents' generation.
- Cooperatives (which are especially observed in the dry cargo market) are seen as an effective concept to foster company succession, as they allow for better social, logistical and economic conditions for barge-owners and operators.
- Vertical integration is also presented as an important goal for IWT in the future which would facilitate company succession.

INFO BOX: VERTICAL INTEGRATION IN LOGISTICS

Vertical integration in logistics - and in particular in inland navigation - could exist in various forms. In general, it would mean that an IWT company is not only transporting goods from point A to point B, without any influence on the backward and forward parts of the logistics chain. Backward vertical integration would be present if an inland waterway transport company also owns the freight forwarding process which is quite often done by other (larger) logistics firms. These freight forwarders negotiate volumes and freight rates with large clients from the chemical, petrochemical, agri-food, or steel industry.

If inland navigation companies would take over this role, by backward vertical integration, they would gain more influence on freight rates. A forward vertical integration would mean that inland navigation companies could also control the selling and marketing of the products that they are transporting, for example by owning trading or marketing companies. This would give them more insight into the development of the demand side, and in market conditions of the products they are transporting.

Source: CCNR

THE EXPERTS' VIEWS REGARDING COMPANY SUCCESSION IN INLAND NAVIGATION ARE PRESENTED BELOW.

ING Bank

Interview partners: Rico Luman, Sector Economist Transport, Logistics, Chemicals; Arthur de Bot, Relationship Manager Transport and Logistics

Company succession must be seen in the context of the economic development of the inland navigation sector. In the years after the 2008/2009 financial crisis, the number of bankruptcies increased. Banks tried to help the companies by postponing reimbursements of loans so that companies could continue to be active in the sector.

Even if there was a recovery from the financial crisis, the long-term economic framework conditions have deteriorated again in recent years. This concerns notably energy transition and the phasing out of coal. This structural change has a strong impact on transport volumes in IWT. In the agricultural sector, the high amount of nitrogen emissions in the Netherlands puts pressure on this sector to reduce its output. Overall, these difficult economic framework conditions represent a rather problematic basis for company succession in the dry market segment. These structural framework conditions do not make it easy for young entrepreneurs willing to work in this sector and develop a profitable business plan for the future.

Another aspect which is important for company succession is the size of companies. By far, the large majority of inland navigation companies in western Europe are very small barge owner companies with only one vessel. Small companies often face more financial risks and less access to loans when faced with necessary technical modernisation. The long working hours, including at the weekends, are an important factor, especially in the case of small independent barge owner-operators. At the same time, the earning capacity of small companies is limited, due to a restricted loading capacity of the ship. Taken together, these conditions often fail to generate a high incentive for the younger generation to take over the company from their parents. The bank underlines that investment in greening the vessel is a 'trigger point' for company succession.

The liquid cargo market is characterised by a different company structure. The average size of inland navigation companies is larger in the liquid cargo market and there are more employees compared to the dry cargo market.

Container transport also has a more growth-orientated economic outlook than dry cargo transport. The liner service structure (24-hour service) makes it easier to earn money and to reimburse loans. In the Netherlands, national container transport is a growth market (this is also shown by statistical data from Eurostat).

Rabobank

Interview partner: Mr. Marco van Beek, Sector Manager Inland Navigation

Similar conclusions are reached regarding the situation in the various market segments. The liquid cargo market has a more modern fleet and with companies of a larger size, providing more incentive for company succession. The outlook for the transport of chemicals is positive, making the liquid cargo market overall profitable for the future.

Cooperatives could be a possible solution for small barge owners, also in the dry cargo market, to merge together and develop size and scale advantages, thereby allowing economies of scale and lower transport costs to be realised. This is important in the logistics sector. Larger companies or cooperatives could also have more bargaining power for negotiating freight rates and would be more able to achieve a vertical integration within the whole supply chain. Vertical integration is considered as an important topic for inland navigation and should be seen as a goal for the future.

ABN AMRO bank

Interview partner: Mr. Albert Jan Swaart, Sector Economist Industry, Transport and Logistics

Many of the young entrepreneurs who want to start their own business in inland navigation and are eager to take risks come from IWT families.

Cooperatives (such as NPRC[19]) could be a solution to organise supply chain management in a better way, also regarding the social life of the barge owner-operators in inland navigation. They would make it easier to organise transport activities in such a way that barge owners can be at home during the weekend. This would be an important incentive for company succession, given that many young entrepreneurs want to have a family and be at home during the weekends.

Staff shortage is already a major problem in inland navigation, and it is important that young people also have "social" incentives in order to become a barge owner-operator.

[19] *See: https://nprc.eu/vloot/. The NPRC assembles 120 IWT entrepreneurs, has a fleet of 200 vessels sailing and transports 13 million tonnes of cargo each year on European inland waterways. This makes NPRC the largest corporation in inland navigation in Europe. The 200 vessels belong to different size categories and include also small vessels with a loading capacity of less than 750 tonnes. The corporation is active in all goods segments, from iron and steel, over sands, stones and gravel, grain to containers.*

Ostfriesische Volksbank

Interview partner: Mr. Dieter Schneider, Head of Bank für Schifffahrt

An important point for the foundation or the succession of a company in IWT is to present a solid business plan, which should also include a freight forwarding concept. Indeed, freight forwarding companies often participate even financially in the acquisition of a new vessel, hence the added value for young entrepreneurs to be in contact with such freight forwarding companies. Such relationships are win-win solutions as both parties have an interest in future inland waterway transport with modern vessels. During the process of company succession, contacts between banks, the entrepreneur and the freight forwarding company are intensive.

Among company successions, there are several different models. Often, young entrepreneurs come from an IWT family and have already been working on a vessel for several years. As they want to become more independent, they decide to invest in their own vessel. Given that older vessels are often more costly in maintenance and that it is more difficult to install a new engine in older and smaller vessels, company succession is often combined with the acquisition of a new vessel. There are also other models possible, where the son of an owner-operator continues to sail with his father's vessel on the latter's retirement.

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02

EDUCATION IN IWT AND SECTOR ATTRACTIVENESS

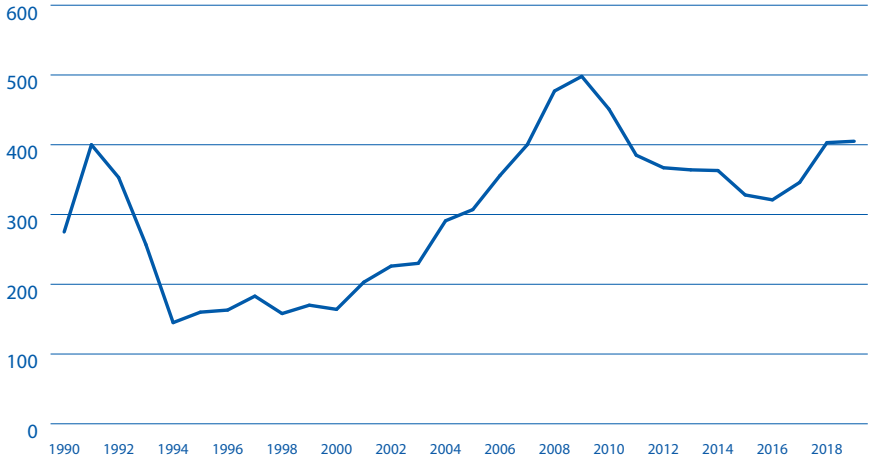
Inland navigation workers are key drivers for inland navigation dynamics, and it is very important for inland navigation to be sufficiently appealing, especially towards young talents with entrepreneurial and innovation-oriented mindsets. Today, there is a shortage of qualified personnel at management level. In addition, the lack of qualified boatmasters can generally be observed, especially in tank vessel operation. Furthermore, a sufficient number of highly qualified personnel are needed in the emerging passenger navigation market. Ensuring the attractiveness of the sector and a high-quality education are therefore paramount.

Figure 1 shows the evolution of the number of apprentices in Germany in the inland navigation sector. Following a strong decrease in the 1990s, the number of apprentices in the inland navigation sector increased in Germany between 2000 and 2009 in a catch-up effect. As in other sectors, the number of apprentices decreased between 2009 and 2016 with a higher number of young people taking up university education and the economic crisis in the inland navigation industry.

However, for the first time in the last decade, a considerable increase followed in the years after 2016. Altogether, the evolution in the number of apprentices since the year 2000 could be explained by the economic boom (2000-2008) and recession (2009-2015) during this period of time, which also had a strong impact on the IWT industry, and which could have influenced the tendency of young people entering the industry. The period from 2016 to 2019 might not be called a boom, but it was at least a time when the inland navigation industry recovered from the financial crisis of 2009.

In 2019, 27 of the 405 apprentices were female. In the last years, no positive trend in the number of female apprentices is visible.

FIG.1: **EVOLUTION OF THE NUMBER OF APPRENTICES IN THE INLAND NAVIGATION SECTOR IN GERMANY**



Source: Association of German Chambers of Commerce and Industry (Deutscher Industrie- und Handelskammertag)

Despite the increase in the number of apprentices since 2016, the percentage of employees[20] under the age of 25 gradually decreased from 10.1% in 2013 to 7.6% in 2018 before slightly increasing to 7.9% in 2019, according to data from the German Federal Employment Agency.

EDINNA[21] conducted a survey of new entrants to inland navigation training schools in 2015. Replies received from the Netherlands, Romania, the Czech Republic and Serbia showed an increase in the number of new entrants to the sector between 2009 and 2015. Even though not all EDINNA members completed the questionnaires for students on Operational Level (boatman) and Management Level (Boatmaster), schools with a relatively large number of students reported increasing numbers of students such as the Dutch boatman classes at Ijmuiden from 100 (2009) to 111 (2015) and Rotterdam

[20] *Employees being those workers who are subject to social security contributions.*
[21] *EDINNA is the educational network of inland waterway navigation schools and training institutes. Its aim is to achieve a more structured cooperation and a harmonized education, training and certification system for inland waterway personnel in order to ensure high quality training for staff on board vessels. See: https://www.edinna.eu/ (23. November 2020)*

from 56 (2009) to 118 (2015), the Romanian school CERONAV from 164 (2009) to 221 (2015) and the Czech school from 32 (2009) to 41 (2015). The Belgrade school saw an increase in Management Level education and a decrease in Operational Level students.

Results of a similar survey conducted by the CCNR in 2020[22] indicate that this positive trend was not overall sustained until 2019. However, it strongly depends on the country under study as well as the type of school concerned (university or training centres). For instance, the number of new entrants in Dutch inland navigation schools per year decreased from 294 in 2015 to 268 in 2019, while the number of registered students in the country decreased from 890 to 797. During that period of time, Polish, Czech, Slovak and French schools also reported declines in the numbers of registered students. For a Belgian school, the number of students remained more or less constant. Romania is the only country showing a clear increase in student numbers between 2015 and 2019.

In light of the results of the survey, it is expected that the staff shortage observed in the IWT sector will not be compensated by an increase in the number of graduates for IWT schools. The survey results also point to the fact that the IWT sector will most certainly remain male dominated in the coming years as only a few women graduate every year from inland navigation schools in Europe. As an example, over the period 2000-2019, approximately 10 women graduated from the CERONAV training centre. Similarly, very few female trainees have attended the Czech Děčín training school over the last 10 years. However, even if the number of women graduating remains very low compared to the overall number of students graduating each year, it seems that a slightly higher number of women are graduating today from inland navigation schools compared to a few years ago. In the Polish Zespól Szkól Zeglugi Sródladowej training centre, there is a relatively high number of women graduates (almost half of the graduates were women in the 2017-2020 period). The number of women graduating also depends on the kind of training and degrees offered by the school.

[22] Not all inland navigation schools provided an answer. The Covid-19 outbreak made it indeed difficult to obtain an answer from all relevant schools as databases were not always accessible by all schools during the lockdown period and while health emergencies had to be dealt with in parallel. However, despite these limitations, results from this survey could still be provided on the relevant insights and tendencies into education in IWT and the attractiveness of the sector.

The survey results indicate that most students attend inland navigation schools in their home country. This is true for all inland navigation schools in Europe. Most students attending schools in the Netherlands are therefore Dutch nationals and most students attending schools in Romania are Romanian nationals. In western Europe, some students also come from African countries while in eastern Europe, a few students come from Moldova, Kazakhstan or even Vietnam.

After graduation, a larger share of students graduating from an inland navigation training centre in eastern Europe work in another country, generally in western Europe. Indeed, choosing to work abroad is generally motivated by the wage level and opportunities available in a foreign country, and wages in the IWT sector are generally higher in western Europe compared to eastern Europe (as confirmed by data in the next chapters of this report). For instance, it is estimated that 60% of the total number of students who obtain a certificate from the CERONAV training centre in Romania work abroad, mainly in Germany or in the Netherlands, while 40% work in Romania, mostly for inland navigation companies or in river and port administrations. A similar estimation is provided by the High School of Ship Transport and Industrial Crafts in the Czech Republic. This statement is also true for students obtaining their certificate in the Polish Zespól training centre. This observation is also confirmed by quantitative figures presented in the next chapters, providing evidence of a migration of inland waterway workers from east to west, often motivated by wage incentives.

The level of employability of students obtaining a certificate from the CERONAV training centre is very high (about 95% of students who obtain a certificate are then employed by a company in Romania or abroad). A similar level is reported by the Czech training centre. While most of the Czech and Romanian graduates follow a career in inland navigation, this is not necessarily the case for those graduating in Poland. The situation is also different when considering universities offering bachelors' or masters' degrees, such as the University of Žilina in Slovakia or the Volga State University of Water Transport in Russia where respectively 10% and 2-3% of students work abroad after graduation. Volga University reports that work opportunities after graduation are indeed quite numerous, secure and attractive at national level as graduates may follow, for instance, a career in transport ministries, transport authorities, education or logistics.

Most students qualifying from inland navigation schools in the Netherlands, Germany, France and Belgium follow a career in the inland navigation sector. Given the important IWT activity in the Netherlands and Germany, it seems that a larger share of Dutch and German graduates remain in their home country after graduation compared to French and Belgian graduates. However, given the international

character of IWT, most of them are brought to work on the European IWW network at some point or another during their career. Within freight transport, the number of students graduating in the Netherlands is quite evenly distributed among the market segments: 30% container vessels, 35% liquid cargo vessels, 30% dry cargo vessels.

Overall, the training centres which took part in the survey (most answers pre-dating the Covid-19 crisis) are expecting that the number of students will remain rather stable or might even increase in the coming years. For instance, CERONAV indicates that the number of persons interested in following a career in inland navigation is growing each year. In addition, given the need for more qualified staff in some specific areas, it is expected that the demand for certain qualifications will increase in the coming years, as will the number of trainees. Similarly, Dutch schools are expecting an increase in the number of students over the following years. Czech, Polish, Belgian and French schools are expecting the number of students to remain rather stable in the coming years. This will also depend on the willingness of public authorities to encourage inland navigation transport and how the sector will develop in the future. In addition, in countries where inland navigation workers are ageing, such as in Belgium or Germany, there might be further work opportunities in the future thereby having a positive impact on the number of students seeking to pursue a career in the IWT sector. The University of Žilina in Slovakia is the only school reporting that the number of students following an IWT related course is decreasing each year. The school capacity indeed decreased from 40 to 25 in 2015.

Most of the inland navigation schools that took part in the survey report that they have been involved in recruitment campaigns. Such campaigns can be targeting specific qualifications, launched in partnership with employers, made through mass/social-media campaigns or addressed at secondary schools' students. Most of the respondents recognise the need to launch such communication campaigns given the shortage of qualified personnel observed in some segments of the IWT sector, and the lack of knowledge of the IWT sector by students who have had no contact with this sector at a young age. Many of the inland navigation workers often have a family member who was/is working in this sector. The objective of such a campaign is always to attract new, but also more qualified, students and inform them about the type of career opportunities available in the inland navigation sector.

03

OVERVIEW OF THE EUROPEAN INLAND WATERWAY TRANSPORT LABOUR MARKET

The data that are arguably best suited for a country-by-country comparison of employment statistics per sector in Europe are the Eurostat structural business statistics (SBS) data. However, minor differences in data collection between countries still prevail, e. g. due to a different counting of foreign branches of local enterprises and vice versa. The Eurostat SBS data are based on administrative data and collected by the national statistical institutes according to rules commonly agreed upon and available at NACE (Statistical Classification of Economic Activities in the European Community) levels. For inland navigation, this means that there are mainly two relevant categories, namely inland passenger water transport (NACE category 50.3) and inland freight water transport (NACE category 50.4). It should be noted that these NACE categories include employment on board of vessels but not the employment of loading and unloading activities in ports and the operation of transport infrastructure (some information regarding port workers are however included at the end of this chapter). Thus, the figures provided in this chapter should not be understood as exhaustive figures on the numbers of jobs created by inland navigation activities as a whole. Such an understanding would underestimate the importance of inland navigation.

One shortcoming of the fact that Eurostat SBS data are collected at the company level is that people working for companies with primary activities other than inland navigation are not necessarily counted as being employed in inland navigation even if they actually work on board of vessels on inland waterways. This particularly applies to employees of temporary employment agencies. Even if they work in inland navigation on board of vessels, they are considered to be an employee of their temporary employment agency and thus counted as part of a different NACE category. This also leads to an underestimation of the number of persons working in inland navigation.

Another problem with the Eurostat SBS data is that the datasets are incomplete for many countries. While all or nearly all relevant data are available for Germany, the Netherlands, Romania, Poland and Slovakia, crucial data for the purpose of this report such as the number of employed[23] persons or employees are not available for some years for

[23] *Persons employed are self-employed, helping family members and employees.*

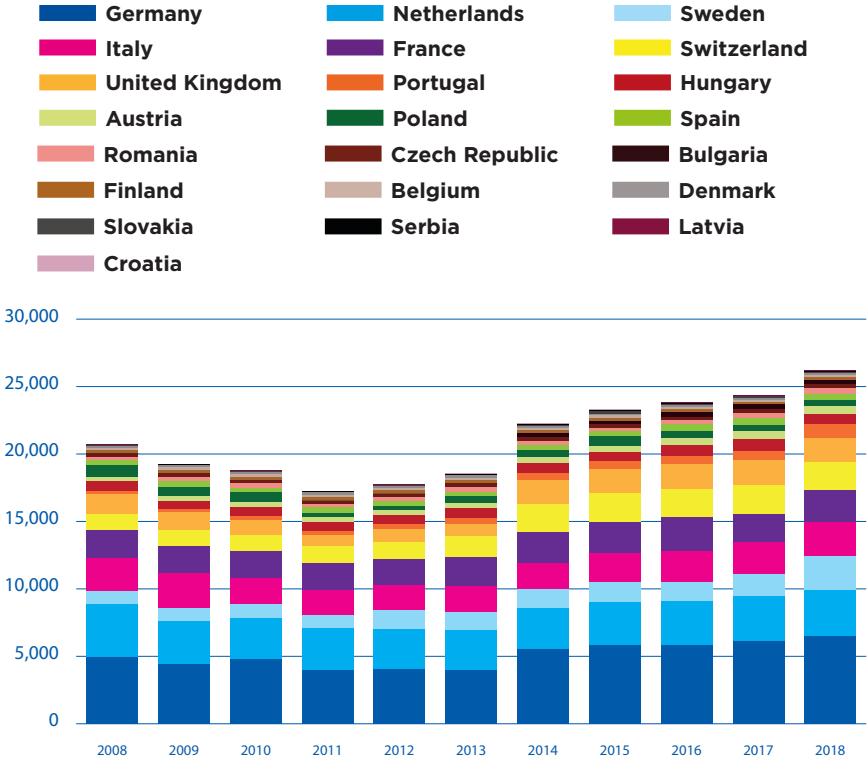
relevant IWT countries such as Belgium, Austria, Switzerland, France and Bulgaria.

This being said, the data collection at company level also has a distinct advantage. It largely prevents double counting that could occur due to the multinational character of European inland navigation if personnel were counted at the place of work instead of the location of their companies.

According to the Eurostat Structural Business Statistics, the total number of persons employed in the transport of goods and passengers on inland waterways in Europe amounted to approximately 48,266 in 2018, of whom around 53% are in passenger transport and the other 47% in freight transport. Since 2011, the number of persons employed in the passenger transport sector has continuously increased.

It is clear that Germany is the most important country for passenger transport in terms of employment, while the Netherlands has the undisputed leading role for freight transport. For passenger transport, the Netherlands, Sweden, Italy, France and Switzerland are also major countries. For freight transport, other important countries coming close to the Netherlands are Germany, France, Romania and Serbia.

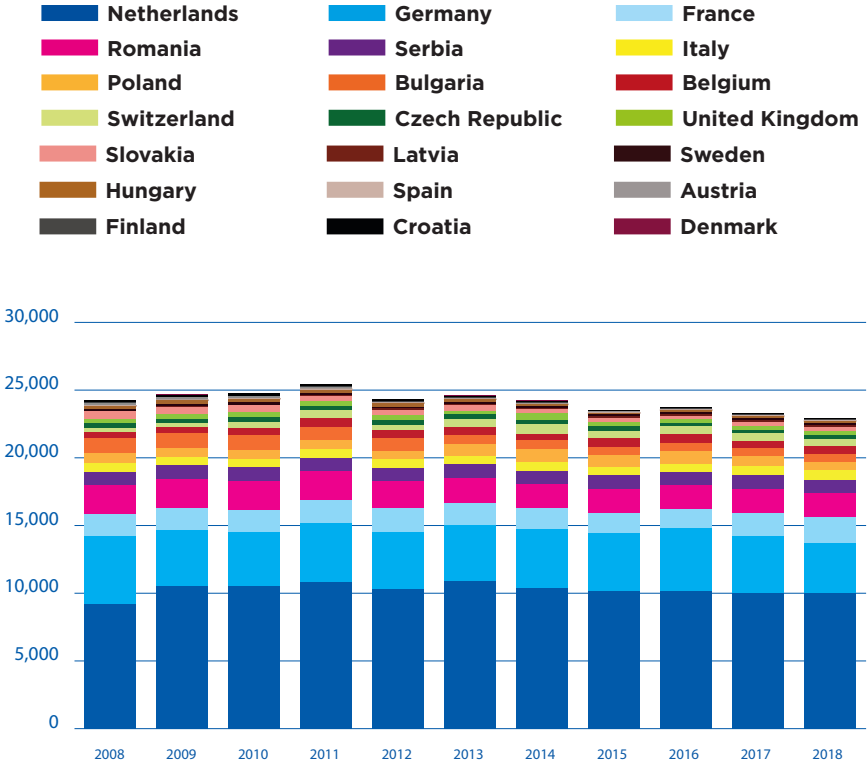
FIG.1: NUMBER OF PERSONS EMPLOYED IN IWW PASSENGER TRANSPORT IN EUROPE*



Source: Eurostat (sbs_na_1a_se_r2)

**Missing values are imputed by linear extrapolation.*

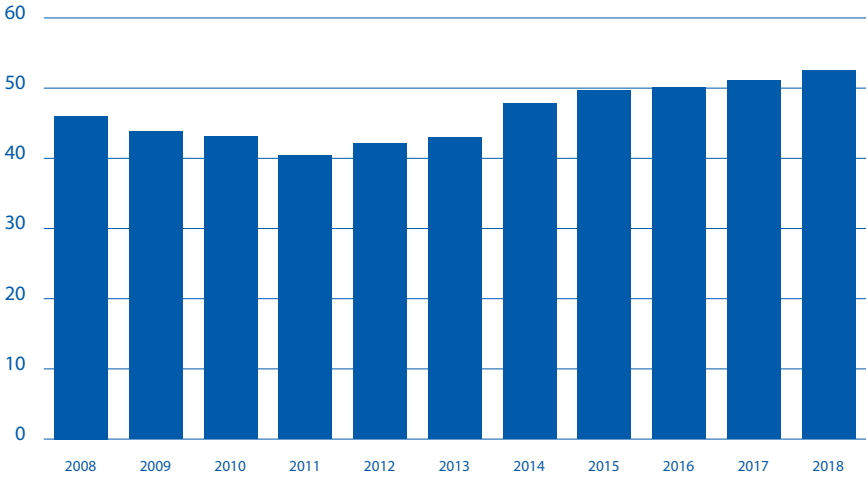
FIG.2: **NUMBER OF PERSONS EMPLOYED IN IWW FREIGHT TRANSPORT IN EUROPE***



Source: Eurostat (sbs_na_1a_se_r2)

**Missing values are imputed by linear extrapolation.*

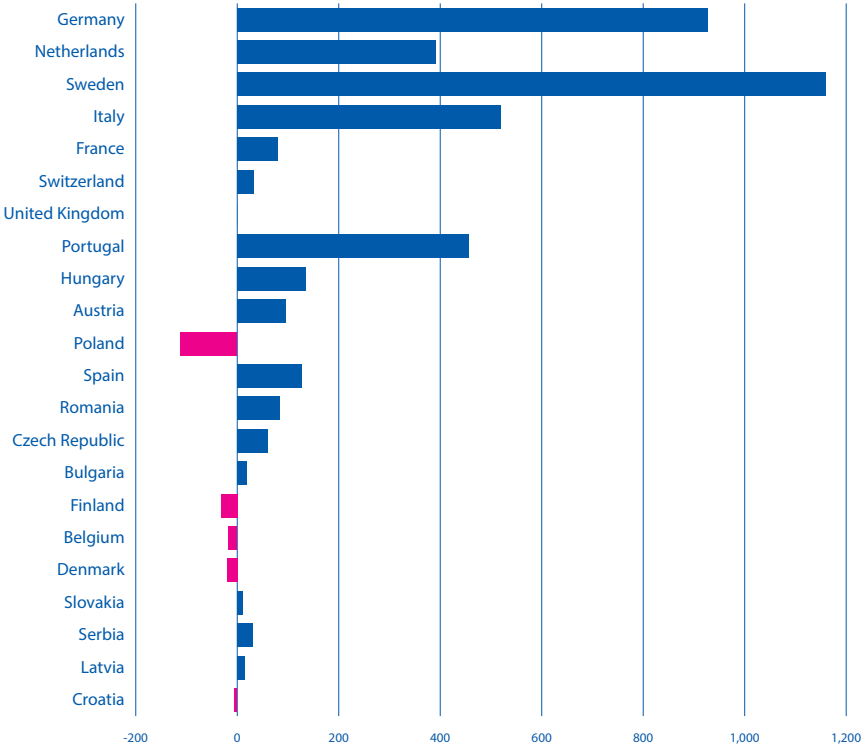
FIG. 3: **SHARE OF PASSENGER TRANSPORT WITHIN IWW EMPLOYMENT IN EUROPE*** (%)



Source: Eurostat (sbs_na_1a_se_r2)
**Missing values in country-level employment are imputed by linear extrapolation.*
**EU-27 plus the United Kingdom, Switzerland and Serbia*

Between 2014 and 2018, the number of persons employed in IWW passenger transport in the European Union increased in nearly all EU countries. Decreases were only reported in Poland, Finland and Croatia.

FIG.4: **DIFFERENCE IN THE NUMBER OF PERSONS EMPLOYED IN IWW PASSENGER TRANSPORT IN 2018 COMPARED TO 2014***

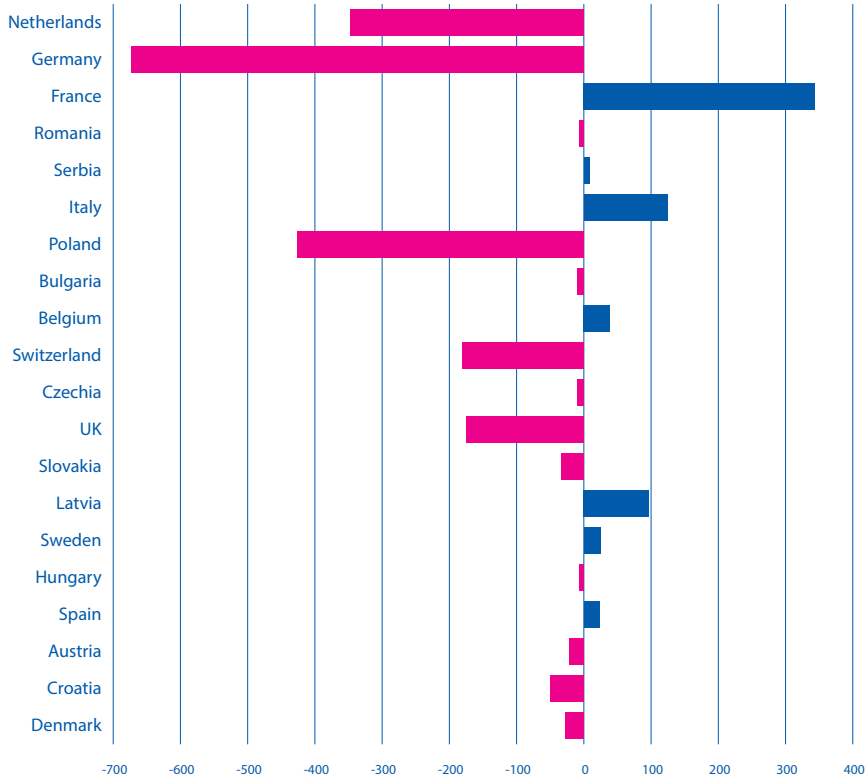


Source: Eurostat (sbs_na_1a_se_r2)

** The value for Finland is from 2013.*

The situation looks very different for employment in IWW freight transport as the overall number of persons employed in the European Union in this sector decreased. While the strongest decrease between 2014 and 2018 was recorded in Germany, employment increased most strongly in France.

