



Department for Economic, European and Funding Affairs

# Economic Development in Duisburg

Structural  
Monitoring 2024  
3rd Edition





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## Foreword

Dear Reader

The third edition of our Structural Monitoring report once again provides you with a comprehensive and updated overview of the key metrics for Duisburg as a business location. Despite the various crises besetting the world, the numbers and data covering population, labour and training, transport infrastructure, land use, education, research and patents demonstrate that Duisburg continues to benefit from dynamic and future-proof development into a strong, sustainable and attractive business location.

### Duisburg is:

**Reliable in reducing taxes.** The budgetary policy of the City of Duisburg has enabled a reduction in local business tax and property tax, which benefits both companies and citizens and strengthens its competitiveness as a business location. So for example, the municipal business tax assessment rate will have gradually reduced from 520% in 2022 to 495% in 2025. The local assessment rate on land and buildings has also been reduced from 855% to 845%.

**Strong in start-ups and innovation** Today, Duisburg already offers a good basis for start-ups and innovation. In the last three years, our city has recorded an increase of about 1,600 permanently established commercial enterprises. Duisburg can also boast positive figures in R&D and innovations. In the last ten years, over 3,000 patents have been registered, of which over 300 have been created with international involvement.

**Strategic in economic development** Duisburg focuses on attracting key technologies and on the development of major projects in accordance with the 'economic compass' (strategic plan) adopted by the City Council in 2021 for the strategic development of commercial space. Together with many partners, we are implementing the construction of a hydrogen hub for the ramp-up of the hydrogen economy and the Wedau technology district, which will attract companies in the green industry and smart engineering sectors and become a supra-regional centre for innovative technologies.

This report will give you an impression of the structural change Duisburg has undergone from a traditional industrial centre to a modern, versatile location for industry, digitalisation and knowledge-intensive services.

I hope you enjoy browsing through this publication!

Michael Rüscher

Head of Economic Affairs of the City of Duisburg



*Michael Rüscher, Councillor for Business, Security and Order for the City of Duisburg*

# Executive Summary

Structural Monitoring 2024 presents all the factors that make the City of Duisburg both an attractive business location and a popular residential and recreational centre. Below we present a brief summary of the most important facts from the brochure:

## Population

- Population: 508,652 (December 2023)
- 330,000 people of working age between 15 and 65 (65% of the total population) in 2023



## Duisburg Labour Market

- Unemployment rate: 12.6% (2023)
- Socially insured employees (SVB): 177,277 (2023)
- Leading sectors by SVB employees (2023):
  - Metal, electrical and steel industries: 26,143 socially insured employees
  - Trade, maintenance and repair of motor vehicles: 22,080
  - Transport and warehousing 19,274
  - Other business services: 18,383
  - Healthcare: 14,398
- Socially insured employees (2023):
  - Men: 56 %
  - Women: 44%
- Apprentices: 9,553 (2023)



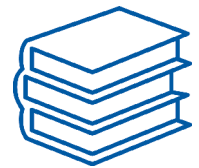
## Economic strength

- Gross domestic product: €18.360 bn (2021)
- Gross added value: €16.611 bn (2021)
- Disposable income: €9.3 m (2021)
- Business registrations: 3,271 (2022)
- Investment of the City of Duisburg €137.2 m (2021)



## Education

- 17,093 daycare places in 209 daycare centres (2023/2024)
- 19,882 primary school children in 76 primary schools (2022/2023)
- 49,550 pupils in 57 secondary schools (2022/2023)



## Research

- 17,065 students at four universities
- 16 research institutes
- 25,936 employees with an academic qualification
- 235 patent registrations



## Land use

- Operational areas make up around 21% of the urban area, of which around one third belongs to the Port of Duisburg
- 17 % of the area is residential
- 20 % of the total is sport and semi-natural recreational areas including forested areas
- Future construction projects: Wedau technology district, hydrogen projects



## Infrastructure and transport

- Together, the A3, A40, A42, A524 and A59 motorways form the 62.5-kilometre-long motorway network.
- Railway network: 211.7 km
- Waterways:
  - Usable area 21.61 km<sup>2</sup>
  - Length on plan: 243 km
  - Port of Duisburg 1,550 ha



## Location marketing

- Membership of three regions: Lower Rhine, Ruhr and Rhineland
- Rhine-Waal Euroregion: over 30 years of cooperation with the Netherlands
- Rhineland metropolitan region: intercommunal cooperation in the Rhineland



## Tourism

- Publication of the "Duisburg 2023 Tourism Industry Report"
- Tourist attractions
  - Duisburg Zoo
  - Duisburg Sports park
  - City centre
  - Inner Harbour
  - Duisburg North Landscape Park



Foreword .....	5
Executive Summary .....	6
<b>1. Population</b> .....	10
1.1 Population trends .....	10
1.2 Integration, internationality and linguistic diversity .....	13
<b>2. Labour market and training</b> .....	14
2.1 Unemployment rate .....	14
2.2 Number of socially insured employees .....	14
2.3 Female labour force participation .....	20
2.4 Commuting numbers .....	21
2.5 Number of trainees by sector .....	22
<b>3. Economy</b> .....	25
3.1 Gross domestic product and gross added value .....	25
3.2 Disposable income .....	27
3.3 Areas of expertise and economic structure .....	28
3.4 Number of business registrations .....	30
3.5 Integrative power of the business location .....	32
3.6 Community integration projects .....	34
3.7 Investments by municipalities and companies .....	37
3.8 Business tax and property tax .....	39
3.9 Rental index and property market .....	42
<b>4. Education</b> .....	44
4.1 Overview of schools and vocational colleges .....	44
4.2 Number of school pupils by school type .....	45
4.3 Educational qualification statistics .....	46
4.4 Childcare .....	47
<b>5. Research</b> .....	49
5.1 List of universities and research institutes .....	49
5.2 Student numbers .....	50
5.3 Numbers of graduates .....	51
5.4 Development of patents .....	53



<b>6. Land use</b> .....	57
6.1 Current land use .....	57
6.2 Future and existing commercial and industrial locations .....	59
6.3 Property market .....	63
<b>7. Transport infrastructure</b> .....	66
7.1 Motorway network .....	66
7.2 Railway network .....	68
7.3 Inland port .....	69
7.4 Waterways .....	70
7.5 Airport .....	71
7.6 Broadband expansion .....	71
<b>8. Location marketing: geography and location analysis</b> .....	73
8.1 Membership of three regions (Lower Rhine, Ruhr, Rhineland) .....	73
8.2 Cross-border cooperation with the Netherlands – the Rhine-Waal Euroregion .....	75
8.3 Duisburg in the Rhineland metropolitan region .....	76
<b>9. Tourism, leisure and culture</b> .....	77
<b>List of Figures</b> .....	79
<b>List of Tables</b> .....	81

# 1. Population

## 1.1 Population trends