FIG.5: **DIFFERENCE IN THE NUMBER OF PERSONS EMPLOYED IN IWW FREIGHT TRANSPORT IN 2018 COMPARED TO 2014**



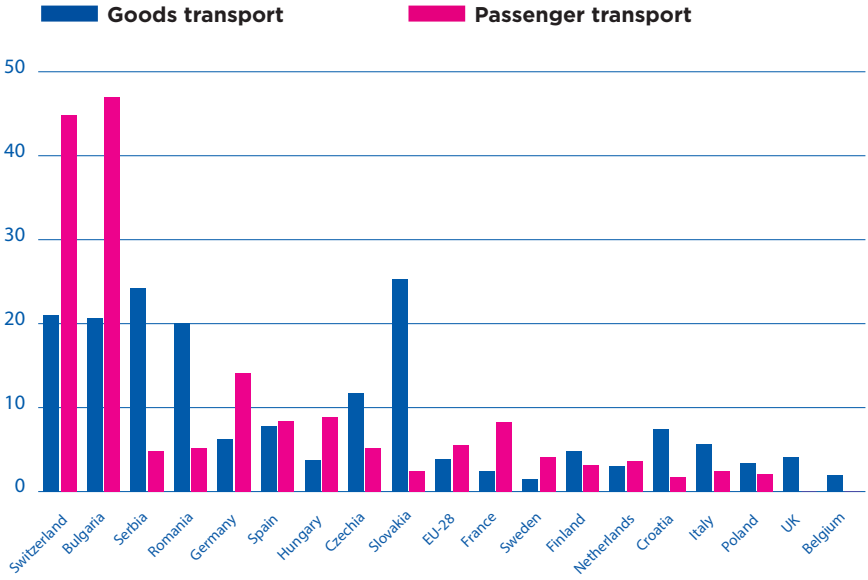
Source: Eurostat (sbs_na_1a_se_r2)

Switzerland has the largest average number of persons employed per company as its market is dominated by large river cruise companies (passenger sector) and tanker barging companies (freight sector). In tanker barging, the average company size is larger than in dry cargo transport. The Swiss structure contrasts sharply with the highly

fragmented market structure prevailing in most other Rhine countries. This structure is made up of a large number of small family businesses in France, Belgium, and the Netherlands that own or operate one or two dry cargo vessels. Germany has an intermediary market structure, where the degree of fragmentation is not as high as in its western neighbouring countries but higher than in its southern neighbouring country Switzerland.

In Danube countries, the market structure of freight transport is influenced by previously state-owned companies. As a result, the Danube company sector has a higher share of larger companies.

FIG.6: **NUMBER OF PERSONS EMPLOYED PER COMPANY PER COUNTRY IN 2017***



Source: Eurostat (sbs_na_1a_se_r2)
**Freight transport: 2016 for Bulgaria, 2015 for Hungary*
**Persons employed are self-employed, helping family members and employees.*

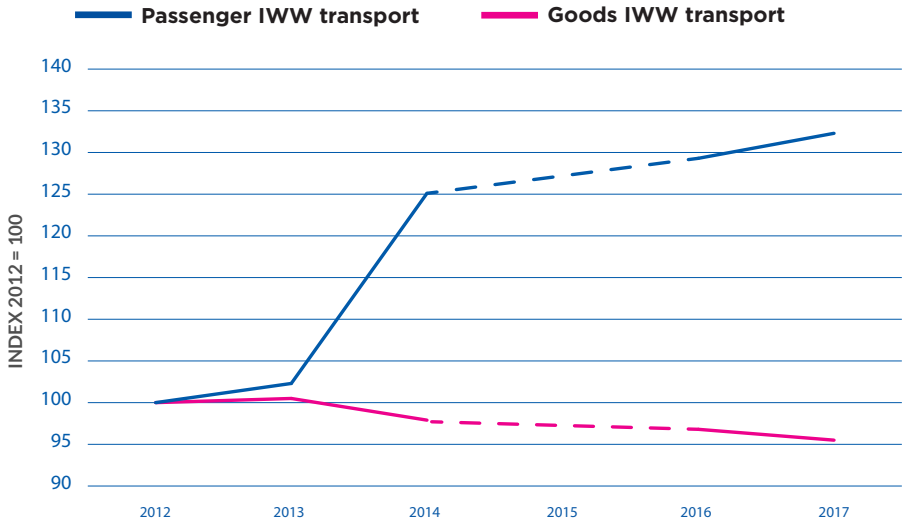
On average in the European Union, there are around five persons employed per inland waterway transport company (average of passenger and freight transport). Of course, this number is largely influenced by Germany and the Netherlands where, in 2017, respectively 82% and 97% of the companies had fewer than 10 persons employed.[24]

One should also highlight the difference between freight transport and passenger transport. Their weight in terms of the labour market is today more or less equal throughout Europe but the evolution over the past years has been different. While the size of the workforce is characterised by a decrease in freight transport employment between 2012 to 2018, the passenger transport sector successively registered a steady increase in employment between 2012 and 2018.

In addition to the substantial increase in the passenger transport workforce since 2013, one should also note that positions in inland navigation passenger transport are less and less impacted by seasonal breaks, leading to more stable career opportunities. Indeed, technological reasons, such as the use of modern cruise vessels or the use of single paddlewheel, and operational reasons such as a wider offer of cruise types, have considerably extended the service period for passenger transport.

[24] *Sources: Destatis and CBS*

FIG.7: **EVOLUTION OF EMPLOYMENT IN PASSENGER AND FREIGHT INLAND WATERWAYS TRANSPORT IN THE EU-28** (INDEX 2012 = 100)*



Source: Eurostat (sbs_na_1a_se_r2)
**Dotted lines represent linear extrapolations due to missing data for 2015.*

Eurostat SBS data are arguably the best source for the country by country comparison of employment figures. However, national institutions often have data that differ from the respective Eurostat SBS data, most probably due to methodological differences that are often hard to pin down.

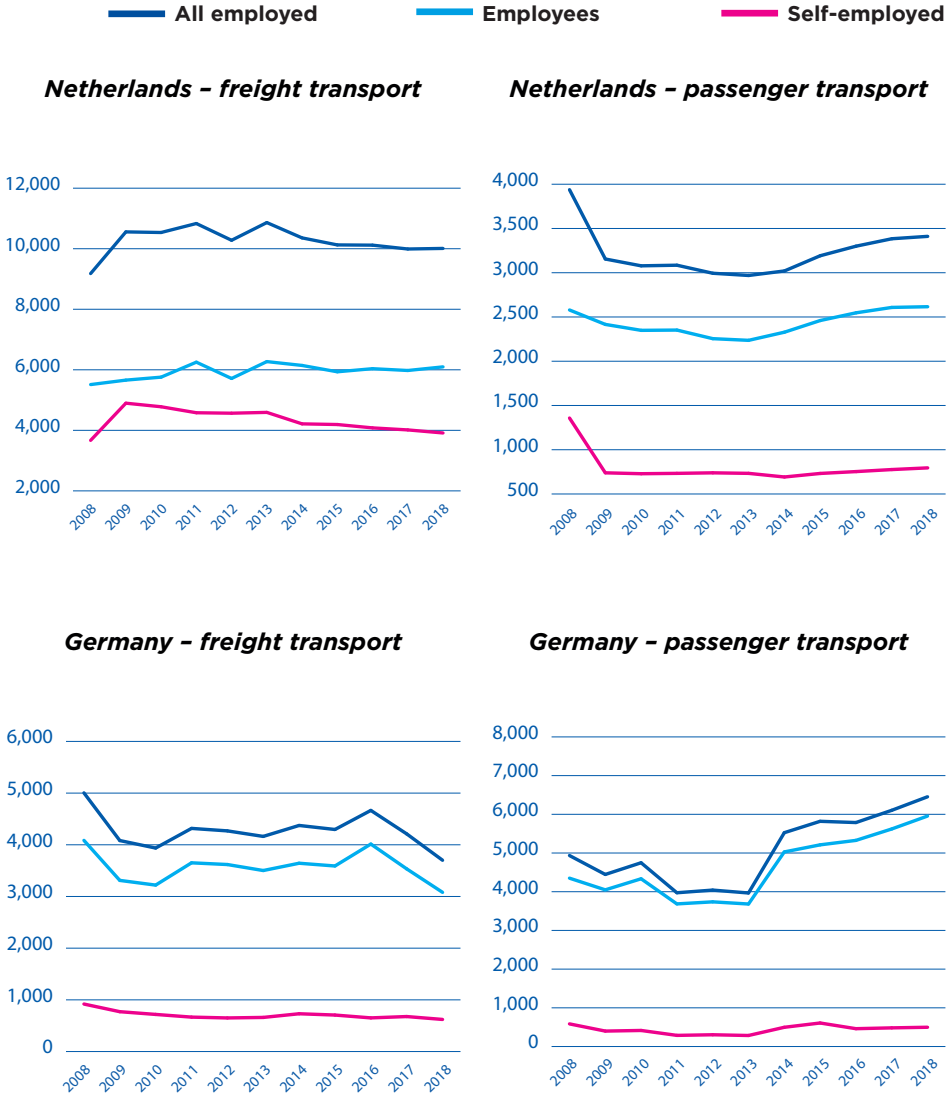
Whereas the Eurostat numbers of all persons employed in IWT per country are available until 2018, separations into employees and self-employed (including unpaid family members) are to date only available until 2017. Furthermore, this separation is not available for Switzerland for any year.

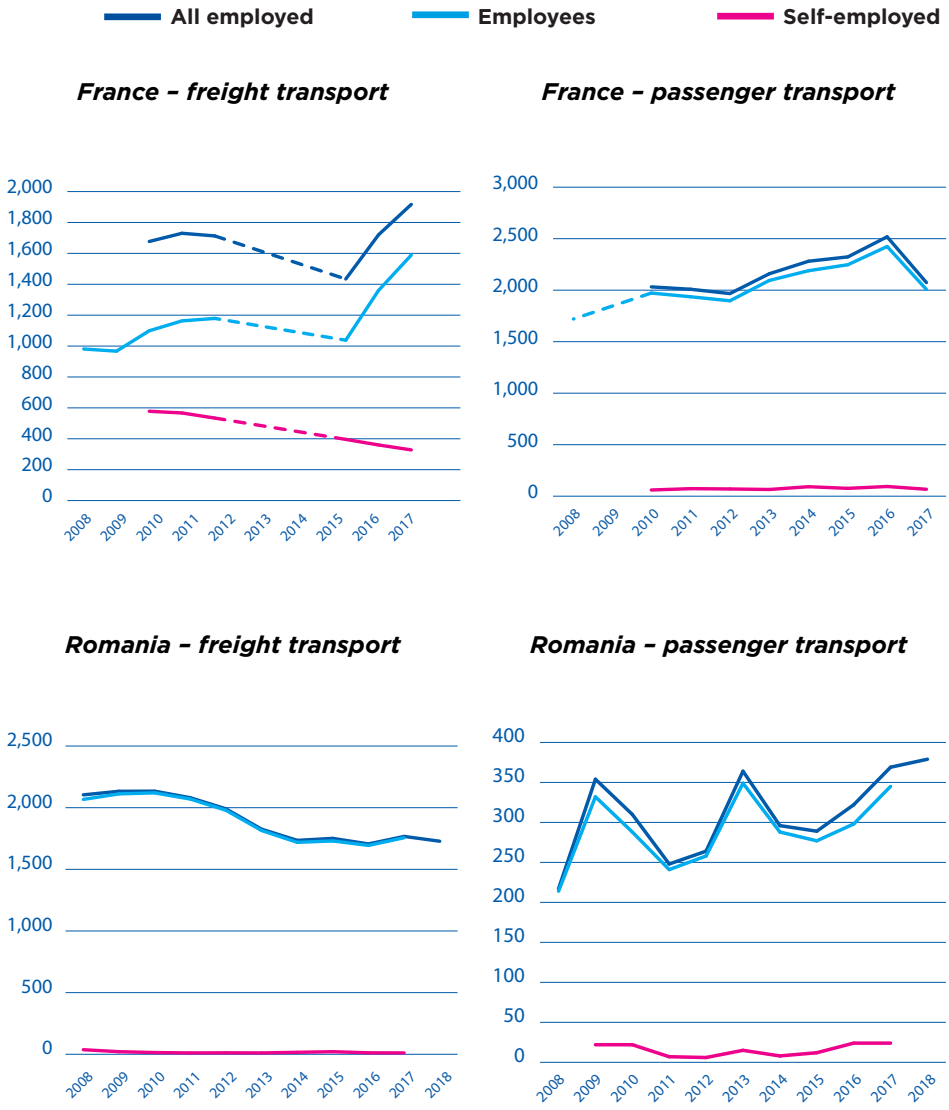
The prevalence of self-employment in IWT is much higher in western Europe than in eastern Europe where, apart from Poland and passenger transport in the Czech Republic and Slovakia, the figures are very low. This phenomenon can probably be explained by the historical fact that self-employment was almost non-existent in socialist economic systems.

FIG.8: EVOLUTION OF THE NUMBER OF PERSONS EMPLOYED IN IWT BY TYPE OF EMPLOYMENT AND COUNTRY*

Source: Eurostat SBS, series [sbs_na_1a_se_r2]

** Dotted lines represent linear extrapolations when data are missing for some specific years.*




All employed
Employees
Self-employed
France – freight transport
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
France – passenger transport
3,000
2,500
2,000
1,500
1,000
500
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
Romania – freight transport
2,500
2,000
1,500
1,000
500
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
Romania – passenger transport
400
350
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150
100
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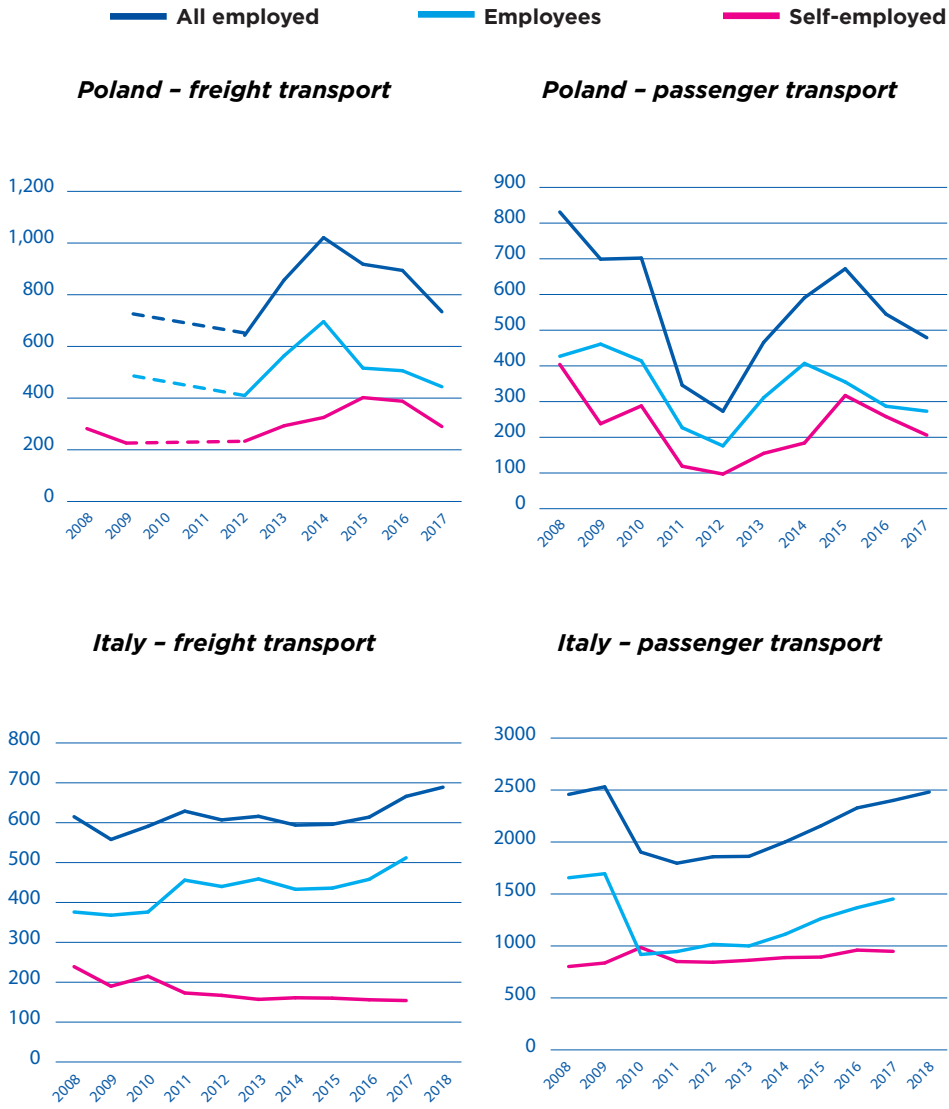
All employed
Employees
Self-employed
Poland – freight transport
1,200
1,000
800
600
400
200
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
Poland – passenger transport
900
800
700
600
500
400
300
200
100
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2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
Italy – freight transport
800
700
600
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400
300
200
100
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2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
Italy – passenger transport
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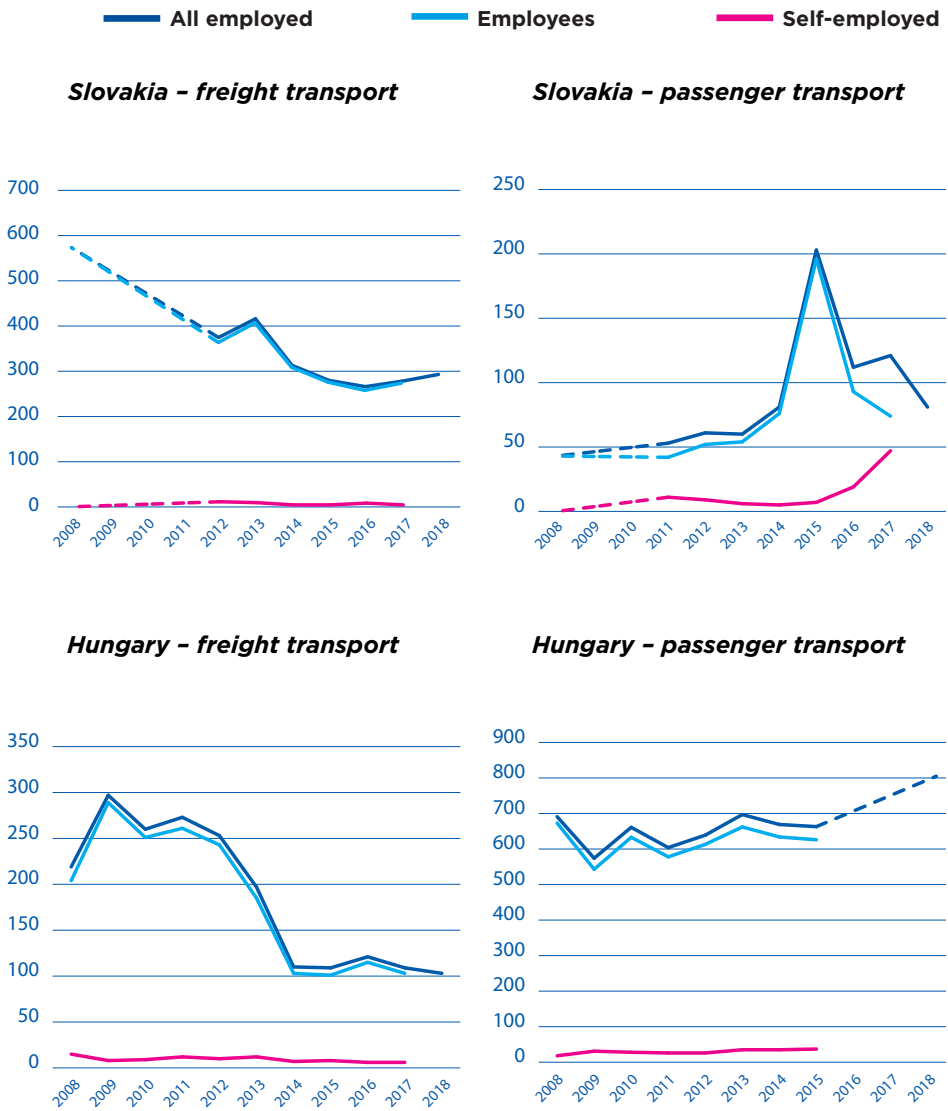
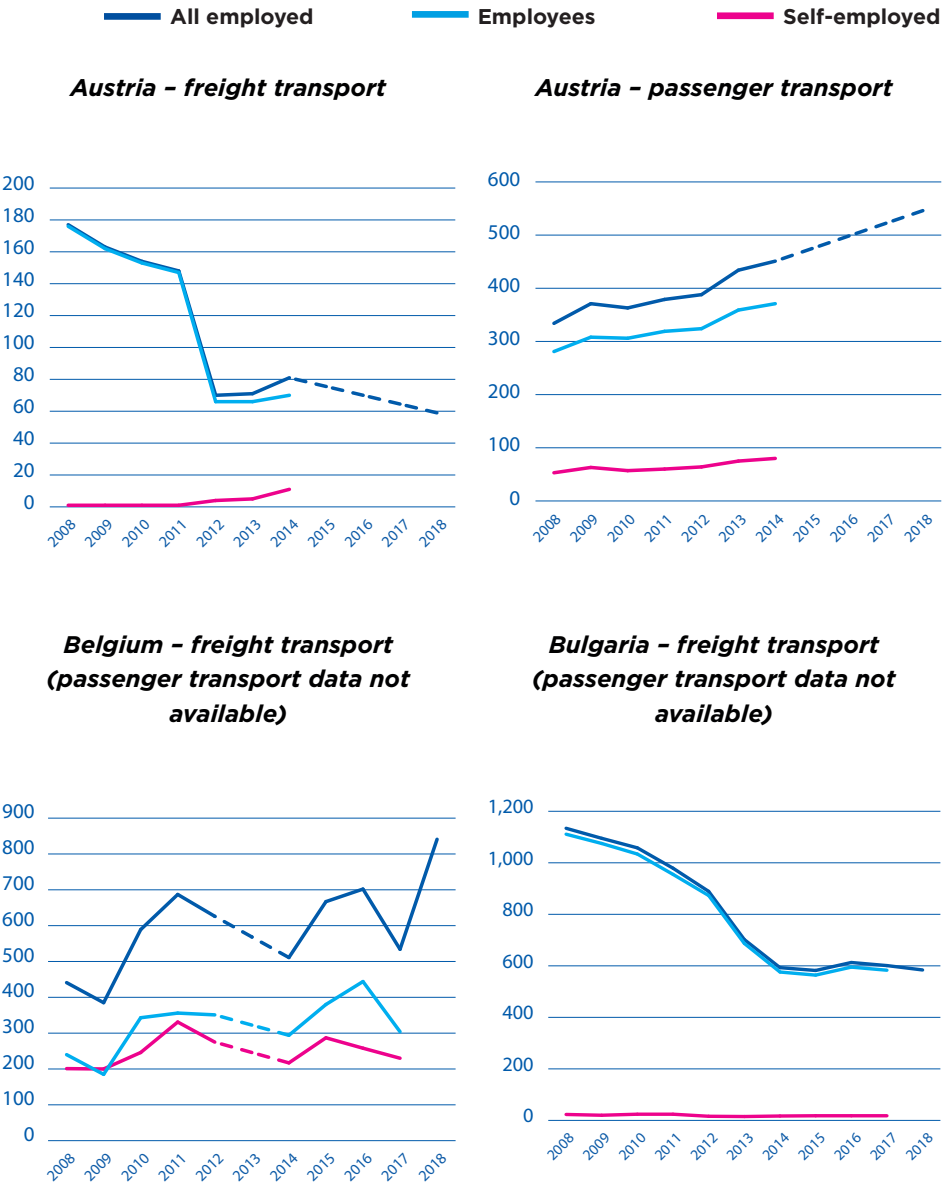
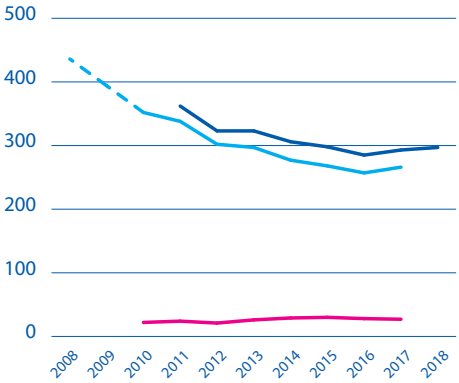

All employed
Employees
Self-employed
Slovakia – freight transport
700
600
500
400
300
200
100
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
Slovakia – passenger transport
250
200
150
100
50
0
Hungary – freight transport
350
300
250
200
150
100
50
0
Hungary – passenger transport
900
800
700
600
500
400
300
200
100
0

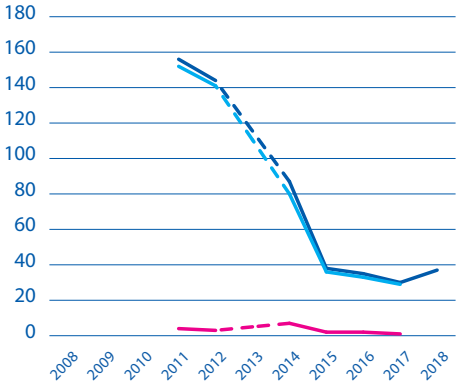


[25] Estimation from the European Federation of Inland ports based on various sources
[26] Source: CML Fraunhofer, Untersuchung der volkswirtschaftlichen Bedeutung der deutschen See- und Binnenhäfen auf Grundlage ihrer Beschäftigungswirkung, p. 51
[27] Source: UPT Erasmus, Binnenhavenmonitor 2019, Economische betekenis van de binnenhavens in Nederland in 2018
[28] Source: Central Commission for the Navigation of the Rhine, 2019 European Inland Navigation Market Observation annual report

Czech Republic – freight transport (passenger transport data not available)



Croatia – freight transport (passenger transport data not available)



Estimation regarding inland port workers in Europe[25]

Inland port workers are not included in the total number of workers in freight and passenger transport on inland waterways considered in the SBS Eurostat database. However, it is possible to provide some estimations, based on two methods explained below.

According to a recent study[26] performed in 2019, it is estimated that the work of 360,000 employees (direct and indirect) is generated by the activity of German inland ports. According to a recent Dutch study, 64,400 direct employees can be linked to Dutch inland ports.[27] Applying the indirect value calculation used in the study, direct and indirect employment generated by Dutch inland ports would amount to 103,000 employees. A total of 463,000 persons would therefore correspond to the number of jobs generated by inland port activities in these two countries. According to the CCNR 2019 Annual report[28], the Netherlands and Germany together constitute 72% of all goods transported on European waterways.

Using this size as the benchmark for linear interpolation, an estimation of the total employment effect (direct and indirect) in the European inland ports sector would constitute 643,000 employees.


NOVA

04

A COUNTRY-BY-COUNTRY ANALYSIS OF LABOUR MARKETS IN THE EUROPEAN IWT SECTOR

The country-by-country analysis in this chapter analyses the labour market in IWT more deeply by taking into account data from various national sources such as statistical offices, social security institutions, ministries, employment agencies and shipping administrations. It was not possible to present all data for the countries in exactly the same way (same indicators, same degree of detail, same methodology, etc.) This lack of consistency could not be avoided, given that the availability of data and the type of data produced in each country vary greatly from one country to another.

In addition, in this chapter, numbers may diverge from Eurostat SBS data for multiple reasons. First, unlike the Eurostat SBS numbers, which are based on administrative data, some sources in this chapter rely on survey data. Second, while Eurostat figures are entirely based on the NACE categories, which assign individuals to economic sectors according to their companies' main activities, some sources in this chapter classify persons according to their individual main occupations.

Comparisons between the numbers of different countries in this chapter should be done very carefully due to the possible methodological differences. But such comparisons are of course important and necessary, in order to identify tendencies which could not be evaluated based on Eurostat data only. Another potential source are service record books and certificates of qualification. However, they are often not a reliable source for the extent of employment at any given point in time:

- as it is not possible to determine whether the holder of a service record book or a qualification certificate is still active or retired and,
- one person might be in the database with more than one service record book or qualification certificate due to obtaining different ranks or fulfilling the obligation to renew a licence.

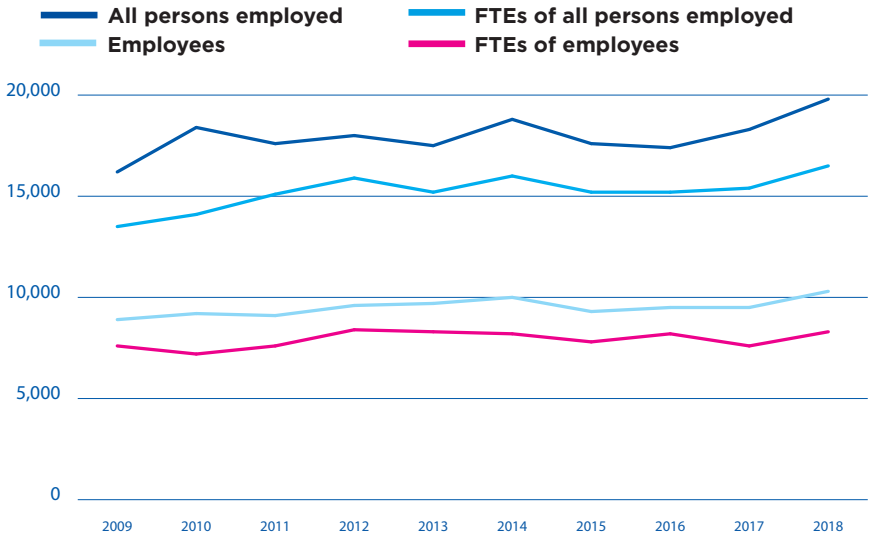
The availability of fully reliable service record books would be of incredible added value for the statistical monitoring of the labour market in inland navigation. The adoption of the delegated regulation 2020/473 is already a first step towards more reliability of the data registered in service record books.

The Netherlands

The numbers and full-time equivalents (FTEs)[29] of employees and all persons employed in Dutch IWT separately are based on sample surveys from Statistics Netherlands (CBS) and are presented in figures one to five.[30] Compared to Eurostat, the net hiring of persons from other companies is included in the definition used by CBS for all persons employed, which largely explains the differences observed between CBS and Eurostat data regarding the number of persons employed in the Netherlands. It is estimated by CBS that up to 3,000 persons employed in Dutch IWT in 2017 stemmed from net hiring from foreign companies. This number could also include workers posted to the Netherlands.

According to CBS data, employment in IWT in the Netherlands has increased from 2009 to 2018, particularly between 2017 and 2018, both in terms of the number of persons employed and hours worked.

FIG.1: **NUMBER OF FTEs AND PERSONS WORKING IN IWT IN THE NETHERLANDS BY EMPLOYMENT STATUS***



Source: Statistics Netherlands (CBS)

** The data on all persons employed comprise employees and self-employed.*

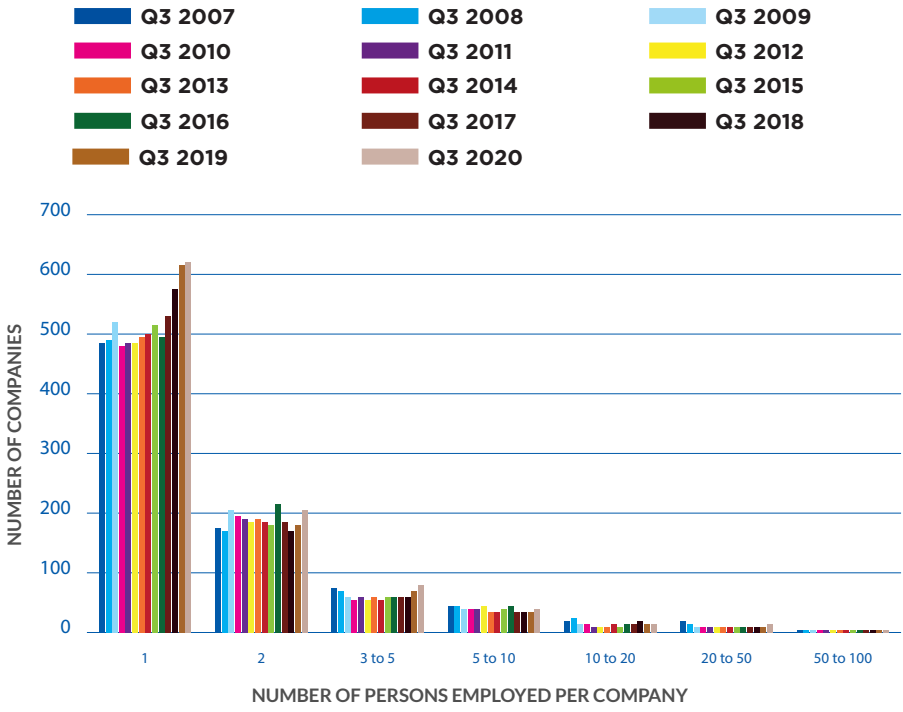
[29] One FTE corresponds to the workload of one person with a standard full-time contract. As an example, two persons working 20 hours per week each correspond to one FTE if a standard full-time contract comprises 40 hours per week.

[30] Administrative data used for the SBS Eurostat data

A number of companies in passenger and freight transport are rather small and employ only one or two persons. Regarding passenger transport companies, it should be considered that the Netherlands not only have larger river cruise companies but also many smaller companies active in day trip shipping.

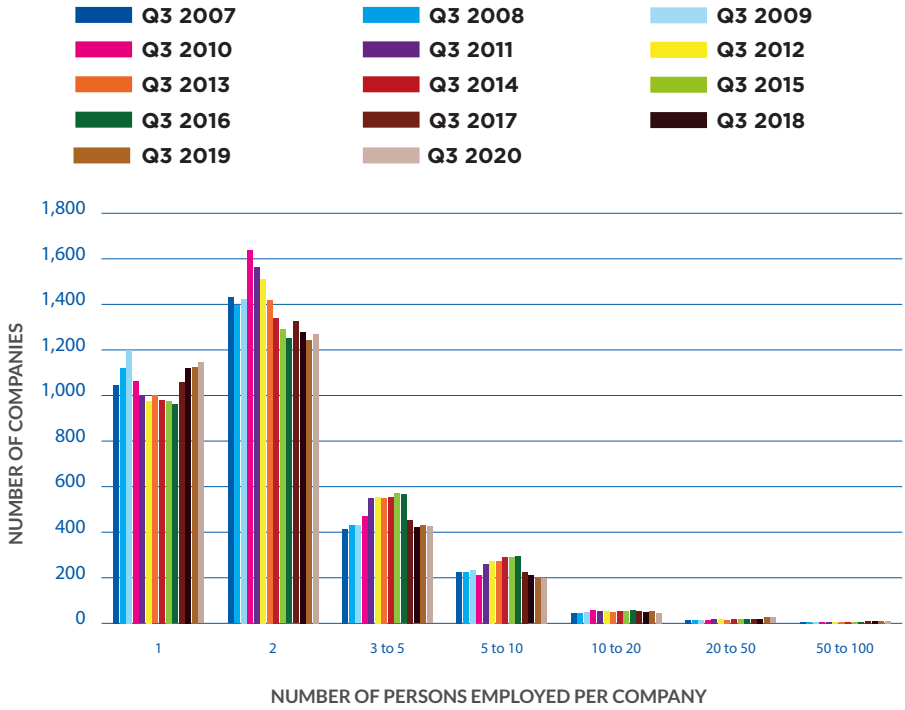
Since the year 2016, the trends in the number of one-person and two-person companies were far more positive than in the previous years.

FIG.2: **NUMBER OF PASSENGER IWT COMPANIES IN THE NETHERLANDS BY EMPLOYMENT SIZE**



Sources: Statistics Netherlands (CBS), CCNR analysis

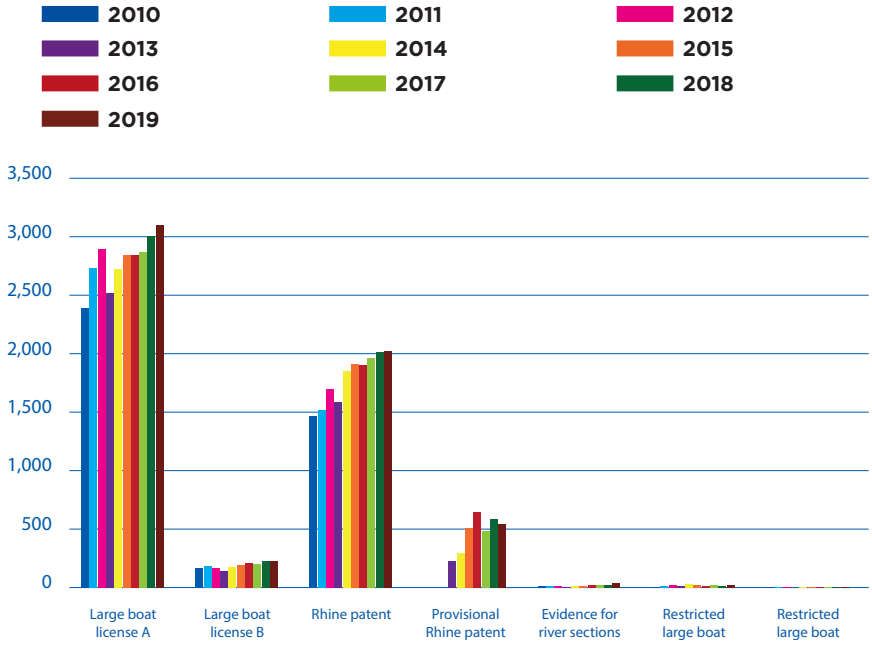
FIG.3: **NUMBER OF FREIGHT IWT COMPANIES IN THE NETHERLANDS BY EMPLOYMENT SIZE**



Sources: Statistics Netherlands (CBS), CCNR analysis

The licences needed in order to be allowed to operate inland vessels in the Netherlands are issued by the Central Office for Motor Vehicle Driver Testing (CBR). The issuing numbers of all licences have shown an upward trend during the last decade.

FIG.4: **NUMBER OF ISSUED LICENCES BY TYPE OF LICENCE[31] AND YEAR***



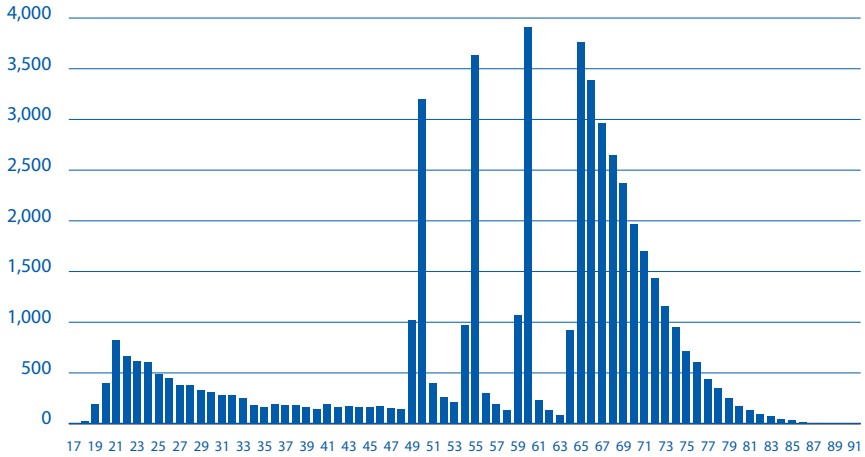
Sources: CBR, CCNR analysis

** Certificates for the proof of knowledge of river sections and the Restricted Large Boat Licences A and B are not shown due to their very small number with a maximum of 37 per type and year.*

It should be noted, however, that all considered licences must be renewed when reaching different age thresholds (50, 55, 60, 65 and every year after 65) so that changes in the number of licences issued over time might rather reflect the age structure than actual changes in the number of boatmasters. This consideration can help reconcile the slightly decreasing Eurostat SBS figures with the increasing number of issued certificates. Indeed, the number of licences issued during the last decade clearly peaks at these age thresholds.

[31] *More information on the scope of and the differences between these licences can be found in Dutch on CBR's webpage: https://www.cbr.nl/nl/beroepsexamens/binnenvaart/vaardocumenten-en-patenten.htm*

FIG.5: **NUMBER OF ISSUED LICENCES FROM 2010 TO 2019 BY AGE***



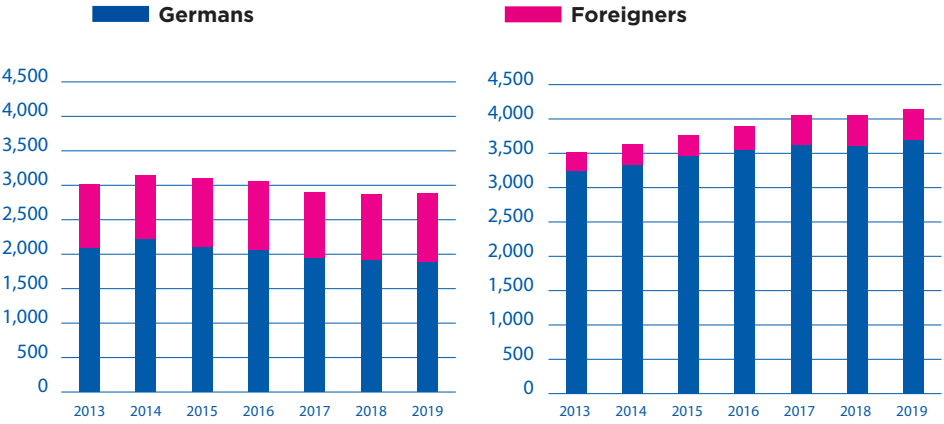
Sources: CBR, CCNR analysis

**Age thresholds for the obligation to renew the licences are marked. From age 65 onwards, an annual renewal is obligatory.*

Germany

Statistical data on employees in Germany were collected from the Bundesagentur für Arbeit (German Federal Employment Agency). These data relate only to employees, not to the self-employed. A first comparison between freight and passenger transport shows that the number of employees in passenger transport has increased, while it slightly decreased in freight transport.

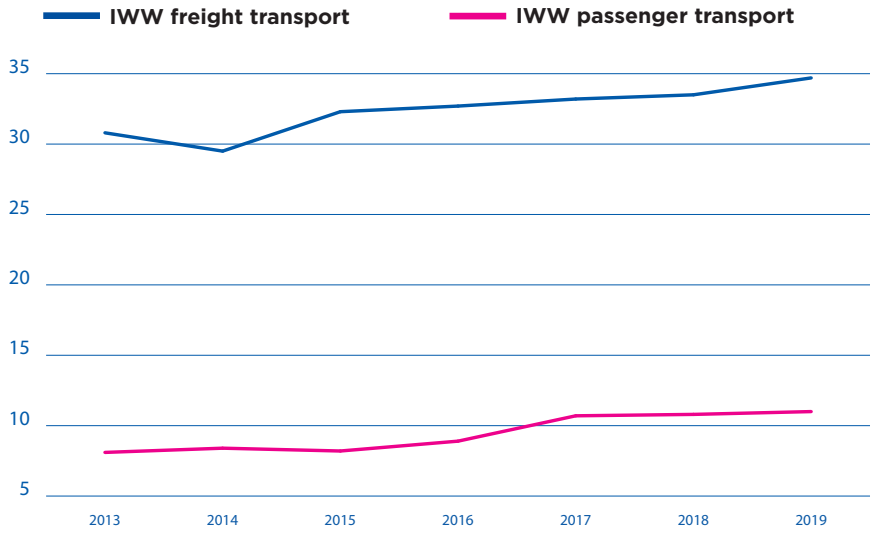
FIG.6 AND 7: **NUMBER OF EMPLOYEES IN IWW FREIGHT** (LEFT) **AND PASSENGER** (RIGHT) **TRANSPORT**



Source: Bundesagentur für Arbeit

The share of foreigners was 34.7% in German IWW freight transport in 2019, compared to only 11.0% in IWW passenger transport. In both segments these shares are on an upward trend.

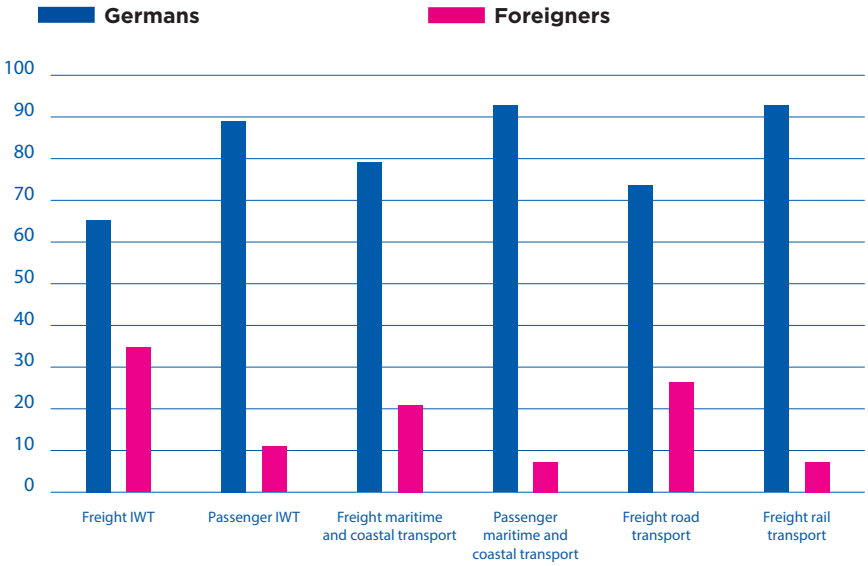
FIG.8: **SHARE OF FOREIGNERS WITHIN ALL EMPLOYEES IN GERMAN IWT**
(IN %)



Sources: Bundesagentur für Arbeit, CCNR analysis

Even when compared to other branches of the transport sector, the share of foreigners is relatively high in IWW freight transport. It exceeds the share of foreigners in maritime, road and rail freight transport. It is quite likely that such a high share of foreigners of almost 35% reflects to a certain degree also a rather limited attractiveness of inland waterway freight transport as an area of activity for German workers. The reasons why this could be the case might be linked to the specific working life on a vessel, the related working hours, and social aspects.

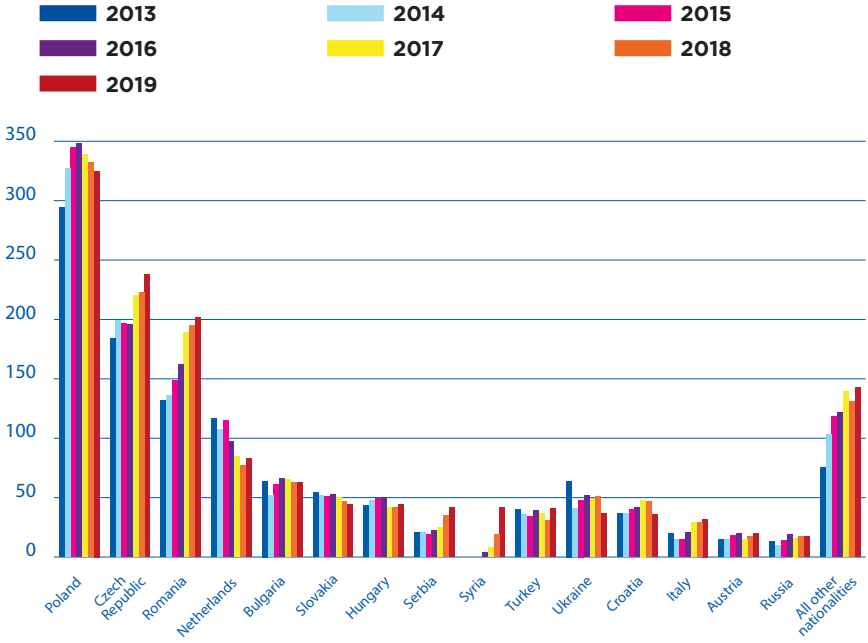
FIG.9: **SHARE OF GERMANS AND FOREIGNERS AMONG EMPLOYEES IN THE GERMAN TRANSPORT SECTOR** (IN %)



Sources: Bundesagentur für Arbeit, CCNR analysis

The three most important countries of origin of foreigners working in the German IWW sector are Poland, the Czech Republic and Romania. The number of Czech and Romanian workers increased throughout the time period from 2013 to 2019, while the number of Polish workers increased only until 2016 and then decreased slightly.

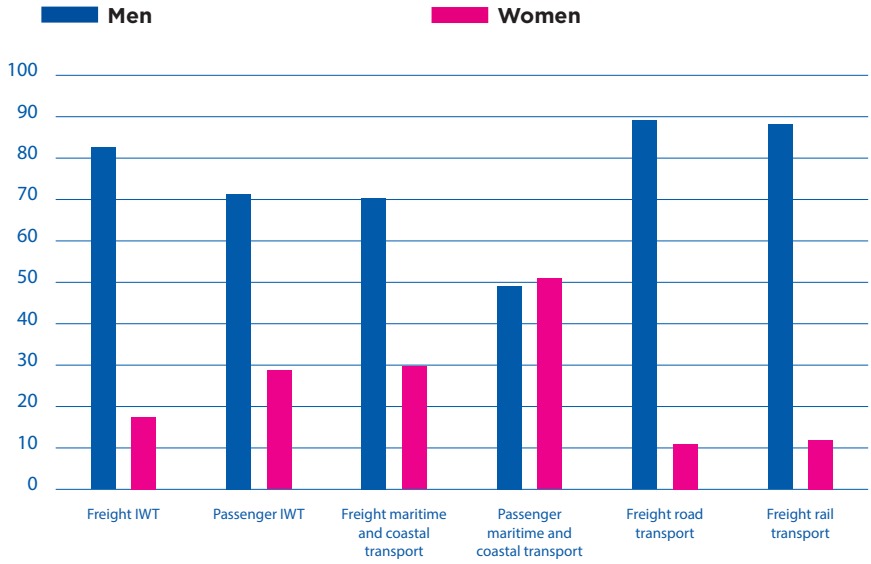
FIG.10: **NUMBER OF EMPLOYEES WITH FOREIGN NATIONALITY IN THE GERMAN INLAND NAVIGATION SECTOR BY NATIONALITY**



Sources: Bundesagentur für Arbeit, CCNR analysis. Data concern both freight and passenger transport.

A differentiation by gender reveals a rather high share of male workers in the transport sector overall, with the exception of passenger maritime and coastal transport, where the share between male and female workers approaches a ratio which is more typical of the economy as a whole. In IWW passenger transport, the share of female workers is much higher than in IWW freight transport, most likely due to the gastronomic and service activities which play an important role within passenger transport.

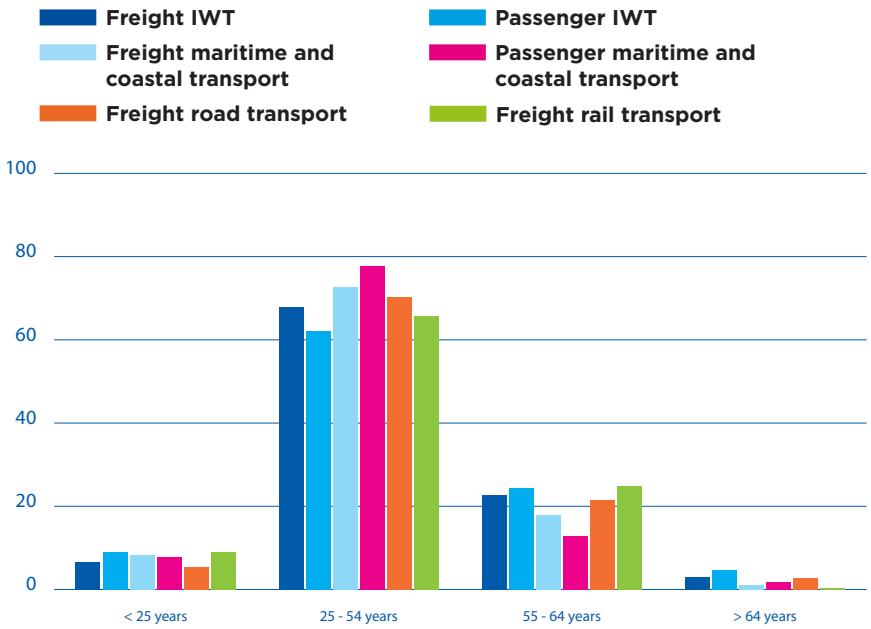
FIG.11: **SHARE OF EMPLOYEES BY GENDER** (IN %)



Sources: Bundesagentur für Arbeit, CCNR analysis. Situation as at 30 June 2019.

The distribution of employees according to age groups is currently not very different in IWW freight and passenger transport when compared to other transport modes.

FIG.12: **SHARE OF EMPLOYEES BY AGE GROUP** (IN %)

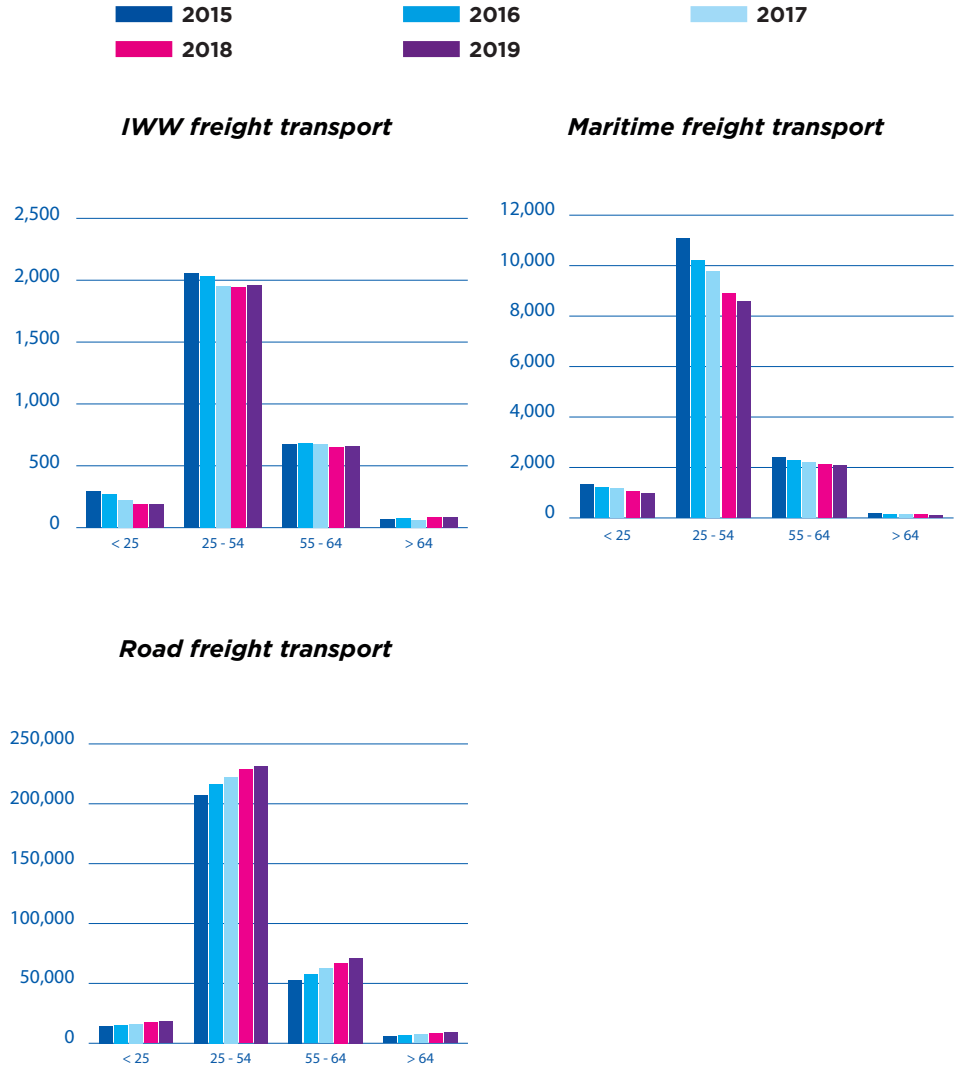


Sources: Bundesagentur für Arbeit, CCNR analysis. Situation as at 30 June 2019.

Taking into consideration the evolution of age group distributions over time per mode of transport, some important features can be observed.

First of all, within the youngest age group (< 25 years), the number of workers in IWW freight transport and in maritime freight transport has decreased since 2015, while it has increased in IWW passenger and in road freight transport. Secondly, employment in maritime freight transport is on a downward trend, which is stronger than the relatively mild overall reduction of employees in IWW freight transport. Thirdly, it can be observed that employment in road transport is increasing in all age groups.

FIG.13: **NUMBER OF EMPLOYEES IN FREIGHT TRANSPORT OVER THE PERIOD 2014-2019 BY AGE GROUPS**

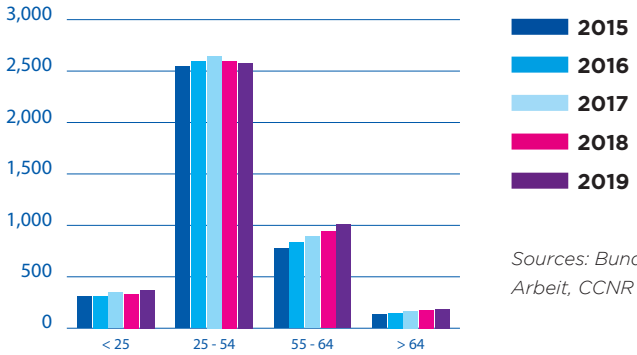


Sources: Bundesagentur für Arbeit, CCNR analysis

With regard to employment in IWW passenger transport, an overall positive employment evolution can be observed, largely attributed to the 55-64 age group.

FIG.14: **NUMBER OF EMPLOYEES IN IWW PASSENGER TRANSPORT OVER THE PERIOD 2014-2019**

IWW passenger transport

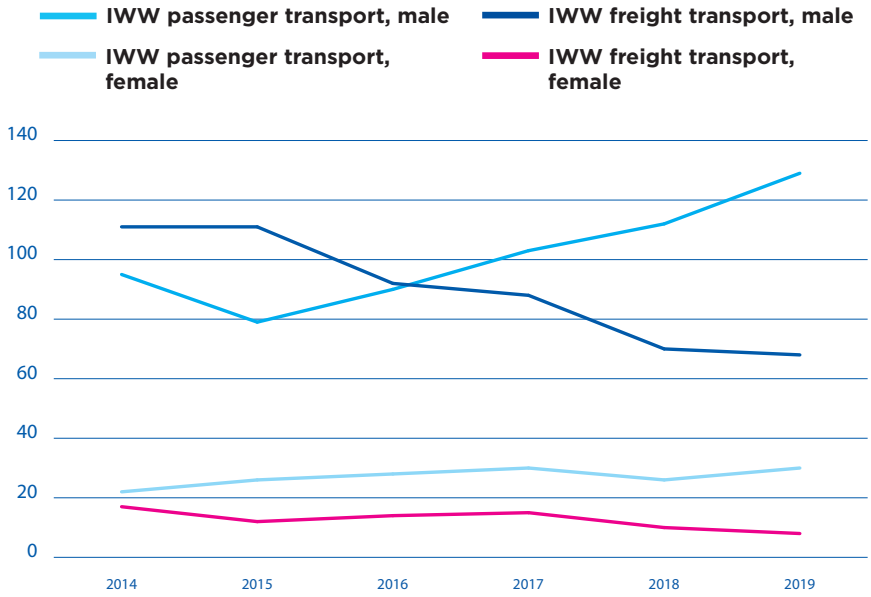


Sources: Bundesagentur für Arbeit, CCNR analysis

This positive employment trend in IWW passenger transport is also visible when considering the number of apprentices. In particular, the number of male apprentices in passenger transport increased in recent years, while the number of male apprentices in freight transport decreased.

The average share of female apprentices in the time period 2014-2019 was 12% for IWW freight transport and 21% for IWW passenger transport. The share of female workers in inland navigation is therefore expected to remain relatively low in the next years.

FIG.15: **NUMBER OF APPRENTICES IN GERMAN INLAND WATERWAY TRANSPORT PER SECTOR AND GENDER**

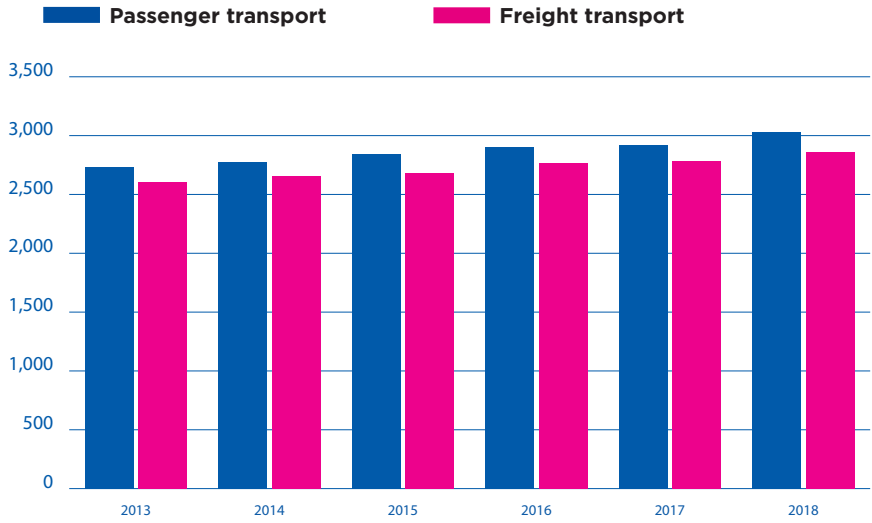


Sources: Bundesagentur für Arbeit, CCNR analysis

The monthly gross median income[32] for full-time IWW workers under the social security regime in Germany has increased since 2013.

[32] A median is a statistical indicator, which should not be confounded with the arithmetic average of a series. The median of a data series, in this case of a wage series, is the value which divides the data series (sorted by size) into two equal halves. 50% of the wages are therefore higher than the median wage, and 50% are lower than the median wage. Compared to the arithmetic average, the median is less influenced by extremely high or extremely low wages. It therefore gives a more realistic picture of the 'typical' wage level.

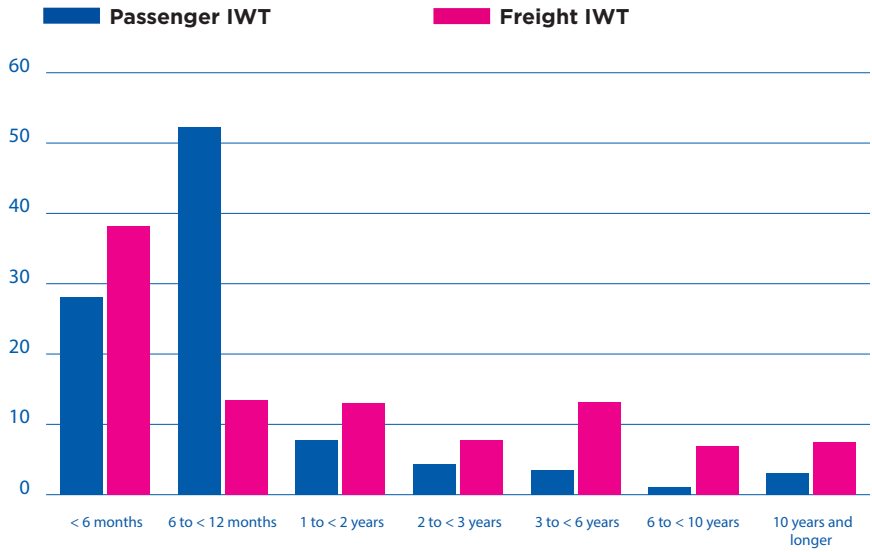
FIG.16: **GROSS MEDIAN INCOME IN PASSENGER AND FREIGHT IWT** (IN €)



Sources: Bundesagentur für Arbeit, CCNR analysis

The Bundesagentur für Arbeit also reprocesses data in order to have an overview of the durations of employment relations, subject to social security contributions. In 2018, 1,940 employment relations in passenger IWT and 965 in freight IWT were terminated. A high share (52%) of terminated employment relations with a duration of between 6 to and 12 months in passenger IWT can be observed, providing evidence for a high degree of seasonality in this sector, in particular for river cruises. No such seasonality pattern occurs in freight IWT. Yet, about 38% of all terminated employment relations in this sector lasted less than 6 months in 2018.

FIG.17: **SHARE OF DURATIONS OF EMPLOYMENT RELATIONS TERMINATED IN 2018** (IN %)

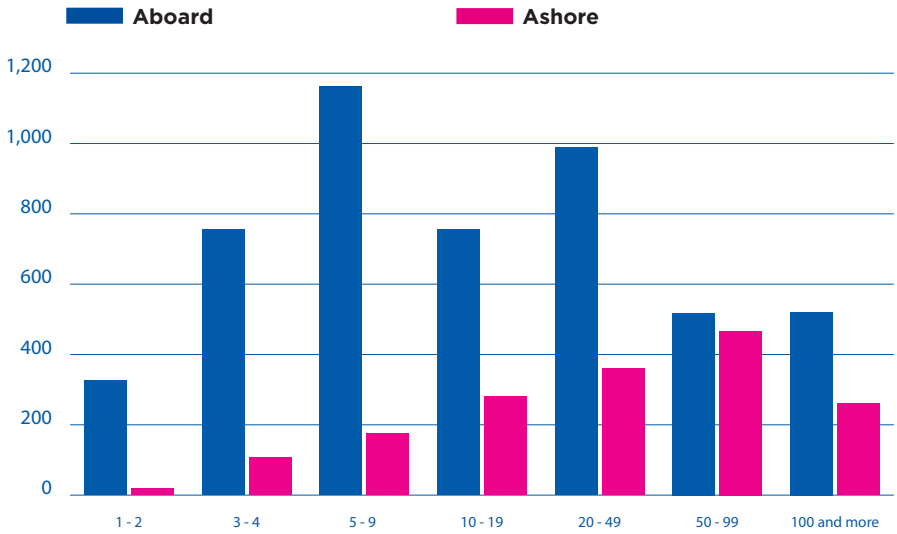


Sources: Bundesagentur für Arbeit, CCNR analysis. Only employment relations subject to social security contributions.

So far, the data presented on German IWT concern only employees. In addition, the Federal Statistical Office of Germany (Destatis) provides data for the entirety of persons employed in German IWT, thus including the self-employed. It differentiates between persons employed on board vessels and persons employed ashore. The number of persons employed aboard vessels remained fairly constant between 2014 and 2018 and the number of persons employed ashore only increased substantially between 2017 and 2018.

More detailed information is available for the year 2017 when 697 of the 5,113 persons working aboard a vessel in that year were self-employed (vessel owners or their helping family members). When looking at employment by the size of enterprises and the place of work (aboard or ashore), it can be observed that persons working ashore rather work for larger enterprises.

FIG.18: **NUMBER OF PERSONS EMPLOYED IN IWT IN GERMANY* IN 2017 BY EMPLOYMENT SIZE OF THE ENTERPRISE AND PLACE OF WORK**

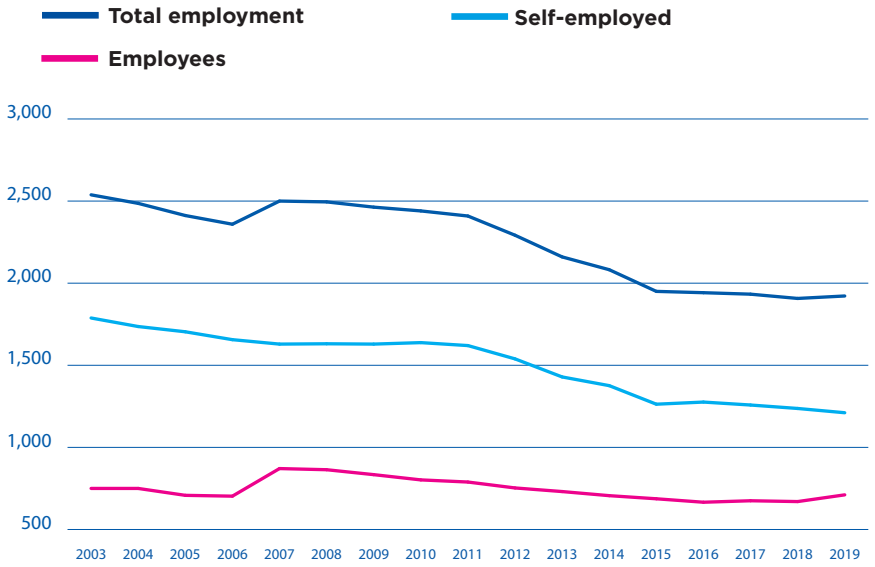


Source: Federal Statistical Office of Germany (Destatis). All data are from 30 June 2017
**Excluding 112 persons employed in internal company or factory traffic as differentiation by employment size is incomplete.*

Belgium

Data for the number of self-employed and employees in the IWT sector in Belgium are taken from databases of the national insurance organisations in Belgium (INASTI for the self-employed and ONSS for the employees). According to INASTI, in 2019, 1,211 self-employed persons in Belgium belonged to the professional group of barge owner-operators. According to ONSS, in 2019, there 711 employees in Belgium were working in inland waterway transport. According to these organisations, the figures cover both freight and passenger transport.

FIG.19: **NUMBER OF EMPLOYEES AND SELF-EMPLOYED IN IWT IN BELGIUM**

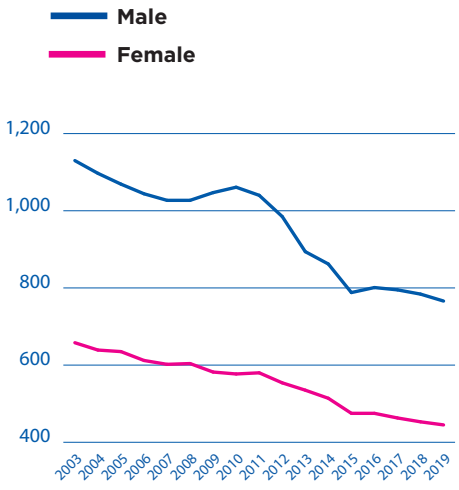


Sources: INASTI, ONSS

The increase in the number of employees from 2006 to 2007 mirrors a structural break in the data. Before 2007, helping family members were not counted as employees in the ONSS data.

Overall employment has been decreasing for a long time in Belgium. Since the year 2015, a kind of stabilization has been taking place to some extent, thanks to a small increase in the number of employees, and a less pronounced decrease of self-employed. The reasons for this decline will be explained as far as possible in the following paragraphs.

FIG.20: **NUMBER OF SELF-EMPLOYED BARGE OWNER-OPERATORS IN BELGIUM BY GENDER**



Source: INASTI

In 2018, among the 784 male self-employed persons, 705 were self-employed barge owners, 24 were spouses of female self-employed and 55 belonged to the category of other helping family members.

In 2018, with 453 female self-employed persons, 114 were self-employed barge owners, 279 were spouses of male self-employed, and 60 belonged to the category of other helping family members.

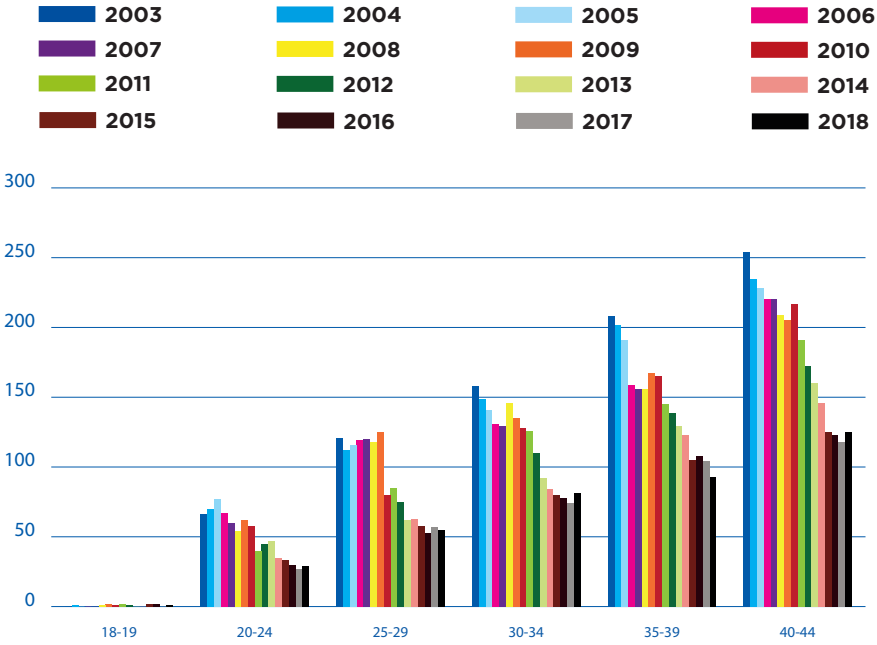
The number of self-employed barge owner-operators decreased between 2003 and 2015. After 2015, the decrease was still present but became less pronounced. When differentiating by age groups, it is seen that the reduction was especially strong within younger entrepreneurs, both in absolute and in relative terms. For example, the number of self-employed belonging to the age group 40-44 approximately halved between 2003 and 2018 (a reduction from 254 to 125 self-employed). For the age group 35-39, the figures decreased

by even more than 50%, from 208 self-employed in 2003 to 93 in 2018. For the age group 30-34, the reduction was again around 50%.

For older age groups, the decrease was either less pronounced, or there was no decrease at all. This is the case for persons in the age group 60-64 and the age group of persons older than 65. The number of self-employed in these age groups even increased.

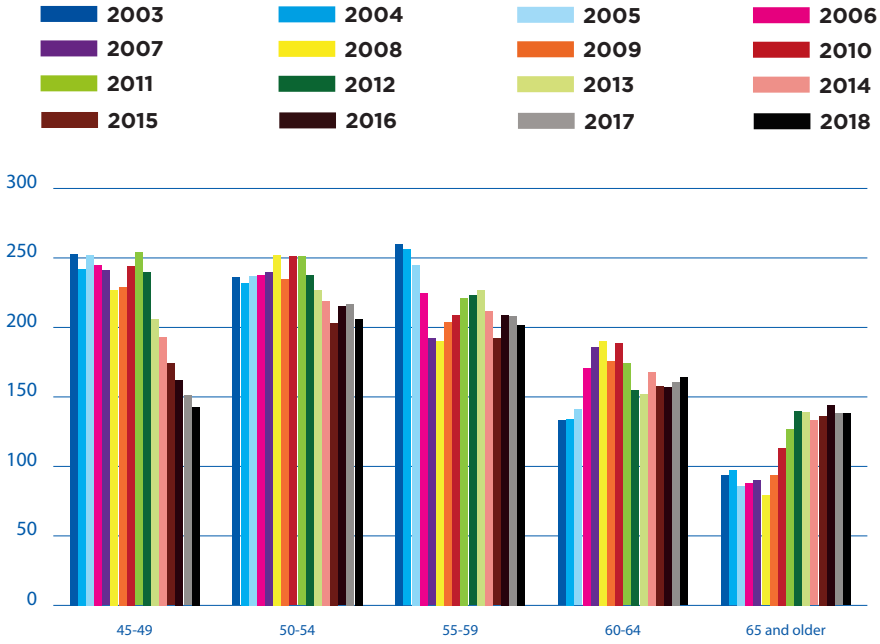
In the years following the financial crisis of 2009, an acceleration in the decrease in the number of self-employed is seen, mainly for younger age groups.

FIG.21: **NUMBER OF SELF-EMPLOYED IN BELGIUM BY AGE GROUP** (AGED 18-44)



Sources: INASTI, CCNR analysis. Numbers include the self-employed and the assisting family members.

FIG.22: **NUMBER OF SELF-EMPLOYED IN BELGIUM BY AGE GROUP** (AGED 45 AND OLDER)



Sources: INASTI, CCNR analysis. Numbers include the self-employed and the assisting family members.

Overall, the data point to the fact that the financial crisis in 2009 did have a very negative effect on the economic conditions in the segment of self-employed barge owners in Belgium. The impacts on the numbers of self-employed is different according to age groups. The reduction was most severe for younger age groups, and less severe for older age groups. Apart from the financial crisis, there is also evidence for a decrease in the number of younger entrepreneurs that had already started well before the financial crisis. This pre-financial crisis decrease is apparent for persons aged between 30 and 44. It would therefore be wrong to attribute the whole decrease in Belgian self-employed barge owner-operators only to the financial crisis. Other factors, linked with company succession and the attractiveness of the sector to younger persons, will very likely play another role.

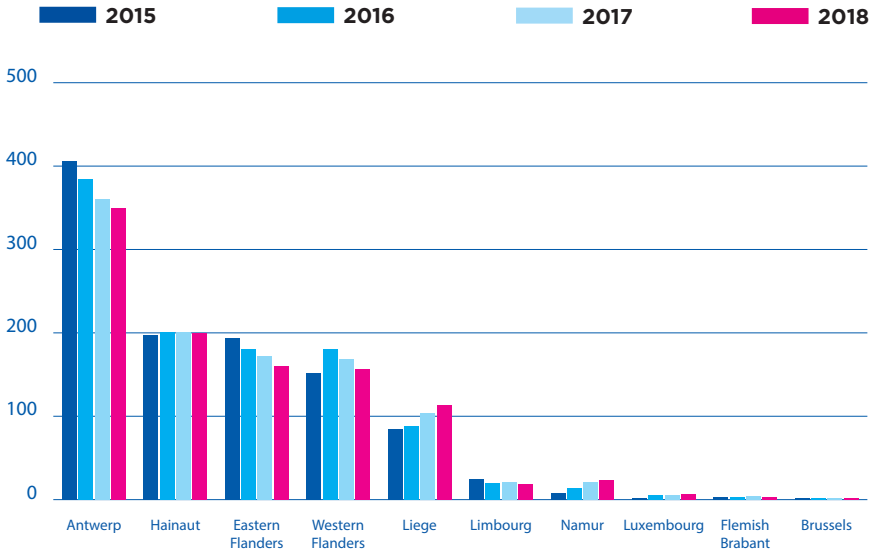
In any case, the data show without doubt that, in the last 17 years, there has been a significant degree of ageing within the group of self-employed barge owner-operators in Belgium. This ageing is best visible when looking at the increase of self-employed persons aged 60 and above and the sharp decrease of persons aged 49 or younger.

The fact that age groups 55-59 and 60-64 did not experience a major drop in numbers after 2009 and that the age group '65 and older' even increased in numbers, can be explained by several factors.

- Firstly, an important aspect is that for older entrepreneurs, the option of leaving the inland navigation sector and working either ashore or in another sector when a major economic crisis appears, is less likely than for younger entrepreneurs.
- Secondly, for self-employed barge owners, the vessel also represents an asset which can be sold on retirement. However, vessel prices dropped sharply in the wake of the financial crisis in 2009, when the reduction in demand created significant overcapacity, so that there were less incentives or even possibilities to sell the vessel at a reasonable price and to retire.
- Thirdly, the increase in numbers within the age group 60-64 and 65 and older is partly also the result of age cohorts 'moving' into these age groups over time (over a period of 15 years). The fact that younger age groups did not increase in size, but got smaller, shows that there were simply not enough individuals among younger age groups entering the IWT market.
- Fourthly, in explaining this phenomenon, the topic of company succession as discussed in chapter 1c) might play a substantial role. As it is becoming more difficult for younger persons to engage in IWT as self-employed, older owner-operators might find it increasingly difficult to find a purchaser for their vessels, or to hand over their vessels to their children.

Regarding the regional distribution of Belgian self-employed, it can be seen that the province of Antwerp is ranked first, followed by the province of Hainaut and then East and West Flanders.

FIG.23: **INDEPENDENT BARGE OWNERS IN BELGIUM ACCORDING TO PROVINCE***



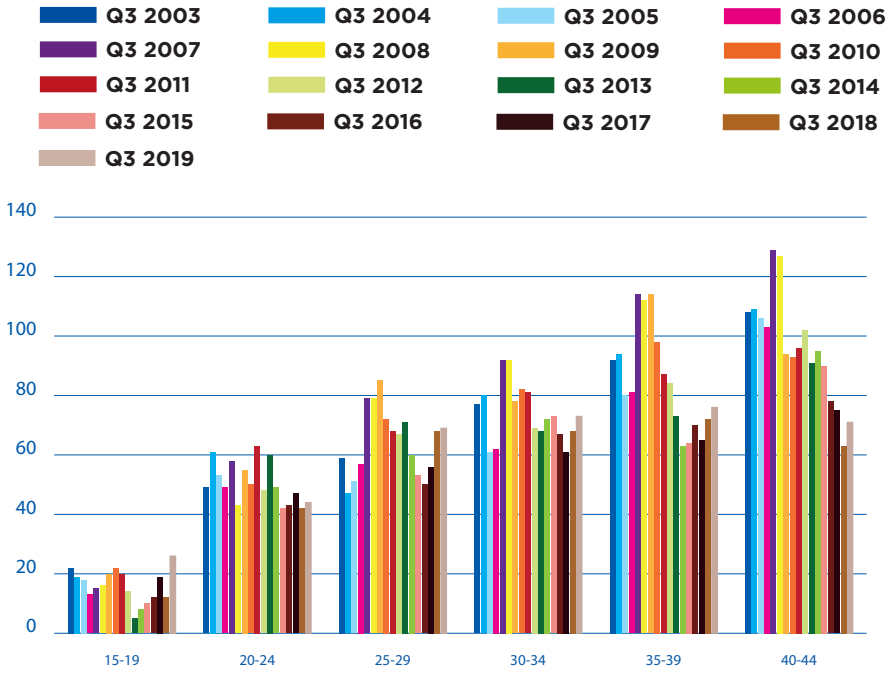
Sources: INASTI, CCNR analysis

**The province indicated is the province where the self-employed person is living.*

Employees

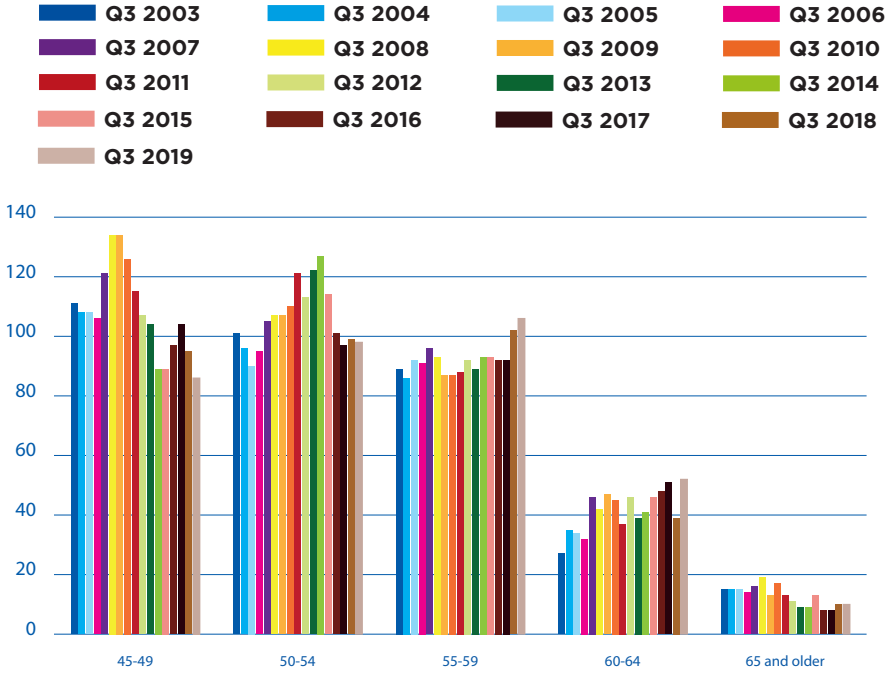
One important similarity can be observed when comparing the figures for employees and self-employed in Belgium. After 2009, the number of employees fell, especially for persons aged between 25 and 49 years. For employees aged 50 and older, there was an increase in the number of employees aged between 50 and 64 until 2014, and for persons aged between 55 and 64, this increase continued also after 2014. A difference compared to the self-employed is that the age group above 64 has not increased in numbers. This is understandable in light of aspects related to company succession. The tendency of the self-employed to continue their activity at a higher age is a general pattern observed, and not limited to inland navigation.

FIG.24: **NUMBER OF EMPLOYEES IN BELGIUM PER AGE GROUP** (AGED 15-44)



Source: ONSS

FIG.25: **NUMBER OF EMPLOYEES IN BELGIUM PER AGE GROUP** (AGED 45 AND OLDER)



Source: ONSS

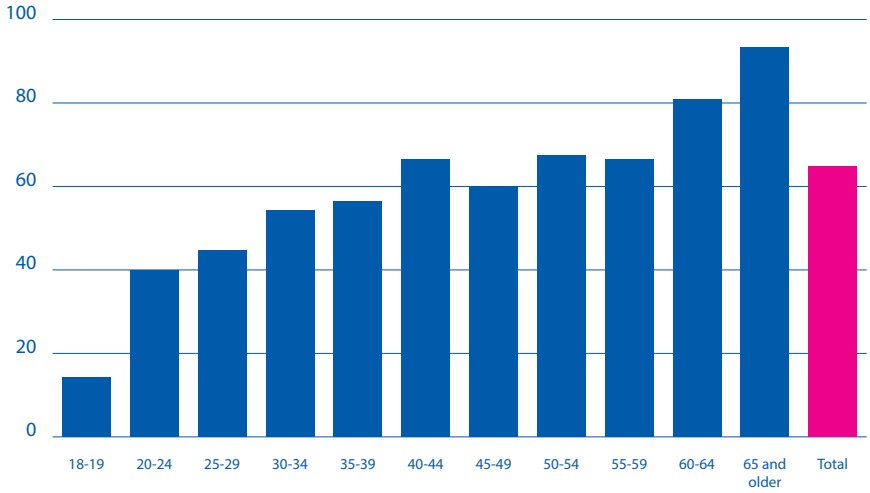
While the prevalence of younger persons has clearly decreased over the last years, the number of persons in their late 50s has been remarkably stable during this time and even increased in 2018 and 2019.

Only about half of the employees in IWT are still active between 60 and 64, although Belgium's legal requirement age for retirement is 65. However, in 2018, Belgians on average effectively retired at the age of 61.8, the fourth-lowest value of all OECD countries.[33] In combination with persons in their late 50s, this also means that an above-average share of employees in Belgian IWT will presumably retire in the next few years.

[33] *A OECD, Pensions at a Glance 2019, November 2019*

Only a small share of employees is still active after the legal retirement age. This stands in stark contrast to the extensive work activity in that age group for the self-employed, which has even substantially and lastingly increased in the wake of the 2009 financial crisis. In 2018, on average two-thirds of all employed persons in Belgian IWT were self-employed, which increased with age and culminated at around 93% for those aged 65 and older. As previously explained, this is probably due to the, often, difficult financial situation of the older self-employed in Belgian IWT.

FIG.26: **SHARE OF SELF-EMPLOYED AMONG ALL PERSONS EMPLOYED IN IWT IN BELGIUM** (2018) (IN %)



Sources: INASTI, ONSS, CCNR analysis

France

Dares (Direction de l'Animation de la recherche, des Études et des Statistiques), the statistical office of the French Ministry of Labour, collects and maintains rich data on employees in France that work under the regulations of sectoral collective bargaining agreements. The self-employed are thus not covered by the Dares data.

For the field of inland navigation, there is a total of three collective labour agreements marked by different identifiers (IDCCs), one for passenger transport ("Navigation intérieure passagers"), one for persons employed on board vessels in freight transport ("Navigation intérieure de marchandises ouvriers") and the last for shore-based personnel mainly in freight transport such as in ports or for transport logistics ("Navigation intérieure de marchandises sédentaire"). However, there are plans to merge these three collective agreements in the future which will possibly make it more difficult, from a statistical point of view, to differentiate between passenger and freight IWT employees.

The Dares data enable the comparison of employees under these inland navigation collective agreements with:

- the whole population of employees under collective agreements (referred to in the following as "all agreements"), therefore covering all economic sectors of activity in France, and,
- all employees under collective agreements in the whole transport sector (CRIS), including road, rail, air, maritime and inland navigation transport.

This makes it possible to uncover particularities of employment in the inland navigation sector and thus facilitates the understanding of its structure. However, it must be noted that the Dares data are not directly comparable to Eurostat SBS[34] data as the pool of employees covered is not the same. Indeed, the assignment to a certain collective agreement does not necessarily correspond to the assignment to a related NACE category, on which Eurostat data and data from national statistical institutes such as INSEE (Institut National de la Statistique et des Etudes Economiques) in the case of France are based. Instead, a substantial share of employees covered by the relevant collective agreements are classified into NACE categories, other than inland navigation, such as

[34] *Structural Business Statistics*

that for road freight transport. Yet, this does not mean that they less accurately embrace employment on board of vessels in inland navigation. On the contrary, a strength of the Dares data is that not only do they include employees working exclusively in the inland navigation transport sector, but also those who work in companies with a main activity other than inland navigation, such as multi-modal logistics companies, but who are working in the IWT sector. Such employees are generally not covered by Eurostat data.

On the cut-off date of 31 December 2016, about 2,900 persons (1,600 on board and 1,300 ashore) were employed under the collective agreement for workers in IWW freight transport. These 2,900 persons accounted for about 2,700 full-time equivalents (FTEs). This difference probably stems from some persons working part-time. Additionally, about 2,800 persons were subject to the collective agreement for employees in IWW passenger transport, accounting for about 3,500 FTEs. As one FTE corresponds to a standard French full-time contract of 35 working hours per week, this implies a working time of nearly 44 hours per week in case of a full-time contract or a corresponding proportionate working time in the event of having a part-time contract. This observation corroborates the assumption that a great deal of overtime is accumulated by employees working on board vessels in passenger transport where a high number of working hours is common, particularly on river cruises during the peak of the river cruise season. In addition, it can be the case that crew members want to earn as much as they can by working longer hours to support their family for instance, or might prefer to accumulate their days off in favour of longer holidays with their family at home once the season is over.

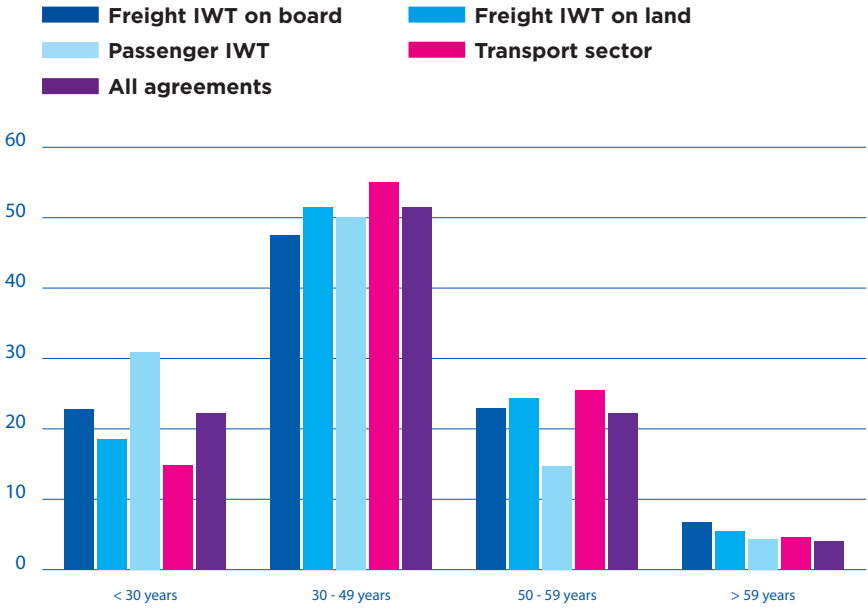
All in all, these numbers indicate that the employment share of inland navigation in overall transport in France is only between 0.4% and 0.5% when leaving aside the self-employed. Nevertheless, the absolute numbers are higher than the respective Eurostat SBS figures. Large parts of the difference can be explained by the fact that more employees work in a company with a main activity other than IWT (and are thus not classified as working in IWT by Eurostat or INSEE) but are still covered by an IWT collective agreement, rather than vice versa.

When analysing the socio-demographic structure of the workforce, an important characteristic is the age of the employees. The Dares data give

the shares of employees belonging to pre-defined age groups. The IWW sector, particularly the passenger transport segment, has a comparatively high share of young employees. About 31% of the employees in IWW passenger transport and about 19% to 23% of the employees in IWW freight transport are under 30 years old while this only applies to about 15% in the overall transport sector, and to about 22% of all employees subject to collective bargaining agreements. On the contrary, IWW passenger transport has comparatively few employees aged between 50 and 59.

IWW freight transport has a slightly above average share of employees of 60 years of age or older, particularly regarding persons working on board vessels. This implies that a relatively high share of employees will retire in the forthcoming years compared to other sectors, unless they continue to work after reaching retirement age, a phenomenon that is relatively common for persons working on board inland navigation vessels.

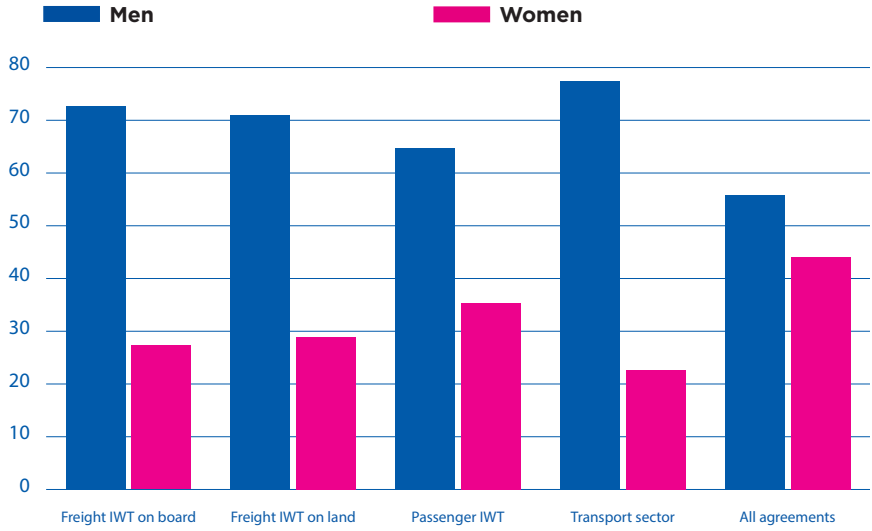
FIG.27: **RELATIVE DISTRIBUTION OF EMPLOYEES ACROSS AGE GROUPS** (IN %)



Sources: Dares, CCNR analysis. Situation as at 31 December 2016.

Furthermore, inland navigation is a very male-dominated sector, albeit a little less so than all transport sectors together. Slightly more than 70% of the employees in IWW freight transport in France are men (compared to 77% if all transport sectors are taken into account). With a female share of employment of more than a third, IWW passenger transport is a peculiarity within the transport sector. This is probably caused by a higher number of women among the hospitality staff on board river cruise vessels. In practice, the share of female workers on board is probably underestimated as spouses who help are often not "officially" counted as working personnel on board inland navigation vessels.

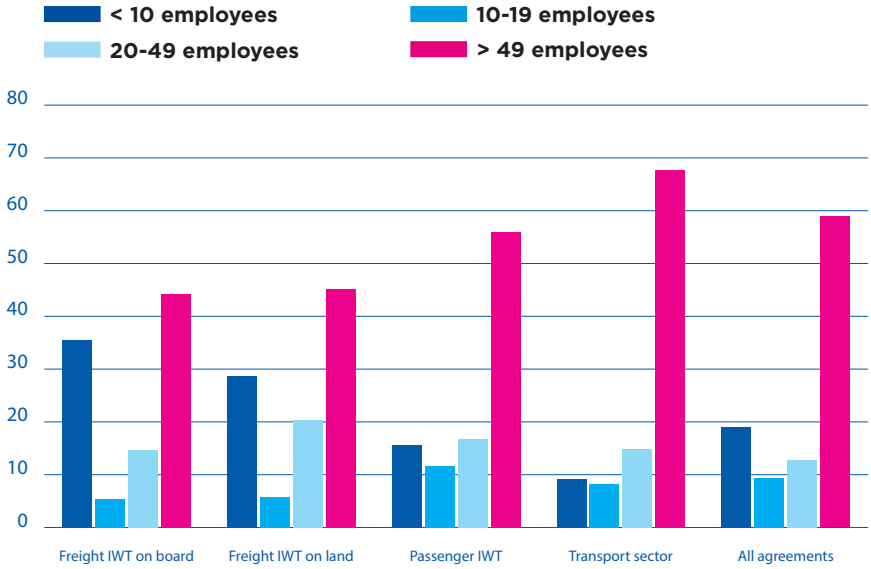
FIG.28: **SHARE OF EMPLOYEES BY GENDER** (IN %)



Sources: Dares, CCNR analysis. Situation as at 31 December 2016.

Moreover, in IWW freight transport in France, between 29% and 36% of employees are employed in small companies with less than 10 employees, while this share amounts to only about 9% when considering the whole transport sector. On the contrary, only about 16% of the employees in IWW passenger transport are employed in companies with less than 10 employees. Employment in larger companies is thus more common in passenger than in freight transport. It should be noted that about one-third of all employees in IWW passenger transport are employed by one single company.

FIG.29: **SHARE OF EMPLOYEES BY EMPLOYMENT SIZE OF ENTERPRISE** (IN%)



Sources: Dares, CCNR analysis. Situation as at 31 December 2016.

Another data source for company size in French inland navigation is the French national statistical office INSEE. Based on the NACE concept, about 98% of the companies (representing about 42% of the FTEs) in freight IWT and about 90% of the companies (representing about 11% of the FTEs) in passenger IWT employed less than 10 persons in 2017. About 58% of the FTEs in freight transport and about 63% of the FTEs in passenger transport worked on board vessels.

The lower share of employees working in large companies based on INSEE data seems to confirm the hypothesis according to which a substantial number of employees are working for larger multi-purpose companies, with a focus other than IWW freight or passenger transport, and which are considered in the Dares figures but not in the INSEE figures.

Given the Dares data, the part-time share of employees in IWT in France is all in all quite low compared to the transport sector and the economy as a whole. This notably applies to women in passenger IWT. However,

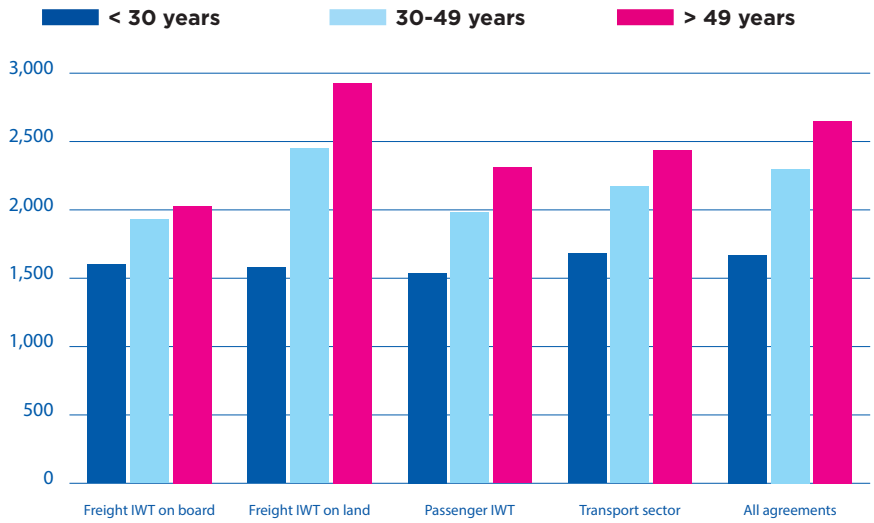
as is generally in the case regarding the whole economy, the share is distinctly higher for women than for men.

The share of women or men employed under a fixed-term contract usually lies in the same order of magnitude in the IWT sector as in the transport sector and throughout the whole economy. However, it can be noted that men in passenger IWT are far more likely to be employed under a fixed-term contract than men in other sectors.

In order to examine the structure of the French IWT labour market as best as possible, it is also useful to look more closely at the wages that to a large extent naturally determine the attractiveness of a sector. The Dares data give the average monthly net wage of an FTE for three age groups. It is striking that the initial wage level is quite similar across the different sectors, although it is slightly lower in the IWT sector compared to the rest of the transport sector and the whole economy. Wage increases of individuals over time, however, differ strongly between sectors.

Compared to all other considered sectors, the increase of wages when growing older is lower in freight IWT on board and higher in freight IWT on land. Concerning the wage level in passenger IWT, it is worth taking into consideration that due to the high amount of monthly hours worked in this sector, the monthly net income is about 25% higher than the monthly net wage of an FTE. This is not the case for employees covered by the two freight IWT collective agreements for which monthly income is even slightly below the monthly wage of an FTE as they work fewer hours than foreseen in a standard contract.

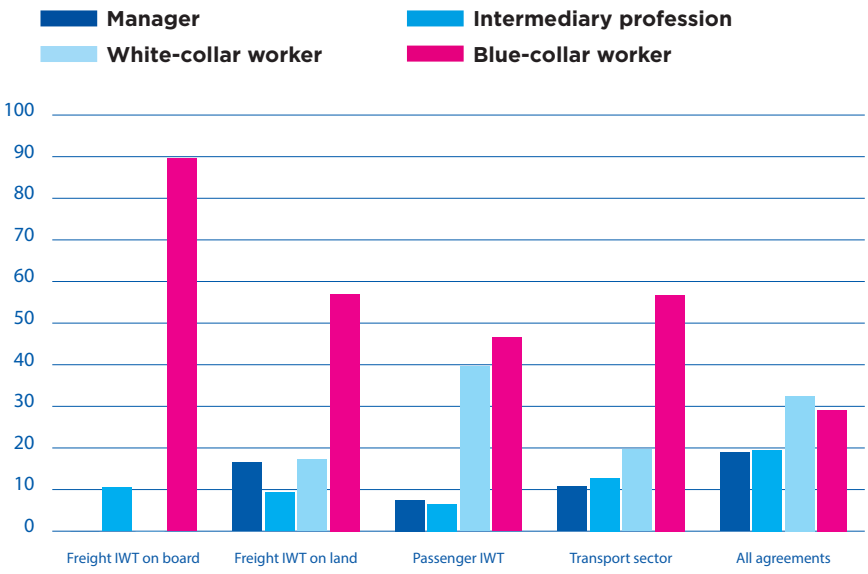
FIG.30: **AVERAGE MONTHLY NET WAGE OF A FTE BY AGE GROUP** (IN €)



Sources: Dares, CCNR analysis. Situation as at 31 December 2016.

It is important to know that the wages studied so far are average wages of all people in a specific sector. Thus, one could falsely conclude that employees in freight IWT on board are considerably underpaid in comparison to other sectors. However, this interpretation is challenged when analysing wages separately for different occupational categories. Indeed, about 90% of all employees covered by the collective agreement for freight IWT on board are blue-collar workers ("ouvriers") and the approximate remaining 10% are in an intermediary positions ("profession intermédiaire") between white-collar workers ("employés") and managers ("cadres"), while the latter two categories are by definition not included in this collective agreement. This means that there is a large predominance of occupational categories with typically lower wages. The share of blue-collar workers is substantially lower among employees of the two other IWT collective agreements.

FIG.31: **SHARE OF OCCUPATIONAL CATEGORY** (IN %)



Sources: Dares, CCNR analysis. Situation as at 31 December 2016.

These differences can explain a large part of the wage differentials. As shown in the figure below, the average wage of employees in freight IWT on board is not lower than that of other sectors when examined by occupational category. Furthermore, it is evident that the average wages of an FTE in the other occupational categories in passenger IWT are comparatively low, bearing in mind that this is probably largely due to more hours worked. Taking this fact into account, it can, all in all, still be concluded that the IWT sector in France, when adjusting for occupational classifications, pays its employees competitive wages when compared to the transport sector and the economy as a whole.

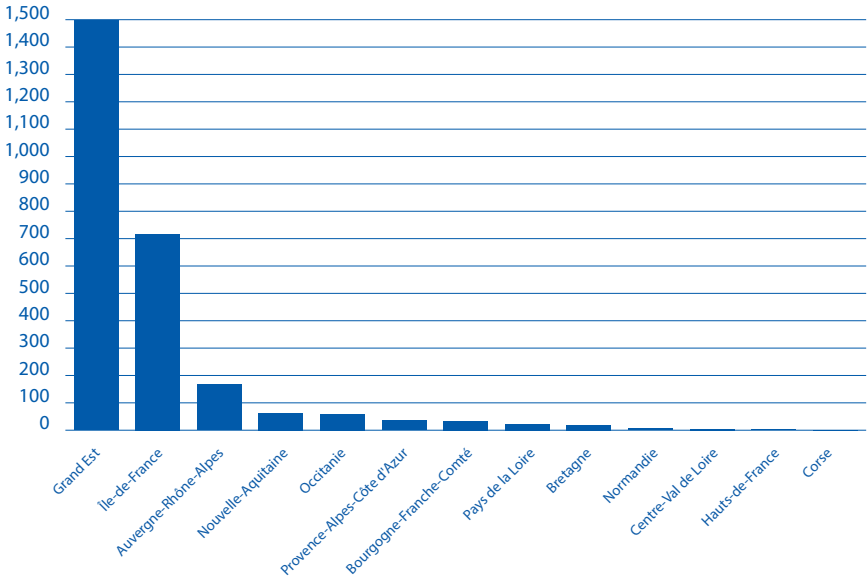
FIG.32: **AVERAGE MONTHLY NET WAGE OF AN FTE BY OCCUPATIONAL CATEGORY** (IN €)

Sources: Dares, CCNR analysis. Situation as at 31 December 2016.

In addition to Dares on the one hand, and the closely related INSEE and Eurostat on the other hand, there is a third major data source for France, the Central Agency for Social Security Bodies (ACOSS - "Agence Centrale des Organismes de Sécurité Sociale"), which is also based on the NACE categories. Based on this data source, it can be seen that the administrative region 'Grand Est' (Alsace, Lorraine and Champagne) is the most important region for passenger IWT employment with more than 50% of all the employees in passenger IWT in France, followed by the region Île-de-France, which accounts for another quarter. The high amount of employment in the Grand Est region in passenger transport could also be explained by the fact that the French river cruise company CroisiEurope is based in Strasbourg in Alsace.

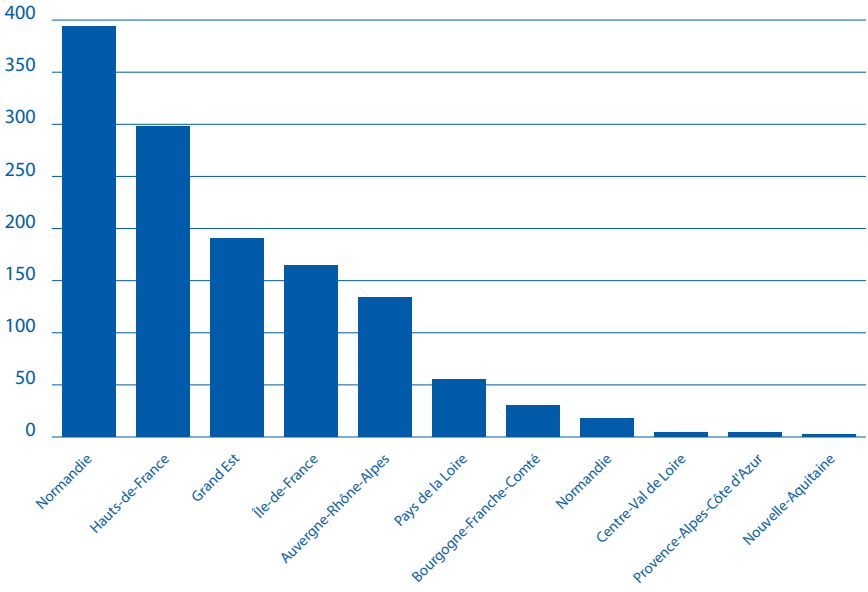
Normandie is in the lead when considering the number of employees in freight IWT, followed by Hauts-de-France. Both regions together account for more than half of all employees in the freight sector.

FIG.33: **NUMBER OF EMPLOYEES IN PASSENGER IWT PER REGION IN 2018**



Sources: ACOSS, CCNR analysis

FIG.34: **NUMBER OF EMPLOYEES IN FREIGHT IWT PER REGION IN 2018**



Sources: ACOSS, CCNR analysis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Switzerland

As was indicated earlier, Switzerland has the largest average number of persons employed per company in European IWT. This is due to the sizeable role of two market segments, tanker barging and river cruises, in Swiss inland navigation. Both market segments are characterised by company structures with a rather high number of employees. In addition, both segments play an important role in the Swiss inland navigation sector.

It can also be observed that the Swiss freight fleet is the youngest of all Rhine countries, in terms of years of construction.[35] The main reason is that Switzerland has a very modern tanker barge fleet. The average loading capacity of Swiss tanker barges was 3,023 tonnes in 2019, compared to an average of 2,134 tonnes for the whole tanker barge fleet of Rhine countries. Next to the year of construction statistics mentioned above, the high loading capacity of Swiss tanker barges also confirms that Swiss tanker barges are rather new, as the loading capacity of new tanker barges in western Europe has in general increased over the years. It points also to a relatively high investment rate and modern company structures in Swiss tanker barging.

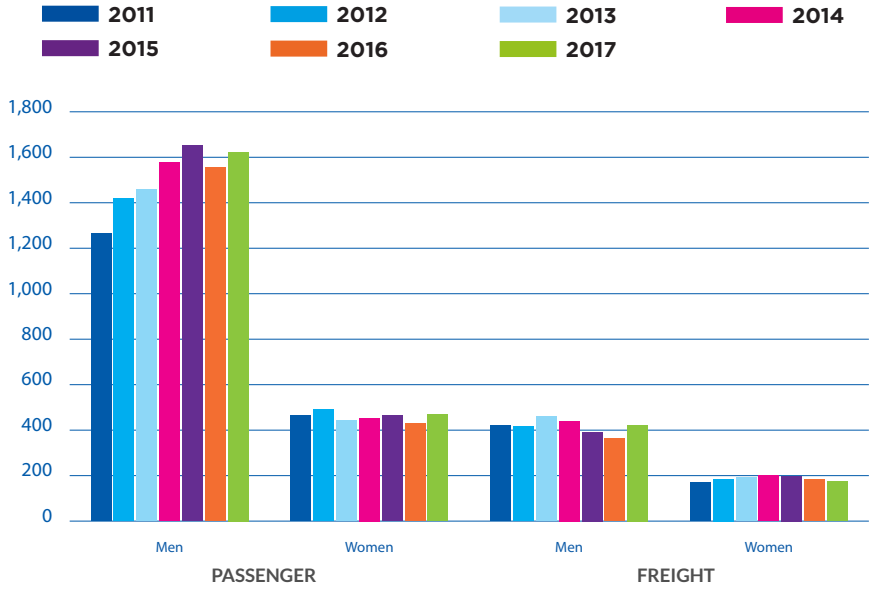
In 2017, there were 48 freight IWT companies and 67 passenger IWT companies in Switzerland. In 2017, 597 persons were employed in freight IWT and 2,091 persons in passenger IWT. The employment in IWW freight transport in Switzerland was rather constant in the time period 2011 to 2017, while employment in passenger transport increased (see figure below).

Passenger transport enjoys a higher employment than freight transport in Switzerland. The country has many lakes, with many day trip vessels, and Switzerland also has by far the largest fleet of river cruise vessels within the whole cruise fleet in Europe. In 2019, 172 river cruise vessels sailing on European rivers were registered in Switzerland, compared to a total of 378 cruise vessels in the whole of Europe (without Russia). This gives a share of 45.5%.

Looking at the development in both sectors by gender from 2011 to 2017, it can be seen that the only clear and substantial development was for men in passenger IWT, whose number showed a steady upwards trend.

[35] *Source: CCNR/European Commission (2020), Inland Navigation in Europe. Annual market observation report.*

FIG.35: **NUMBER OF PERSONS EMPLOYED IN IWT IN SWITZERLAND BY SECTOR AND GENDER**



Source: Federal Statistical Office – Structural Enterprise Statistics

Compared to other Rhine countries such as Belgium, France or the Netherlands, relatively few persons employed in Swiss IWT work in small enterprises with less than 10 employed persons. In 2017, only about 6% (5% of FTEs) in the passenger and 22% (20% of FTEs) in the freight sector worked in such small companies.

Luxembourg

Statistical data on employees in the IWT freight and passenger sector, affiliated to the Luxembourg social security system, were collected from the General Inspection of Social Security on the basis of data from the Joint Social Security Centre (Inspection générale de la sécurité sociale (IGSS) sur la base des données du Centre commun de la sécurité sociale) (CCSS). These data relate only to employees, not to the self-employed, active in the sector as of 31 March 2020 and cover administrative staff as well.

In the freight transport sector, 125 companies employ in total 4,110 workers affiliated to the Luxembourg social security system. This number is similar to the number of workers registered in German IWW freight transport. The number for passenger transport is less significant, with only six companies employing in total 200 workers. The high number of employees in freight transport could be explained by the fact that:

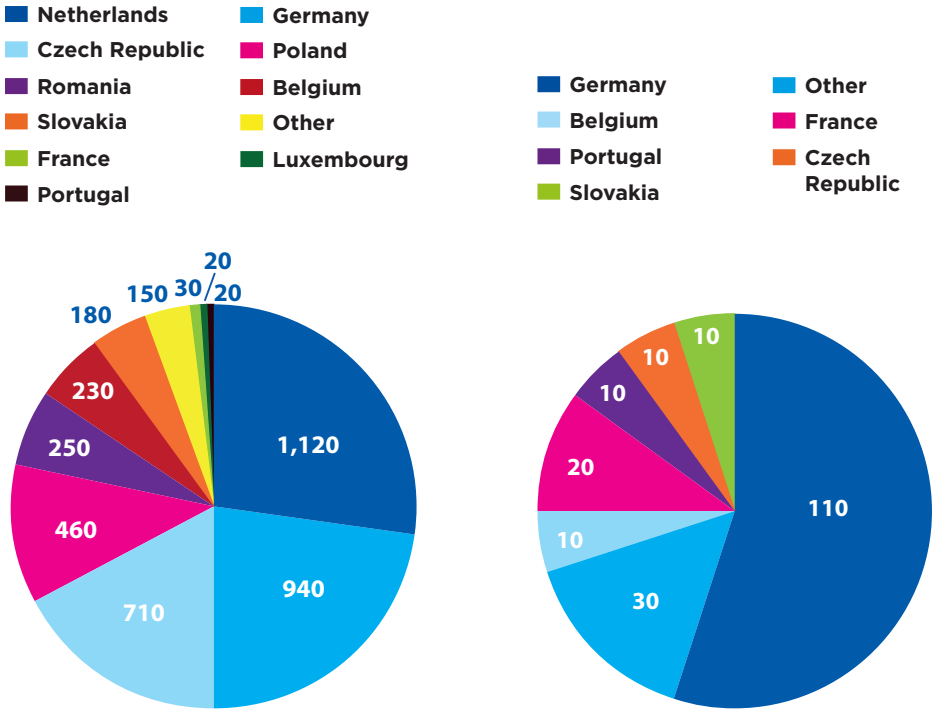
- Luxembourg has good access to the inland waterway network in the Rhine region, and
- Luxembourg offers very competitive economic conditions for companies regarding the level of taxes and social security costs.

As is the case in other countries, most employees are male workers (94%).

A very high share of employees in the IWT sector in Luxembourg are foreigners. These foreigners come from both western and eastern European countries. While the two most frequent nationalities among western Europeans are Dutch and German, the two most frequent nationalities of foreign workers coming from eastern Europe are Czech and Polish.

Workers from eastern Europe represent 39% of employees in Luxembourg, mostly coming from the Czech Republic, Poland and Romania. This figure seems to confirm the observed migration of inland waterway workers from the east to the west, and also observed in countries such as Austria, Germany or the Netherlands. Foreign employees coming from Rhine countries, mainly the Netherlands and Germany, represent 57% of the workers, and 75% of all employees working for a Luxembourg company in freight transport are not posted.

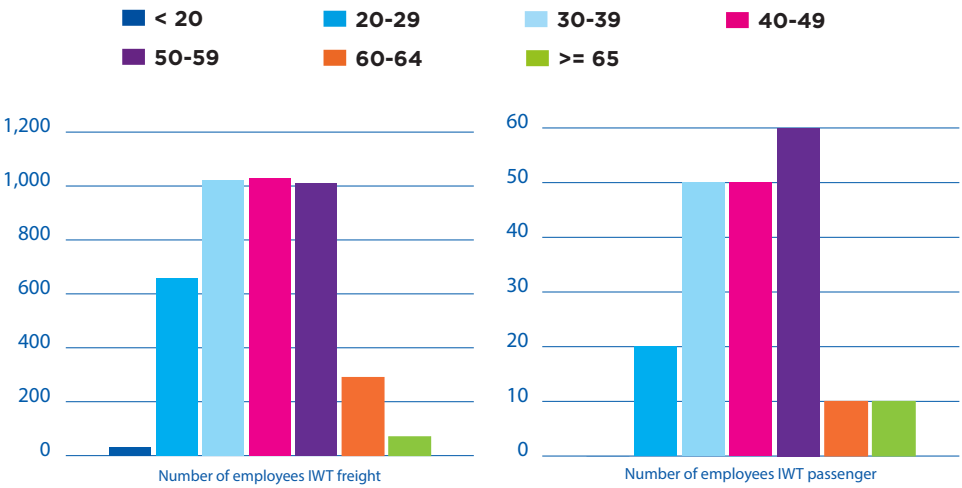
FIG.36 AND 37: **NUMBER OF EMPLOYEES IN IWW FREIGHT** (LEFT) **AND PASSENGER** (RIGHT) **TRANSPORT IN LUXEMBOURG BY NATIONALITY** (AS OF MARCH 2020)



Source: Inspection générale de la sécurité sociale sur la base des données du Centre commun de la sécurité sociale

In Luxembourg, most workers - both in the freight and passenger transport sector - are aged between 30 and 59. A similar age structure can be observed in most IWT countries for which data on the age of IWT workers were available. However, on the basis of the available data for Luxembourg, it is not possible to draw conclusions as to the age evolution of IWT workers in this country.

FIG.38 AND 39: **NUMBER OF EMPLOYEES IN IWW FREIGHT** (LEFT) **AND PASSENGER** (RIGHT) **TRANSPORT IN LUXEMBOURG BY AGE GROUP** (AS OF MARCH 2020)

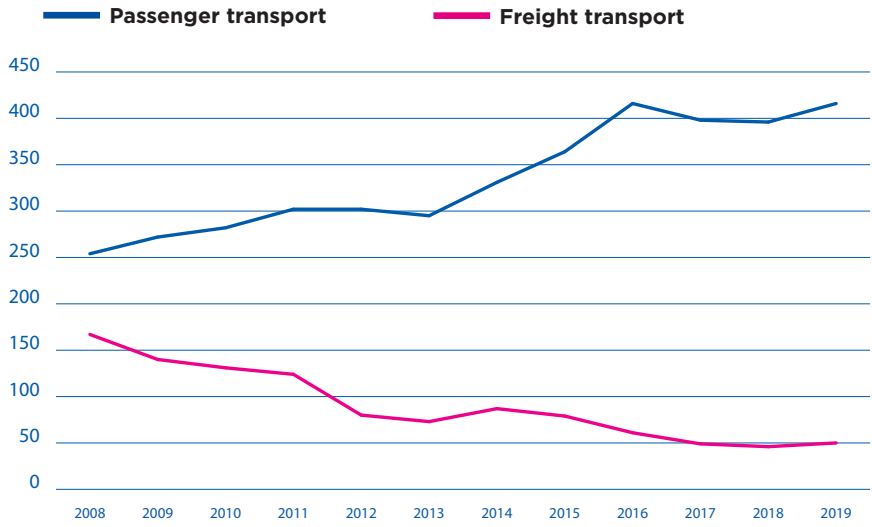


Source: Inspection générale de la sécurité sociale sur la base des données du Centre commun de la sécurité sociale

Austria

Austria belongs to those countries which have a higher importance of passenger IWT than of freight IWT in terms of employment. The difference in the number of employees between the two categories has increased substantially over the last decade. According to data from the Austrian Public Employment Service (AMS), the number of employees in passenger IWT increased gradually from 254 in 2008 to 416 in 2019 (strongest increase between 2013 and 2016), whereas the number of employees in freight IWT followed a reversed trajectory, decreasing from 167 to 50 from 2008 to 2019. However, it has stabilised since 2017. All in all, the number of employees in Austrian IWT increased from 421 to 466 between 2008 and 2019.

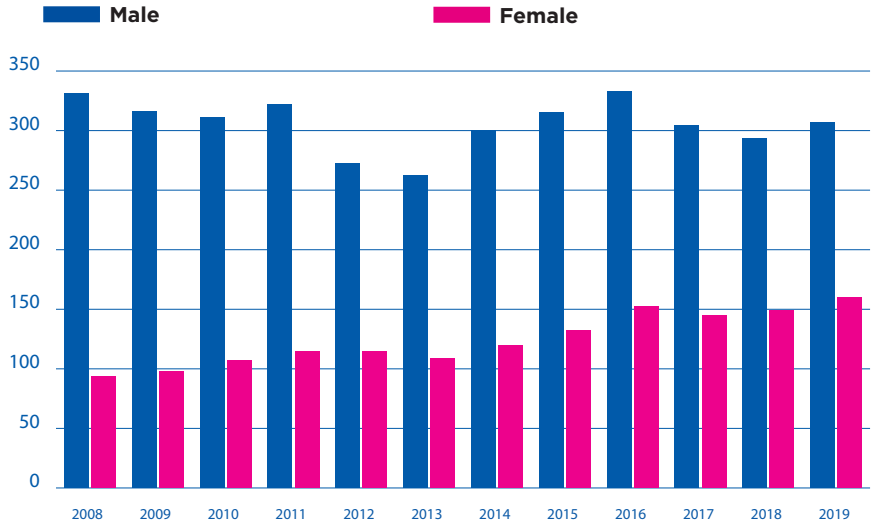
FIG.40: **NUMBER OF EMPLOYEES IN AUSTRIAN INLAND NAVIGATION BY SECTOR***



Source: Austrian Public Employment Service
**The number of employees in freight and passenger transport represent the average numbers of employees per year. In passenger transport, there are fluctuations in the number of employees during a year, due to the seasonality of passenger transport activities.*

While the number of male employees decreased from 331 in 2008 to 307 in 2019, the number of female workers increased from 94 to 160 in that period. The share of women in IWT employment in Austria was about 34% in 2019. The positive development of female employment is explained by the high share of women working in passenger IWT, corresponding to the previously presented numbers for France and Germany. The AMS data imply that a maximum of eight employees per year work in maritime and coastal navigation. Indeed, Austria is a landlocked country in central Europe with no access to maritime waters.

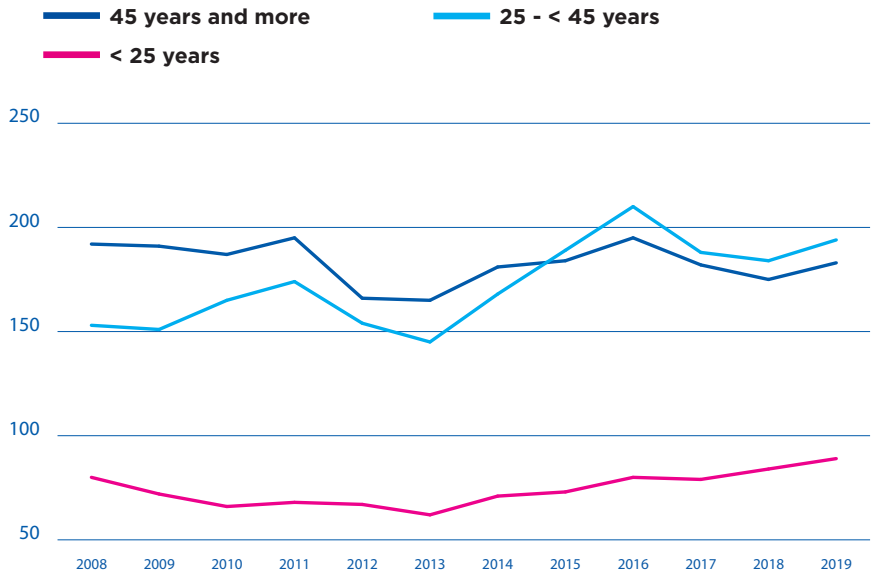
FIG.41: **NUMBER OF EMPLOYEES IN AUSTRIAN INLAND NAVIGATION* BY GENDER**



Source: Austrian Public Employment Service
**Including between 0 and 8 employees working in maritime and coastal navigation per year.*

According to the AMS data, the age group containing all employees aged 45 and older decreased from 192 to 183 employees from 2008 to 2019. On the contrary, the number of employees between 25 and 44 years of age increased substantially from 153 to 194 in that period, in particular between 2013 and 2016. The number of young employees under 25 years declined up until 2013 but increased overall from 80 to 89 between 2009 and 2019.

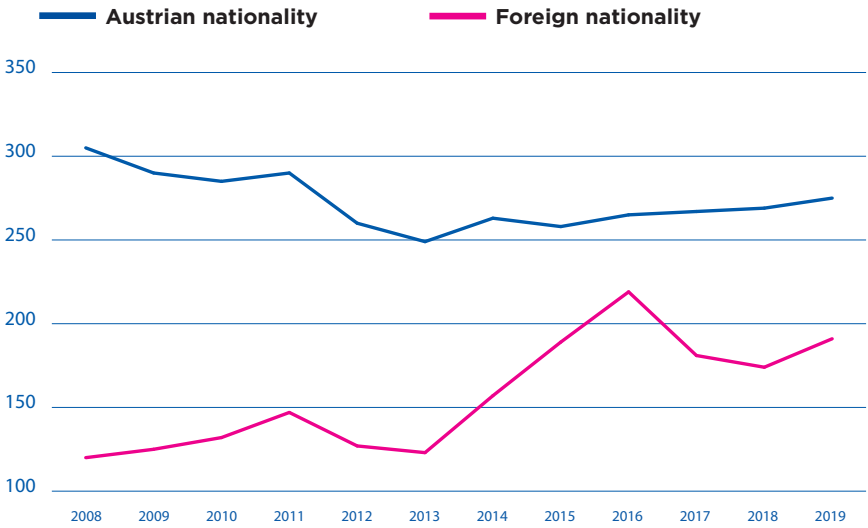
FIG.42: **NUMBER OF EMPLOYEES IN AUSTRIAN INLAND NAVIGATION* BY AGE GROUP**



Source: Austrian Public Employment Service
**Including between 0 and 8 employees working in maritime and coastal navigation per year.*

The number of foreigners among the employees in Austrian IWT increased substantially from 120 in 2008 to 191 in 2019. In the same period, the number of Austrian IWT employees decreased slightly from 305 to 275. The overall increase of employment in Austrian IWT between 2008 and 2019 can therefore mainly be attributed to a net influx of 106 foreigners between 2013 and 2016.

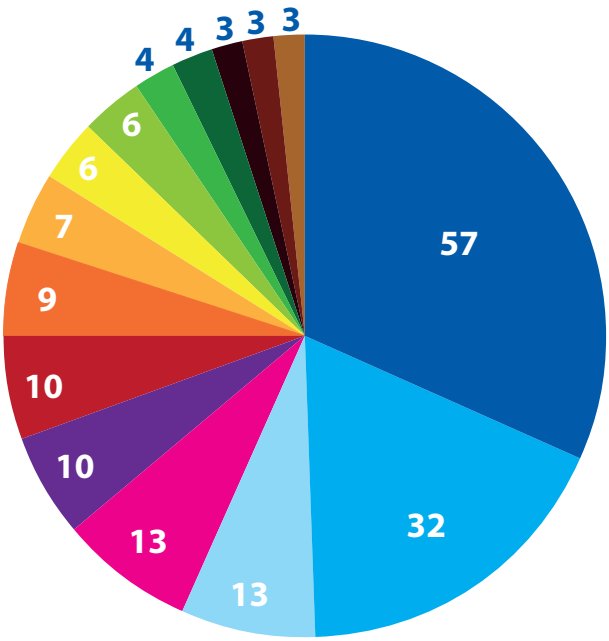
FIG.43: **NUMBER OF EMPLOYEES IN AUSTRIAN INLAND NAVIGATION* – AUSTRIANS AND FOREIGNERS**



Source: Austrian Public Employment Service
**Including between 0 and 8 employees working in maritime and coastal navigation per year.*

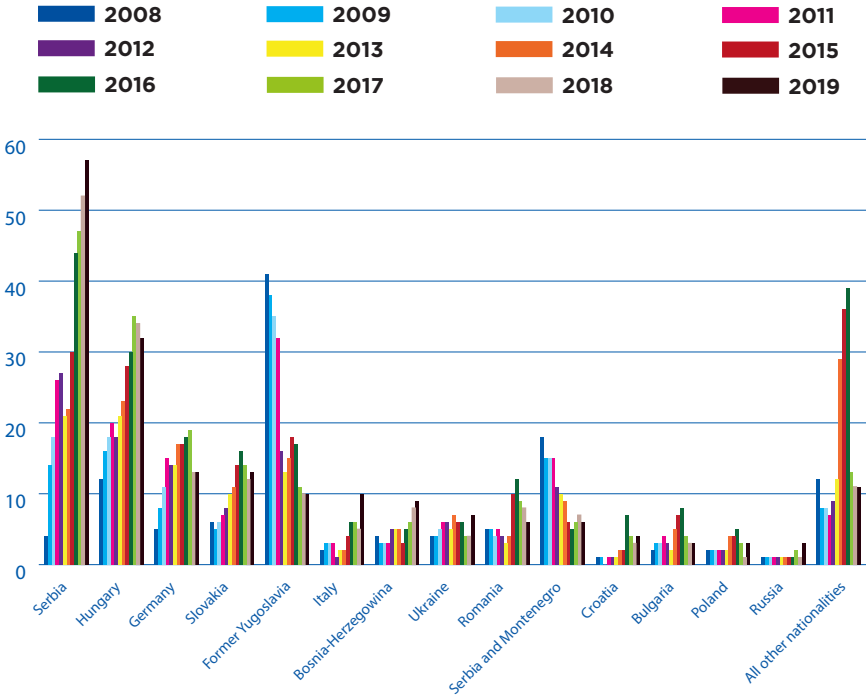
The largest group of foreigners in 2019 and in previous years were of Serbian nationality. There are still also some persons with 'former Yugoslavia', and 'Serbia and Montenegro' nationalities, although their number is decreasing. Hungarians are in second place behind Serbians.

FIG.44: **FOREIGNERS EMPLOYED IN AUSTRIAN INLAND NAVIGATION BY NATIONALITY** (2019)



Source: Austrian Public Employment Service

FIG.45: **NUMBER OF FOREIGN EMPLOYEES IN AUSTRIAN INLAND NAVIGATION* BY NATIONALITY AND YEAR**



Source: Austrian Public Employment Service
**Including between 0 and 8 employees working in maritime and coastal navigation per year.*

The Austrian Employment Service does not have data on the self-employed in Austrian IWT. However, according to the Structural Business Statistics of Statistics Austria, 59 men and 15 women were active as self-employed in Austrian passenger IWT in 2017. In freight IWT, 8 persons were self-employed, none of whom were women.

Czech Republic

At the level of the Czech Statistical Office, the statistical dataset that is available and covers IWT, is an overall dataset covering the whole NACE sector 50 (water transport). This includes IWW, maritime and coastal navigation (both passenger and freight). However, the Czech Republic is a country in central Europe with no maritime waters, so it is highly likely that this national database relates mainly to inland navigation employment in the Czech Republic.

In addition, in 2017, the number of persons employed in the Czech Republic in the whole NACE sector 50 was 619, according to this database. A small difference of only 6 persons can therefore be observed compared to the Eurostat SBS database (613 persons employed in inland navigation in the Czech Republic in 2017), allowing to confirm the abovementioned hypothesis.

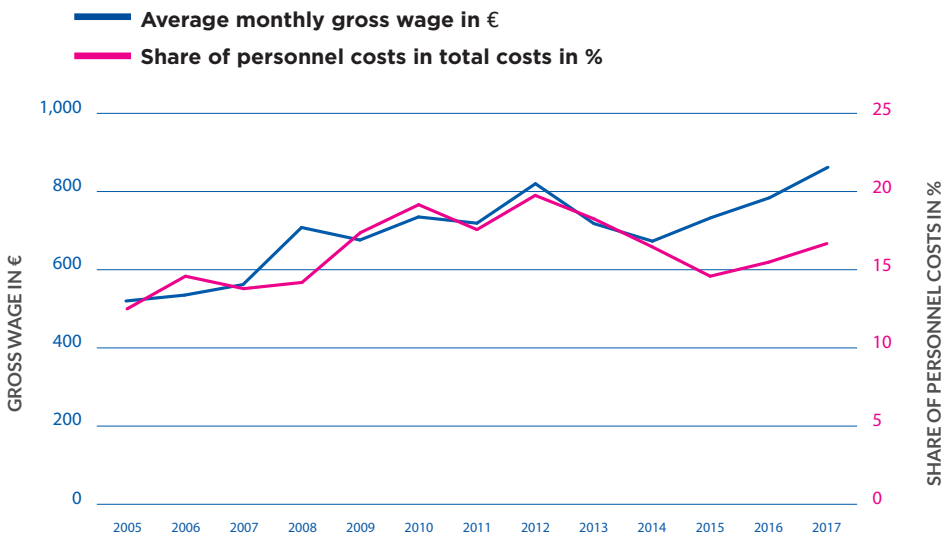
In the Czech Republic, total employment decreased from 2005 until 2016, but has stabilised since that year. The number of self-employed has increased slightly since 2005, from 74 self-employed in 2005 to 100 in 2017.

FIG.46: **NUMBER OF PERSONS EMPLOYED IN THE NACE SECTOR 50* IN THE CZECH REPUBLIC**

Sources: Czech Statistical Office, CCNR analysis
**Although the NACE sector 50 contains maritime and inland navigation together, a comparison with Eurostat data for employment in inland navigation shows that at least 99% of the Czech NACE 50 employment is inland navigation employment. The number of self-employed was calculated from deducting the number of employees from all persons employed.*

In 2017, the average monthly gross wage per person was only 862 Euro in Czech inland waterway transport. A further split into freight and passenger transport employment is not possible based on the national database. However, Eurostat data (which are only available for the year 2017) indicate that freight and passenger transport have an almost equally high amount of employment in the Czech Republic.

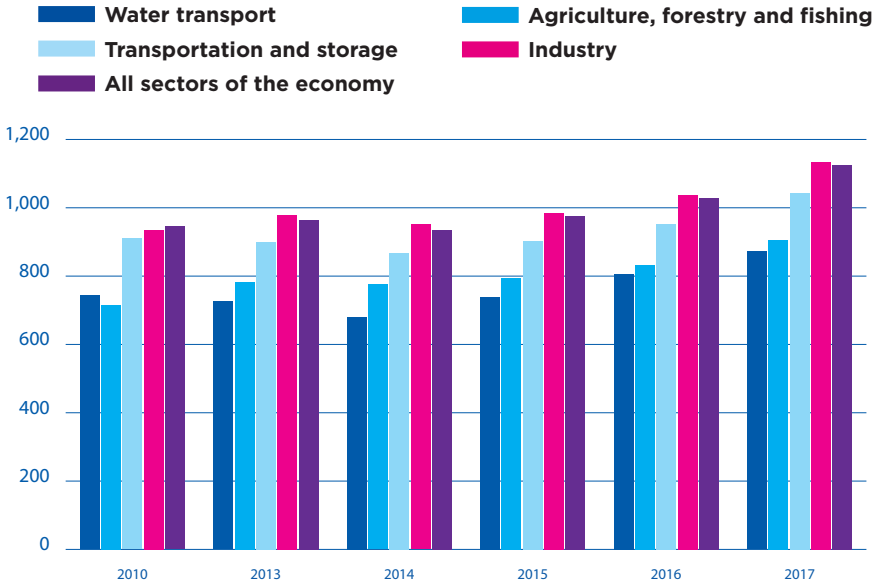
FIG.47: **AVERAGE MONTHLY GROSS WAGE** (IN €) **AND SHARE OF PERSONNEL COSTS IN TOTAL COSTS** (IN %) **IN THE CZECH INLAND NAVIGATION SECTOR***



Sources: Czech Statistical Office, CCNR analysis
**NACE sector 50. See remarks in the text. Conversion from Czech Crowns to Euro via annual reference exchange rates from ECB (https://www.oenb.at/isaweb/report.do?report=2.14.5).*

A view of the average monthly wage level in the Czech Republic by economic sectors shows that the wage level in water transport is below the average wage level in the Czech transport sector. In the time period 2013-2017, this wage gap was 18% on average. The wage gap was 24% higher when comparing water transport wages with wages in the overall economy.

FIG.48: **AVERAGE MONTHLY GROSS WAGES AND SALARIES OF EMPLOYEES IN THE CZECH REPUBLIC** (IN €, FULL-TIME EQUIVALENT)



Sources: Czech Ministry of Transport, CCNR analysis
** Water transport = NACE sector 50. See remarks in the text. Conversion from Czech Crowns to Euro via annual reference exchange rates from ECB (https://www.oenb.at/isaweb/report.do?report=2.14.5).*

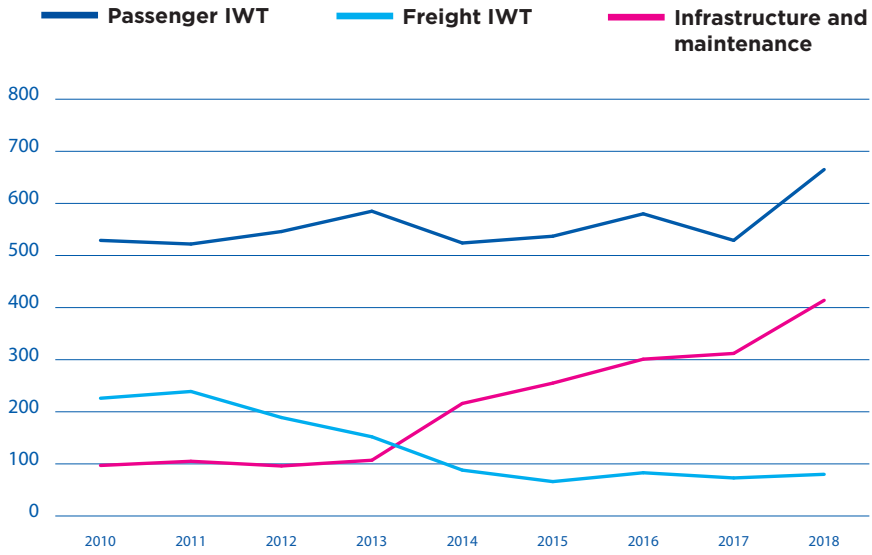
The low wages in Czech water transport and the international character of inland navigation, with a high mobility of workers, can be regarded as a major reason for the fact that in 2019, 238 Czech persons were employed in the German inland waterway sector, according to data from the German labour agency. Between 2013 and 2019, their number increased steadily. Persons from the Czech Republic represent the second largest group of foreigners working in the German inland navigation sector, behind Polish workers.

Hungary

Hungary is an important country for European inland navigation. Situated in central Europe on the middle part of the Danube, it has a very large lake (Balaton), many river cruises, and its capital, Budapest, is a major destination.

The Hungarian Statistical Office (HCSO) produces data based on surveys about the number of employees in passenger IWT. These data however exclude on-board catering and bar services. The surveys aim at employees working at least 60 hours per month in a Hungarian company with at least five employees. According to these surveys, the number of such employees has increased in the last decade from 529 in 2010 to 665 in 2018. On the contrary, the respective number of employees in freight IWT has substantively decreased from 226 to 80 in the same period. The number of employees working in the sector of service activities incidental to IWT, such as maintenance services of canals and the operation of locks, increased massively from 97 to 414 in that period.

FIG.49: **NUMBER OF EMPLOYEES* IN HUNGARY PER SECTOR**

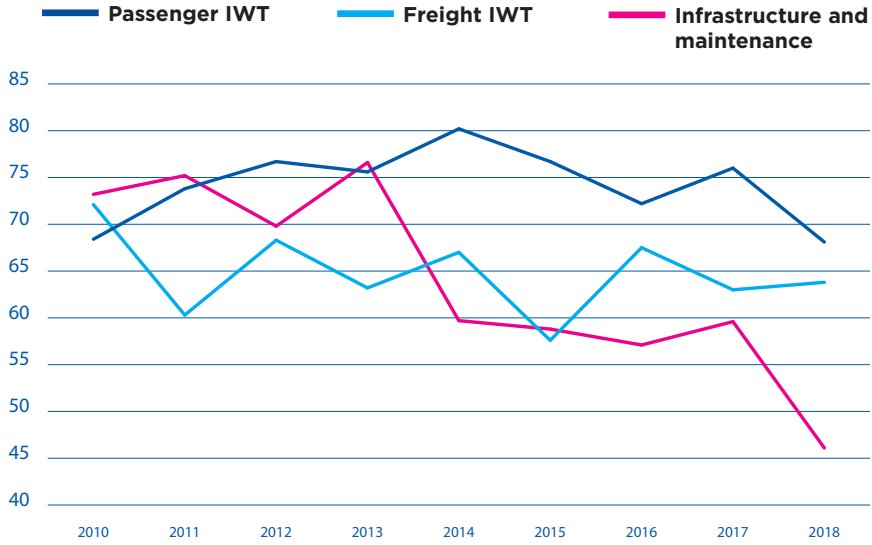


Source: Hungarian Central Statistical Office (HCSO)

**Working at least 60 hours per month in a company with at least five employees.*

The figure below shows the share of employees who work in a "physical job" in contrast to a white-collar job, categories that vaguely trace the divide between working on board and working ashore. In passenger IWT, this share is approximately at the same level of about 68% in 2018 as in 2010, although it has followed a downward trend since 2014. The share of employees in freight IWT who work in a "physical job" has oscillated around the current level of about 64%, while it has decreased strongly to about 46% for the service activity sector.

FIG.50: **SHARE OF EMPLOYEES* WORKING IN A "PHYSICAL JOB"** (IN %)



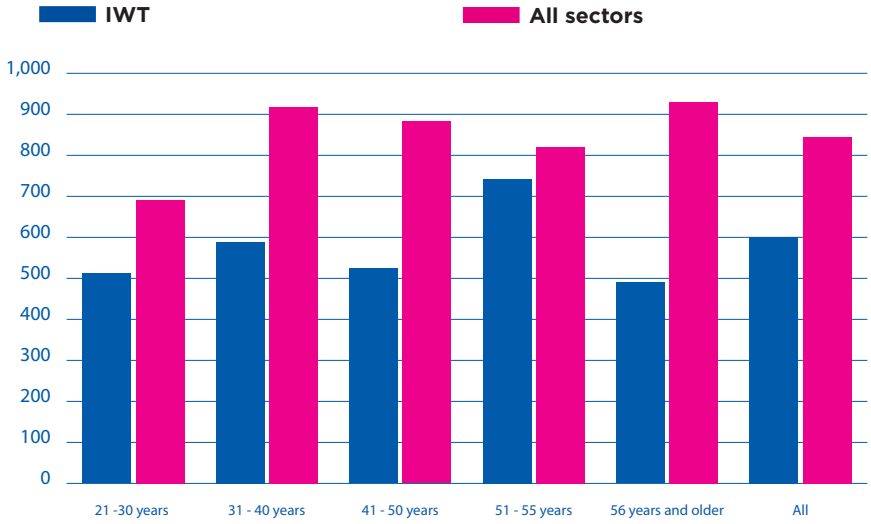
Sources: Hungarian Central Statistical Office (HCSO), CCNR analysis
**Working at least 60 hours per month in a company with at least five employees.*

According to a database of service record books maintained by the Shipping Authority of the Department of Transport of the Governmental Office of the Capital City Budapest, around 11% of shipping certificates during the 2010s were awarded to women. From this information, it can be cautiously deduced that about this share of employees on board of vessels in Hungarian IWT is female, assuming that the margin of error imposed by the imperfections of the service record books does not correlate with gender. According to such service record books, only a very small share of less than 1% of all shipping certificates were awarded to foreigners, mostly to Romanians and Slovaks.
Further employment data are available from the National Employment

Service (NFSZ). Following the Hungarian Standard Classification of Occupations (HSCO), 610 persons worked as part of a vessel's crew in Hungary in 2016. The average basic wage in this category amounted to about 534 Euro per month in 2016 and the average monthly total earnings, including additional payments, amounted to about 602 Euro. On the one hand, average total earnings in that year were 5% higher than for truck drivers. On the other hand, they were distinctly lower than for other occupations in the transport sector (e.g. about 58% lower than for train drivers and between 21% and 44% lower than for drivers of different types of buses). Compared to the entire Hungarian economy, persons employed as part of a vessel's crew in IWT earned about 29% less.

Persons working in IWT in Hungary only had a small wage increase between their 20s and 30s when compared to other sectors. A similar finding is observed in France. However, monthly earnings in IWT in Hungary are much higher for persons between 51 and 55 years old than for all other age groups. This pattern is not visible for the entirety of the sectors in the Hungarian economy.

FIG.51: **AVERAGE MONTHLY EARNINGS (IN EURO) IN HUNGARIAN IWT IN 2016 BY AGE GROUP**



Sources: Hungarian National Employment Service (NFSZ), CCNR analysis. Currency converted from Hungarian forint using the average of the ECB euro reference exchange rate for 2016 (https://www.ecb.europa.eu/stats/policy_and_exchange_rates/euro_reference_exchange_rates/html/eurofxref-graph-huf.en.html).

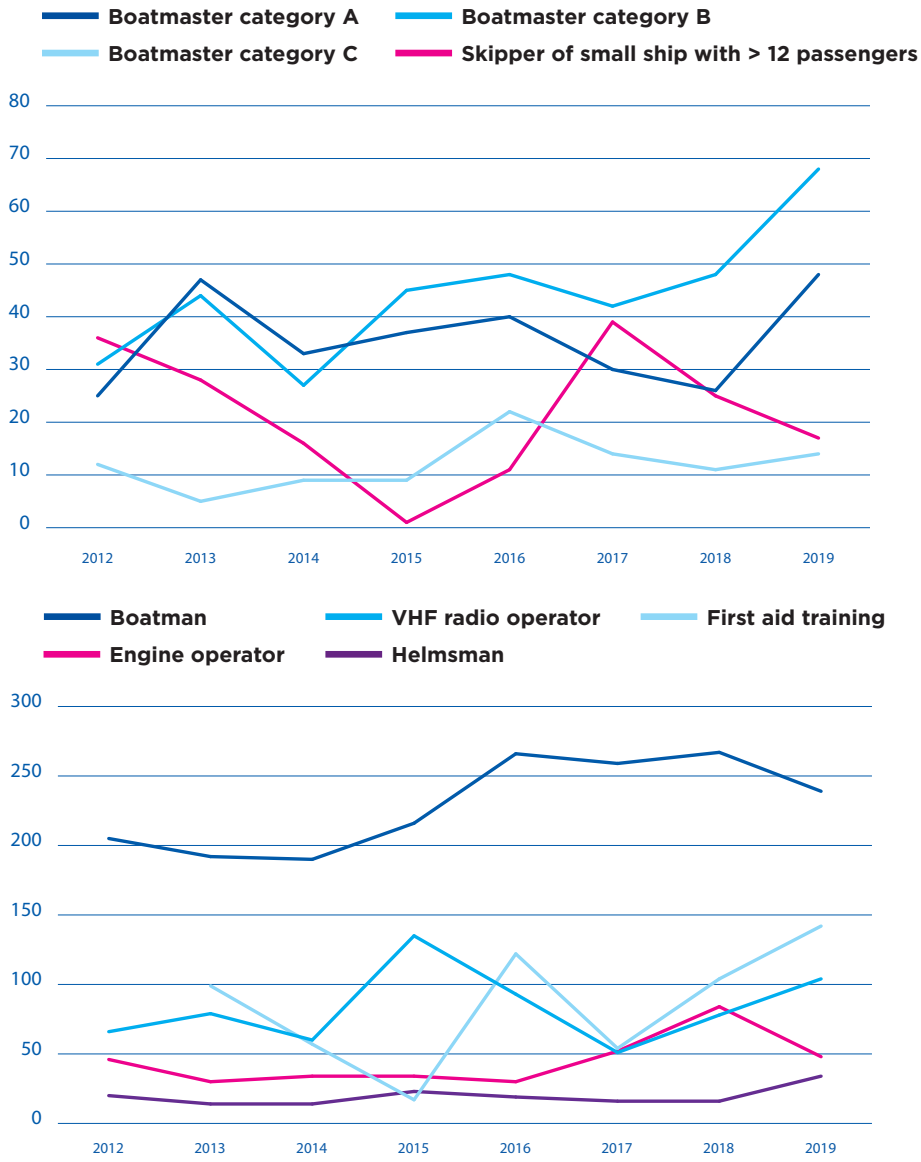
According to the NFSZ data, the number of persons working in companies with their main activity in IWT is higher than the number of persons working as part of a vessel's crew. In 2016, 1,075 persons worked in passenger IWT and 447 persons in freight IWT. Monthly average total earnings amounted to about 523 Euro in passenger IWT and to about 990 Euro in freight IWT. This implies average earnings of about 660 Euro in Hungarian IWT, a slightly higher average than for the crew members. In France, it is also the case that persons working ashore earn more than persons working on board.

As the wages of persons employed in IWT in Hungary are low compared to the wages in countries such as the Netherlands, Germany, France and Austria, there is a strong incentive to leave the country in order to earn more abroad. Indeed, nearly 20% of all foreign employees working in IWT in Austria are Hungarian citizens. In Germany, this share amounts to about 3%.[36]

Annual numbers of newly issued certificates of qualification could be obtained from the Department for Shipping Authority at the Hungarian Ministry for Innovation and Technology. The advantage compared to registers of service record books is that these numbers are less prone to distortions from certificates that are no longer actively used. It can be seen that the boatman certificate is the most often issued certificate in Hungary. In 2012, 205 such certificates were issued and in 2019, 239 certificates were issued. The numbers of other certificates fluctuate quite strongly over time but a positive development in 2019 can be recognised for the boatmaster certificates A and B.

[36] *Sources: Arbeitsmarktservice Austria and Bundesagentur für Arbeit*

FIG.52 AND 53: **NUMBER OF NEWLY ISSUED CERTIFICATES OF QUALIFICATION IN IWT IN HUNGARY**



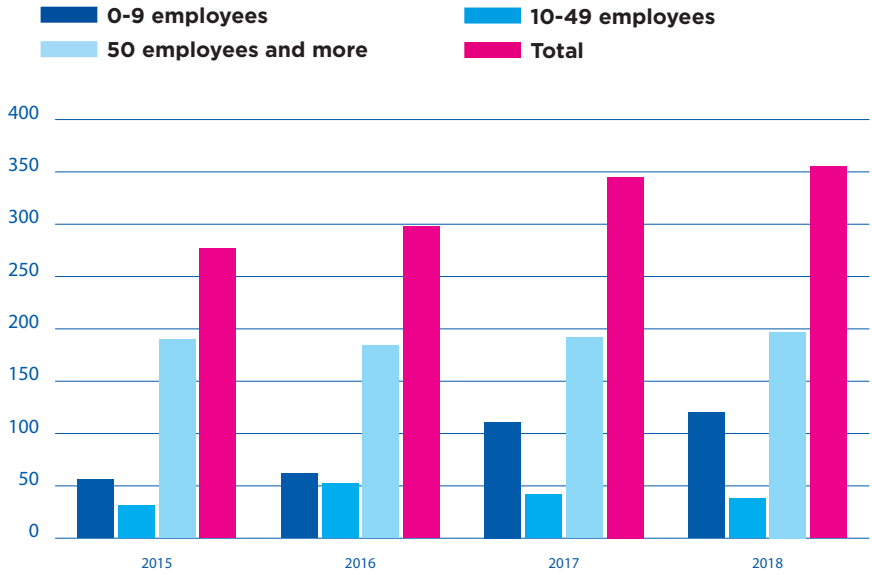
Source: Department for Shipping Authority at the Hungarian Ministry for Innovation and Technology

Romania

Romania is the largest Danube country measured by the number of persons working in that sector reported by the Eurostat SBS data.[37]

Similar to other countries, Romania has experienced a steady and substantial increase in the number of employees working in passenger IWT during the last year. From 2015 to 2018, that number grew by about 28% from 277 to 355. It is also visible that this growth was predominantly driven by small enterprises. The number of employees working in companies with a maximum of nine employees more than doubled in that period of time, while the respective number in companies with 50 employees and more, remained more or less constant. Correspondingly, the number of enterprises with at most nine employees increased from 36 in 2015 to 79 in 2018, while just one additional enterprise with between 10 and 49 employees, and no additional enterprise with at least 50 employees, emerged.

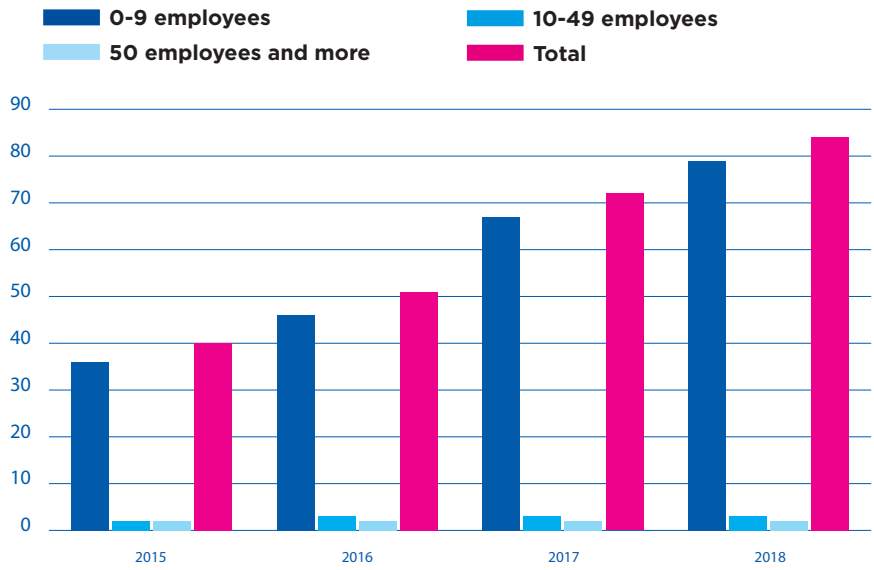
FIG.54: **NUMBER OF EMPLOYEES IN PASSENGER IWT BY COMPANY SIZE**



Source: National Institute of Statistics (NIS)

[37] To some extent, Germany, which has a much higher IWT employment than Romania, is also a Danube country, as parts of the upper Danube are located in Germany. But German IWT is mainly orientated to the Rhine basin. Hence, only a very small share of its employment is related to Danube ports and Danube navigation.

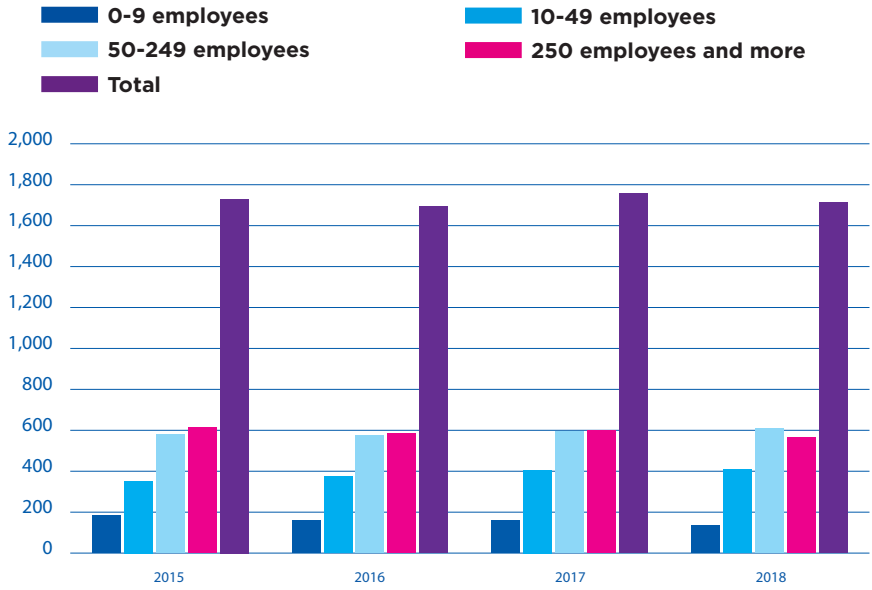
FIG.55: **NUMBER OF ENTERPRISES IN PASSENGER IWT BY COMPANY SIZE**



Source: National Institute of Statistics (NIS)

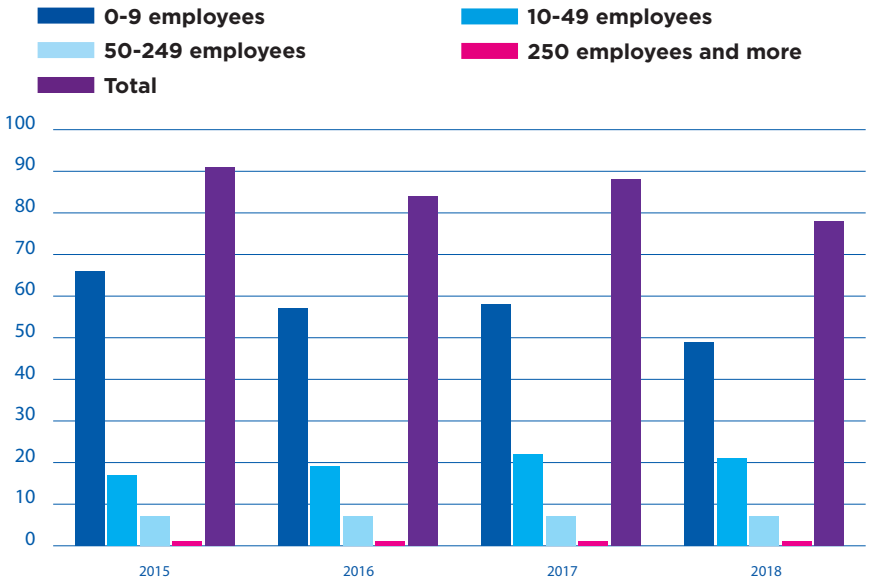
Compared to passenger IWT, freight IWT is more important in Romania in terms of the number of employees. However, the total number of employees in freight IWT remained more or less constant from 2015 to 2018. Contrary to passenger IWT, the number of employees in small enterprises, with at most nine employees, decreased in that time period due to a reduction of enterprises in this category from 66 to 49. A decrease in employment is also observed in the sole enterprise with at least 250 employees. These losses were compensated for by increases in companies with between 10 and 249 employees.

FIG.56: **NUMBER OF EMPLOYEES IN FREIGHT IWT BY COMPANY SIZE**



Source: National Institute of Statistics (NIS)

FIG.57: **NUMBER OF ENTERPRISES IN FREIGHT IWT BY COMPANY SIZE**



Source: National Institute of Statistics (NIS)

All in all, in Romania the freight sector is far more important than the passenger sector, both in terms of number of employees and turnover. However, as is the case for other countries, the relative importance of passenger IWT in terms of employment has increased in the last years. In terms of the number of enterprises, passenger IWT even overtook freight IWT in 2018.

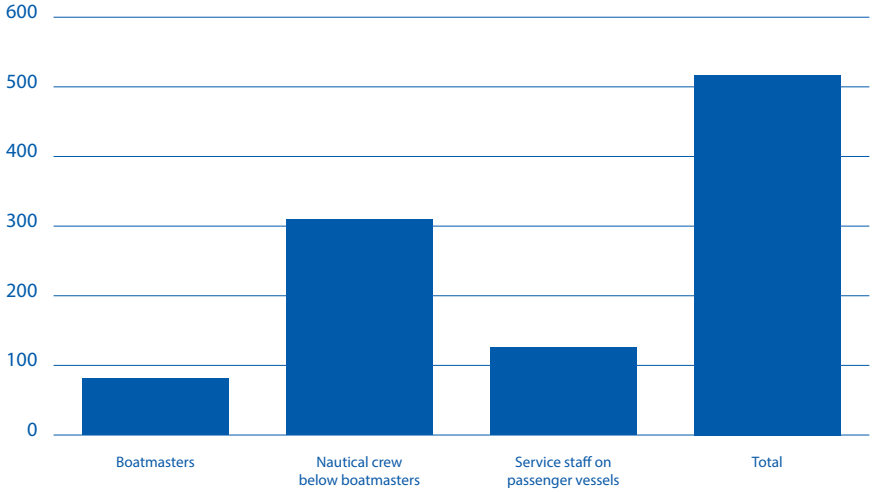
The Romanian Naval Authority provides data on the number and type of qualification certificates including service record books issued by this institution. However, such data do not allow drawing detailed conclusions about the current composition of Romania's IWT work force differentiated by the ranks and tasks of persons employed on board of vessels. Indeed, a single person might hold multiple different certificates, all registered in the service record books, and some persons with certificates may no longer be active. Yet, assuming that the gender share is predominantly uninfluenced by these considerations, one can cautiously conclude that about 15% of the nautical crew below the level of boatmasters are female, whereas for boatmasters this share is below 0.1%. Of all persons employed on board other than the nautical crew (such as accommodation and gastronomic staff, as well as the more technically orientated staff), 15% are also women.

Bulgaria

Another country with substantial access to the Danube is Bulgaria. Some information on its IWT employment could be gained from a survey of vessel owners and vessel operators conducted by the Bulgarian Maritime Administration in early 2020, concluding that 25 companies are active in IWT in Bulgaria. According to the data collected, 517 persons are employed in Bulgarian IWT on board of vessels. This figure matches quite well with the Eurostat figure of employment in freight transport for Bulgaria. According to the Eurostat SBS database, 584 persons were employed in IWW freight transport in Bulgaria in 2018, and an estimate of 329 persons were employed in IWW passenger transport (see chapter 4).

All of the 81 boatmasters, and all but one of the 130 persons who are part of the nautical crew below the boatmaster level, are men. In contrast, 53 of the 126 persons employed as service staff on passenger ships are women. Roughly half of the persons work on vessels that travel to other countries whereas the other half is solely active within Bulgaria. While there are few Romanian boatmasters and few Ukrainians as part of the nautical crew below the boatmaster level, the large majority of employees are Bulgarian nationals.

FIG.58: **NUMBER OF PERSONS EMPLOYED IN BULGARIAN IWT ON BOARD OF VESSELS BY OCCUPATIONAL CATEGORY IN 2020**



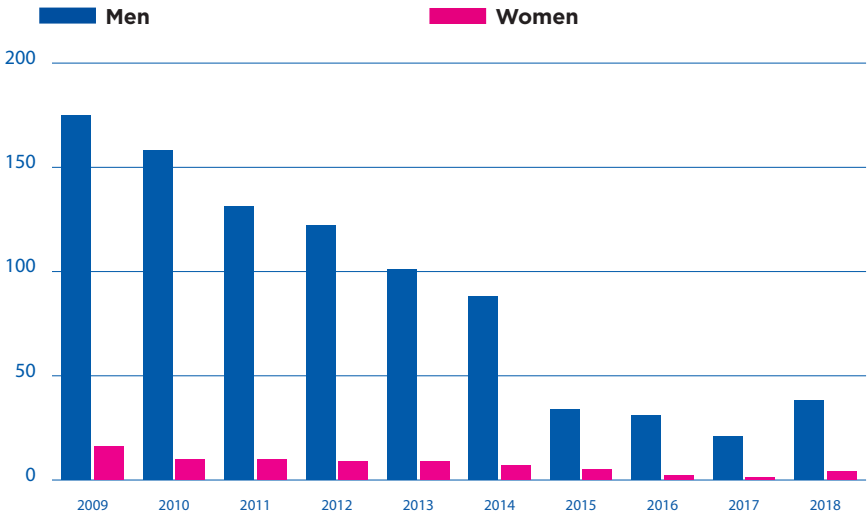
Source: Bulgarian Maritime Administration. Survey of vessel owners and vessel operators

The Bulgarian National Employment Agency administers a data registry of Bulgarian nationals employed abroad in non-Bulgarian companies to whom they have provided employment mediation services. From March 2015 until February 2020, the registry contains a total of 36 persons who are employed as part of the nautical crew on board river vessels. Eight of them work in France, seven in Cyprus, six in Switzerland, six in Malta, five in Spain, three in the Netherlands and one in Romania.

Croatia

In Croatia, IWT plays a quite small role, although the country has direct access to the Danube. In terms of employment, the importance of Croatian IWT has even imploded, from 191 employees in 2009 to just 22 employees in 2017, before slightly recovering to 42 employees in 2018.[38] As in other countries, the share of women among employees in IWT is very low and lies below 10%.

FIG.59: **NUMBER OF EMPLOYEES IN IWT IN CROATIA BY GENDER**



Source: Croatian Bureau of Statistics – Annual survey of persons in employment and earnings

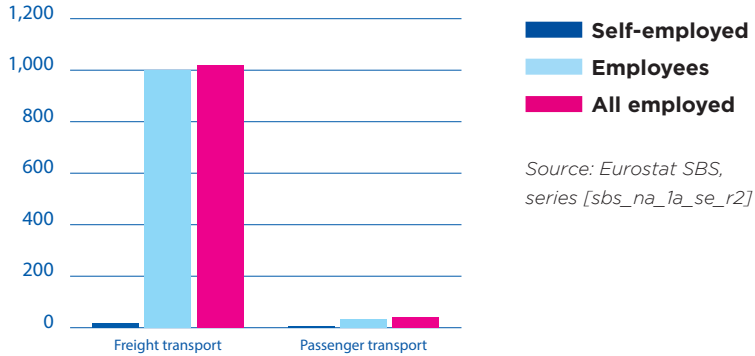
It should be taken into consideration that Croatia joined the European Union on 1 July 2013. This might have impacted its labour market substantially, particularly sectors such as inland navigation, in which labour can be shifted to other Member States quite easily. However, an increasing trend of Croatians emigrating to other EU countries to work in IWT cannot be found, at least not in the German and Austrian[39] data. In that context, it should be mentioned that Croatian workers' free movement was restricted by Germany until 1 July 2015, and by Austria even until 1 July 2020. This could be one reason for the low number of Croatians working in the Austrian and German IWT sector.

[38] The Eurostat SBS figures are slightly higher in most years but follow a very similar trend.
[39] Full freedom of movement for Croatians was only granted by Austria as from 1 July 2020.

Serbia

In Serbia, around 1,000 persons (employees and self-employed) work in IWT, according to figures from Eurostat SBS and the Statistical Office of the Republic of Serbia (SORS[40]). No clear trend in that number has been visible in the last few years. The vast majority of persons are employed in freight transport.

FIG.60: **NUMBER OF PERSONS EMPLOYED IN IWT BY TYPE OF EMPLOYMENT IN SERBIA** (2017)



Source: Eurostat SBS, series [sbs_na_1a_se_r2]

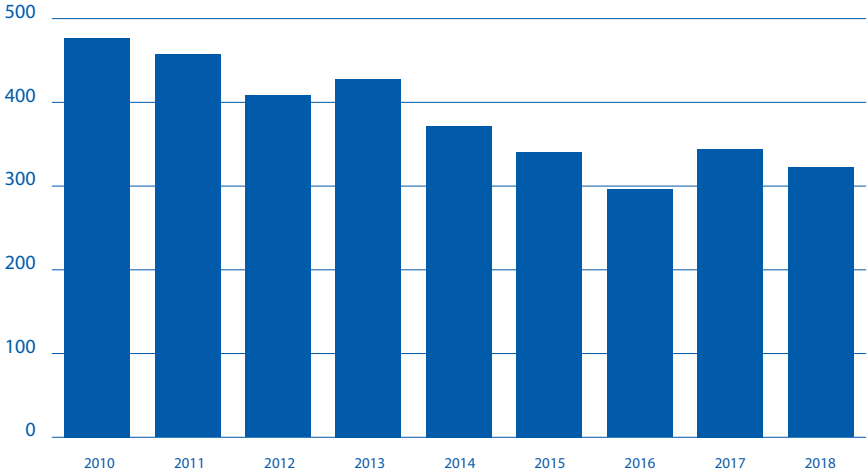
According to the national statistical office (SORS) data, the average monthly gross earnings of persons employed in Serbian IWT amounted to around 616 Euro in 2019 as calculated by that year's average exchange rate which was around 447 Euro net. The low earnings, also in comparison to other countries outside the EU-15, such as the Czech Republic and Hungary, create an incentive to move to countries with higher wages. Indeed, 42 Serbians worked in jobs subject to social security contributions in German IWT in 2019. In Austria, the respective number lies between 57 and 73, depending on how many persons registered in the Austrian AMS database, as citizens of the former Yugoslavia and of Serbia and Montenegro, are now Serbian citizens.

[40] SORS only gives the number of persons working in water transport as a whole. However, as Serbia is a landlocked country and Eurostat SBS reports only 57 persons employed in sea and coastal water transport in 2018, it is assumed that the numbers are not substantially distorted by sea and coastal water transport.

Slovakia

According to data from the Statistical Office of the Slovak Republic, employment, including both employees and the self-employed, in Slovakian IWT has gradually decreased from 2010 onwards to reach its lowest point in 2016

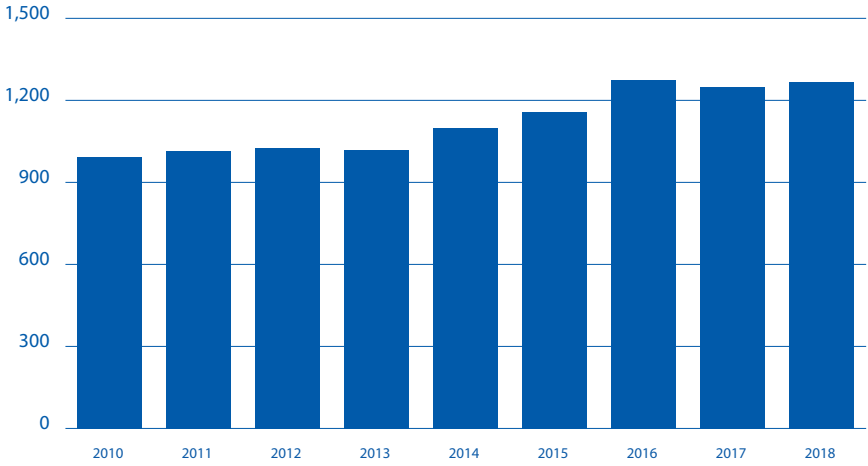
FIG.61: **NUMBER OF PERSONS EMPLOYED IN IWT IN SLOVAKIA**



Source: Statistical Office of the Slovak Republic

The average monthly wage of IWT workers in Slovakia increased from 2010 to 2016 with a slight downswing in 2013, and has since somewhat stabilised at a level that is substantially higher than IWT wages in other countries outside the EU-15, such as its neighbouring countries, the Czech Republic and Hungary. The reverse evolution observed between the number of persons employed and the average monthly wage, followed by a stabilisation of both indicators since 2016, could indicate that an equilibrium on the IWT labour market has been found. A slightly decreasing trend in the number of Slovak nationals working in German and Austrian IWT in the last years can also be observed. In 2019, 44 Slovak employees worked in German IWT and 13 in Austrian IWT.

FIG.62: **AVERAGE MONTHLY WAGE IN IWT IN SLOVAKIA** (IN EURO)



Source: Statistical Office of the Slovak Republic

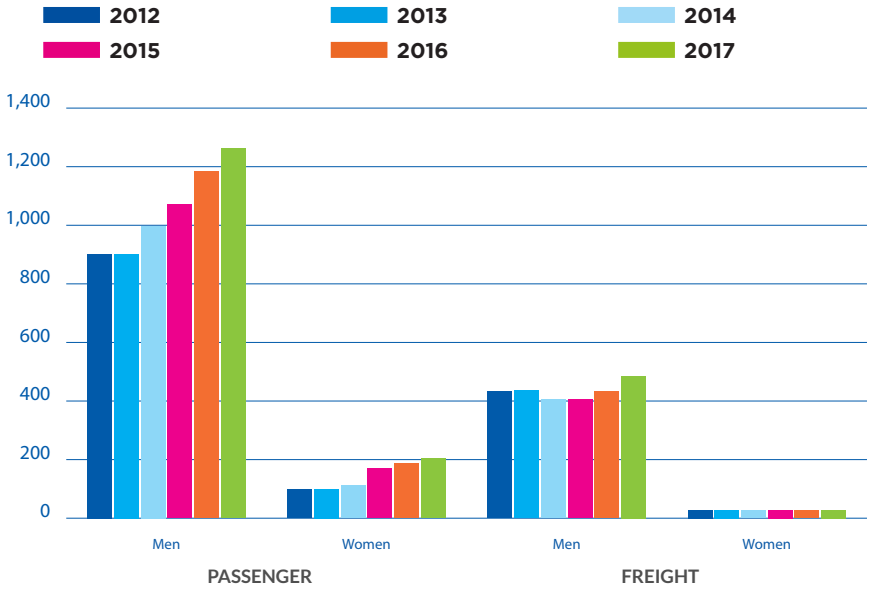
For Slovakia, service record books data were also made available, but it was decided not to use them given possible doubts as to their reliability.

Italy

Italian IWT is dominated by the passenger sector. According to the Italian National Institute of Statistics (ISTAT), the number of employees in that sector has increased gradually and substantially for both men and women between 2013 and 2017.

In the same time period, the number of male employees in freight IWT has increased by a comparatively small margin, while the number of women in that sector has stagnated at a low level. In 2017, about 23% of all employees in passenger IWT and about 19% of all employees in freight IWT had temporary contracts. About 13% of the employees in the passenger sector and about 22% of the employees in the freight sector worked part-time. For both sectors, the medium-term trend showed increases. Less than 3% of the employees in passenger IWT and about 5% of the employees in freight IWT did not have Italian citizenship.

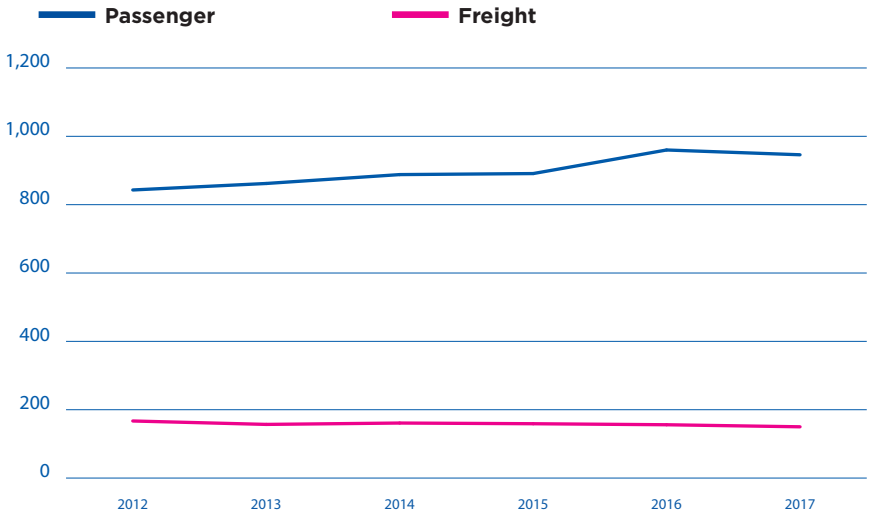
FIG.63: **NUMBER OF EMPLOYEES IN IWT IN ITALY BY SECTOR AND GENDER**



Source: Italian National Institute of Statistics (ISTAT)

The number of self-employed persons in Italian IWT evolved less positively between 2012 and 2017. The increase in the passenger sector was smaller than for employees and the number in the freight sector decreased slightly. In 2017, about 2% of the self-employed in passenger IWT and about 9% of the self-employed in freight IWT were helping family members.

FIG.64: **NUMBER OF SELF-EMPLOYED IN IWT IN ITALY BY PASSENGER AND FREIGHT TRANSPORTATION**



Source: Italian National Institute of Statistics (ISTAT)

Counting employees and self-employed together, about 83% of all persons employed in Italian passenger IWT and about 97% of all persons employed in Italian freight IWT, work for companies in the Metropolitan City of Venice. As the ISTAT figures closely resemble the Eurostat SBS figures for Italy, it can be concluded that the nearly 2,000 persons employed in passenger IWT in that region made up for about 9% of all employment in that sector in the EU-28 in that year.

05

THE CASE OF POSTED WORKERS IN INLAND NAVIGATION

The regulations on the posting of workers have been defined by the rules of Directive 96/71/EC of 16 December 1996, as amended by Directive 2018/957 (hereafter referred to as the "Posted Workers Directive" (PWD)). According to the PWD, a posted worker is a worker who, for a limited period, carries out his/her work in the territory of a Member State other than the State in which he/she normally works. The Posted Workers Directive clarifies that when sent by their employer to another Member State to carry out a service on the employer's behalf, core terms and conditions of employment, such as minimum paid holidays, minimum rest time, maximum working time, remuneration, etc. will have to be applied according to host Member State rules, while the rest of the conditions will be governed by the law applicable to the employment relationship. In case of a long-term posting, which exceeds 12 months (or 18 months in case of motivated notification made by the employer), all terms and conditions of the host Member State will become applicable.

With regard to social security, Article 12 of Regulation (EC) No. 883/2004 on the coordination of social security systems, provides for an exception to the lex loci laboris rule. It allows for a person working as an employed person in the territory of a Member State - on behalf of an employer that normally carries out its activities in that State, and who is sent by that employer to another Member State to perform work there for that employer - continues to be subject to the legislation of the posting State provided that the anticipated duration of that work does not exceed 24 months, and he or she is not sent to replace another person. The same rules apply with respect to self-employed persons who pursue an activity as a self-employed person in a Member State and who go to pursue a similar activity in another Member State. This means that social security contributions are paid according to the legislation of the employer's home state or where the self-employed person is established (the "sending state").

EU legislation does not determine which country can tax the work income during a posting.[41] This is subject to national law and tax agreements between the countries concerned and also applies to employers established outside the European Union.

[41] https://inhouse-legal.eu/current-development/european-union-labour-authority-challenges/: *"if a worker is posted for a period of less than six months, he or she does not become liable to pay income tax in the country of destination. » (Regulation 883/2004). "However, there are no EU-wide laws laying down which country can tax income during a posting. This may be set out in national laws or tax agreements between EU countries."*

The PWD was revised, and by 30 July 2020, Directive (2018/957) had to be transposed into national legislation. All sectors, with the exception of the international road transport sector (see below), are now subject to the payment of 'remuneration' and all its mandatory elements. While to date posted workers were only guaranteed the minimum rates of pay of the host Member State, they are now entitled to domestic collective bargaining wages (stemming from universally applicable collective agreements) including premiums for qualification or seniority and also to all additional benefits such as holiday and Christmas allowances, so that the rules of remuneration must be the same for posted workers as for local workers. This is aimed to close the partly large wage differences between posted and local workers. In addition, the new directive demands that posted temporary agency workers are treated equally to local temporary agency workers in the case of basic terms and conditions of employment.

These new regulations do not apply to the road transport sector for which a separate legislative act amending Directive 2006/22/EC has been adopted because of the "highly mobile nature of work"[42] in this sector and the "particular legal questions and difficulties"[43] this poses, such as - probably - the transit issue. Inland navigation shares many characteristics with road transport but is not covered by a dedicated legislation. Whether it would be appropriate to introduce a specific directive on posting in inland waterways should be subject to a thorough assessment.

There are indeed diverging views to what extent the PWD Directive applies to workers in some inland waterway cross-border transport activities, in particular when the performance of their work does not have a sufficient connection with that territory. Although it does not directly concern international transport services, the Dobersberger case C-16/18 has indeed highlighted that a "sufficient connection with the territory of a (host) Member State" is necessary in order for the worker to be considered as a posted worker.

The Enforcement Directive on posting of workers and Directive 96/71, as amended by Directive 2018/957, give Member States tools to prevent abuse and circumvention of rules and to ensure

[42] *Recital 15 of the 2018 Posted Workers Reform Directive*
[43] *ibid.*

effective monitoring of compliance with the obligations set in the Posting Directives. These include the use of administrative cooperation between competent authorities, the possibility to put in place administrative requirements and control measures, and criteria for identification of a genuine posting. In order to oppose the phenomenon of letter-box companies that used posting in order to fraudulently exploit lower labour and social security standards in some countries, the Enforcement Directive was transposed into national law by the Member States on 16 June 2016. Nevertheless, problems can arise even if posting regulations themselves are enforced properly.

The report on the implementation of the Enforcement Directive on Posting of Workers[44] shows that the administrative requirements put in place in Member States have helped monitoring compliance by companies with the rules and ensuring the rights of posted workers. The report also notes that there are divergences between the different national systems. The main issue in relation to posting in the inland navigation sector relates to their implementation.

Concerning social security, whereas all employment of a cross-border nature such as inland navigation is subject to Reg 883/2004, there is a distinction between the case of workers pursuing activities in two or more Member States (covered by Article 13) and the case of posted workers (covered by Article 12 as mentioned above). Article 13 provides for a person who is normally working in two or more Member States to be subject to the legislation of the Member State of residence, if this person pursues a substantial part of his/her activity in that Member State or, if that is not the case, to the Member State in which the registered office or place of business of the company employing him/her is situated.

Regarding the characteristics of employment of posted workers, general indications can be drawn from a report by the European Commission[45] published in 2016. It finds that, although there are no official statistics on the earnings of posted workers, they presumably earn less than comparable local workers in the host states, at least in the "older" EU Member States that have a higher average wage level. Construction and transport workers are particularly specified in this context.

[44] *COM(2019) 426 final https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2019:426:FIN*
[45] *European Commission (2016)*

The importance of posting of workers in European IWT is not easily assessable as quantitative information on this topic is scarce. In principle, the quantity could be vaguely assessed by the number of Portable Documents (PDs) A1 issued by social security institutions of the respective sending states in case of posting. However, in the European Commission's annual "Report on A1 Portable Documents issued"[46], which finds that only about 0.6% of total EU employment of full-time equivalents in 2018 could be attributed to holders of PDs A1, the number of PDs A1 issued to persons working in IWT is unfortunately not given. This is because it is not requested in the questionnaire[47] used to gain information from the national delegations of the Administrative Commission for the Coordination of Social Security Systems. Instead, there is only a breakdown of the "mariners" category, for which Croatia and Malta are the most important sending states. Apart from freight transport by road, no other more detailed category is reported. Furthermore, posted workers are not explicitly labelled in the Eurostat SBS database but instead included as employees in employment agencies (NACE category N78). Thus, they are not counted as such in the companies where they are placed and, consequently, nor are they counted as persons working in IWT.

Apparently, the lack of statistical information on the (sectoral) structure of posting has been recognised by Member States and the European institutions, and it could be expected that in the future more detailed information will be available. Recital 5 of the Posted Workers Reform Directive demands the following: "Sufficient and accurate statistical data in the area of posted workers is of utmost importance, in particular with regard to the number of posted workers in specific employment sectors and per Member State. The Member States and the Commission should collect and monitor such data." The new European Labour Authority (ELA) that started operations in October 2019 is furthermore supposed to shed light on fair mobility in the European Union, including the posting of workers, other topics of social security coordination between Member States and the monitoring of compliance with EU labour law rules in the case of mobile workers.

[46] *The latest version is De Wispelaere et al. (2019), relating to the year 2018.*
[47] *See Annex 3 of De Wispelaere et al. (2019)*

GLOSSARY

20XX-1/20XX-Q1: first quarter

20XX-2/20XX-Q2: second quarter

20XX-3/20XX-Q3: third quarter

ARTICLE 12 OF REGULATION (EC) NO. 883/2004 ON THE COORDINATION OF SOCIAL SECURITY SYSTEMS: provides for an exception to the *lex loci laboris rule*. It allows for a person working as an employed person in the territory of a Member State - on behalf of an employer that normally carries out its activities in that State, and who is sent by that employer to another Member State to perform work there for that employer - continues to be subject to the legislation of the posting State provided that the anticipated duration of that work does not exceed 24 months, and he or she is not sent to replace another person. The same rules apply with respect to self-employed persons who pursue an activity as a self-employed person in a Member State and who go to pursue a similar activity in another Member State. This means that social security contributions are paid according to the legislation of the employer's home state or where the self-employed person is established (the "sending state").

BN: billion

CBR: Central Office for Motor Vehicle Driver Testing

DANUBE COUNTRIES: Austria, Bulgaria, Croatia, Hungary, Romania, Serbia, Slovakia

DARES: Direction de l'Animation de la recherche, des Études et des Statistiques. DARES is a directorate of the French central public administration, reporting to the Ministry of Labour. The DARES compiles and analyses statistics concerning the labour market in France.

DIRECTIVE (2018/957) OR POSTED WORKERS DIRECTIVE (PWD)): clarifies that when sent by their employer to another Member State to carry out a service on the employer's behalf, core terms and conditions of employment, such as minimum paid holidays, minimum rest time, maximum working time, remuneration, etc. will have to be applied according to host Member State

rules, while the rest of the conditions will be governed by the law applicable to the employment relationship. In case of a long-term posting, which exceeds 12 months (or 18 months in case of motivated notification made by the employer), all terms and conditions of the host Member State will become applicable. Since its revision in 2018, all sectors, with the exception of the international road transport sector, are now subject to the payment of 'remuneration' and all its mandatory elements. While to date posted workers were only guaranteed the minimum rates of pay of the host Member State, they are now entitled to domestic collective bargaining wages (stemming from universally applicable collective agreements) including premiums for qualification or seniority and also to all additional benefits such as holiday and Christmas allowances, so that the rules of remuneration must be the same for posted workers as for local workers.

EDINNA: the educational network of inland waterway navigation schools and training institutes. Its aim is to achieve a more structured cooperation and a harmonized education, training and certification system for inland waterway personnel in order to ensure high quality training for staff on board vessels.

EU: European Union

EUROPE: European inland navigation in this report includes two countries that are not members of the European Union, Switzerland and Serbia.

EUROSTAT SBS: EUROSTAT Structural Business Statistics

FTE: full-time equivalents. One FTE corresponds to the workload of one person with a standard full-time contract. As an example, two persons working 20 hours per week each correspond to one FTE if a standard full-time contract comprises 40 hours per week.

IWT: inland waterway transport

IWW: inland waterway

MEDIAN: a statistical indicator, which should not be confounded with the arithmetic average of a series. The median of a data series, in this case of a wage series, is the value which divides the data series (sorted by size) into two equal halves. 50% of the wages are therefore higher than the median wage, and 50% are lower than the median wage. Compared to the arithmetic average, the median is less influenced by extremely high or extremely low wages. It therefore gives a more realistic picture of the 'typical' wage level.

MIO: million

NACE: Statistical Classification of Economic Activities in the European Community

OECD: Organisation for Economic Co-operation and Development

POSTED WORKER: according to Directive 2018/957 (the Posted Workers Directive), a posted worker is a worker who, for a limited period, carries out his/her work in the territory of a Member State other than the State in which he/she normally works.

RHINE COUNTRIES: Belgium, France, Germany, Luxembourg, the Netherlands, Switzerland

TKM: tonne-kilometre (unit for transport performance which represents volume of goods transported multiplied by transport distance)

TURNOVER: sales volume in a given period net of sales taxes

VERTICAL INTEGRATION (IN LOGISTICS AND IN PARTICULAR IN INLAND NAVIGATION): in general, it would mean that an IWT company is not only transporting goods from point A to point B, without any influence on the backward and forward parts of the logistics chain. Backward vertical integration would be present if an inland waterway transport company also owns the freight forwarding process which is quite often done by other (larger) logistics firms. Forward vertical integration would mean that inland navigation companies would also control the selling and marketing of the products that they are transporting.

NATIONAL STATISTICS OFFICES

Acronym	Original Name	English Name	Country
BFS	Bundesamt für Statistik	Federal Statistical Office	Switzerland
CBS	Centraal Bureau voor de Statistiek	Statistics Netherlands	The Netherlands
CZSO	Český statistický úřad	Czech Statistical Office	Czech Republic
Destatis	Statistisches Bundesamt	Federal Statistical Office	Germany
DZS	Državni Zavod Za Statistiku	Croatian Bureau of Statistics	Croatia
INSSE	Institutul National de Statistică	National Institute of Statistics	Romania
ISTAT	Istituto nazionale di statistica	Italian National Institute of Statistics	Italy
KSH	Központi Statisztikai Hivatal	Hungarian Central Statistical Office	Hungary
РзС	Републички завод за статистику Србије	Statistical Office of the Republic of Serbia	Serbia
Štatistický úrad SR	Štatistický Úrad Slovenskej Republiky	Statistical Office of the Slovak Republic	Slovak Republic

OTHER SOURCES

Original Name	English Name	Country
ABN AMRO Bank	ABN AMRO Bank	The Netherlands
Agence centrale des organismes de sécurité sociale	Central Agency for Social Security Bodies	France
AQUAPOL	AQUAPOL	The Netherlands
Arbeitsmarktservice Österreich	Austrian Public Employment Service	Austria
Bundesagentur für Arbeit	German Federal Labour Agency	Germany
Bundesministerium für Arbeit und Soziales	Federal Ministry of Labour and Social Affairs	Germany
Centraal Bureau Rijvaardigheidsbewijzen (CBR)	Central Office for Motor Vehicle Driver Testing (CBR)	The Netherlands
CCNR/ZKR/CCR	CCNR	Europe
Corporation Inland Tanker Barge Owners (CITBO)	Corporation Inland Tanker Barge Owners (CITBO)	Belgium
Deutscher Industrie- und Handelskammertag	Association of German Chambers of Commerce and Industry	Germany
Direction de l'Animation de la recherche, des Études et des Statistiques (DARES)	Directorate for Research, Studies and Statistics	France
Education in Inland Navigation (EDINNA)	Education in Inland Navigation (EDINNA)	Europe
European Commission	European Commission	EU

Original Name	English Name	Country
European Federation of Inland Ports (EFIP)	European Federation of Inland Ports (EFIP)	EU
European Transport Workers' Federation (ETF)	European Transport Workers' Federation (ETF)	Europe
EUROSTAT	EUROSTAT	EU
Fraunhofer-Center für Maritime Logistik und Dienstleistungen	Fraunhofer Center for Maritime Logistics and Services	Germany
IG River Cruise	IG River Cruise	Switzerland
ING Bank	ING Bank	The Netherlands
Inland navigation schools and training centres mentioned in the report	Inland navigation schools and training centres mentioned in the report	Europe
Innovációs és Technológiai Minisztérium	Hungarian Ministry for Innovation and Technology	Hungary
Inspection générale de la sécurité sociale	General Inspectorate of Social Security	Luxembourg
Institut national d'assurances sociales pour travailleurs indépendants (INASTI)	National Institute for the Social Security of the Self-employed	Belgium
Ministerstvo dopravy	Czech Ministry of Transport	Czech Republic
Nemzeti Munkatigyi Hivatal	Hungarian National Employment Service	Hungary
NPRC	NPRC	The Netherlands
OECD	OECD	World
Oesterreichische Nationalbank (OENB)	Oesterreichische Nationalbank (OENB)	Austria
Office fédéral de la statistique	Federal Statistical Office	Switzerland
Office national de la sécurité sociale (ONSS)	National Social Security Office	Belgium
Ostfriesische Volksbank	Ostfriesische Volksbank	Germany
Rabobank	Rabobank	The Netherlands
Structural business statistics (SBS)	Structural business statistics (SBS)	Europe
Изпълнителна агенция "МОРСКА АДМИНИСТРАЦИЯ"	Bulgarian Maritime Administration	Bulgaria

BOOKS, JOURNAL ARTICLES AND STUDIES

Original Name	Country
Central Commission for the Navigation of the Rhine, Inland navigation in Europe, Market observation, annual reports 2019 and 2020	Europe
ETF, 26/07/2019, https://www.etf-europe.org/ebu-etf-and-ig-rivercruise-sign-agreement-regarding-river-cruise-activities/	Europe
European Commission's annual "Report on A1 Portable Documents issued", 2019	EU
European Commission, report to the European Parliament, the Council and the European Economic and Social Committee on the application and implementation of Directive 2014/67/EU of the European Parliament and of the Council of 15 May 2014 on the enforcement of Directive 96/71/EC concerning the posting of workers in the framework of the provision of services and amending Regulation (EU) 1024/2012 on administrative co-operation through the Internal Market Information System ('the IMI Regulation') COM/2019/426 final, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2019:426:FIN	EU
European Company Lawyers Association (ECLA), 21/03/2019, https://inhouse-legal.eu/current-development/european-union-labour-authority-challenges/	Europe
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Investico (2018), Rijncruise drijft op arbeidsuitbuiting, https://www.platform-investico.nl/artikel/rijncruise-drijft-op-arbeidsuitbuiting/	The Netherlands
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The Public Bavarian Radio and Television Broadcasting Bayerischer Rundfunk (2018), Auf Flusskreuzfahrtschiffen weiter gravierende Mängel entdeckt, https://www.br.de/nachrichten/bayern/auf-flusskreuzfahrtschiffen-weiter-gravierende-maengel-entdeckt,Qwtunaf	Germany
UPT Erasmus, Binnenhavenmonitor 2019, Economische betekenis van de binnenhavens in Nederland in 2018	The Netherlands

LIABILITY DISCLAIMER

The Thematic report of European inland navigation is a common project of the CCNR and the European Commission

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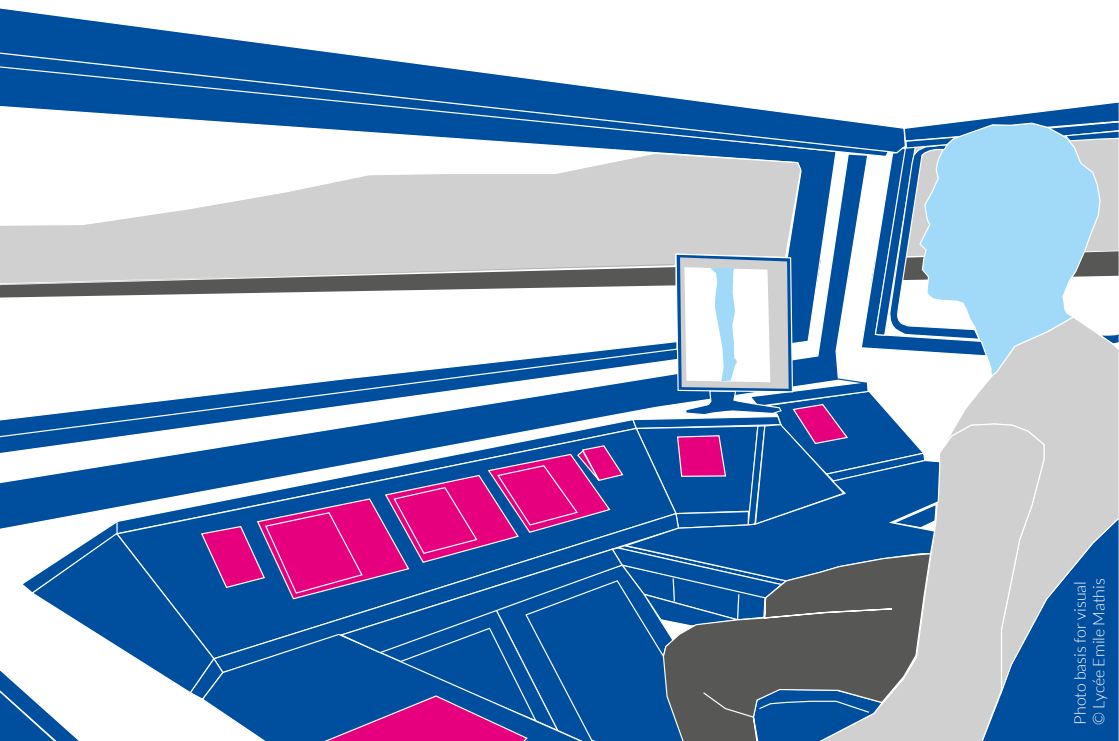
Imprint: February 2021

Published by the Central Commission for the Navigation of the Rhine (CCNR)
2, place de la République CS10023 – 67082 STRASBOURG cedex – www.ccr-zkr.org
ISSN : 2519-1101

Please find all our data at:
www.inland-navigation-market.org



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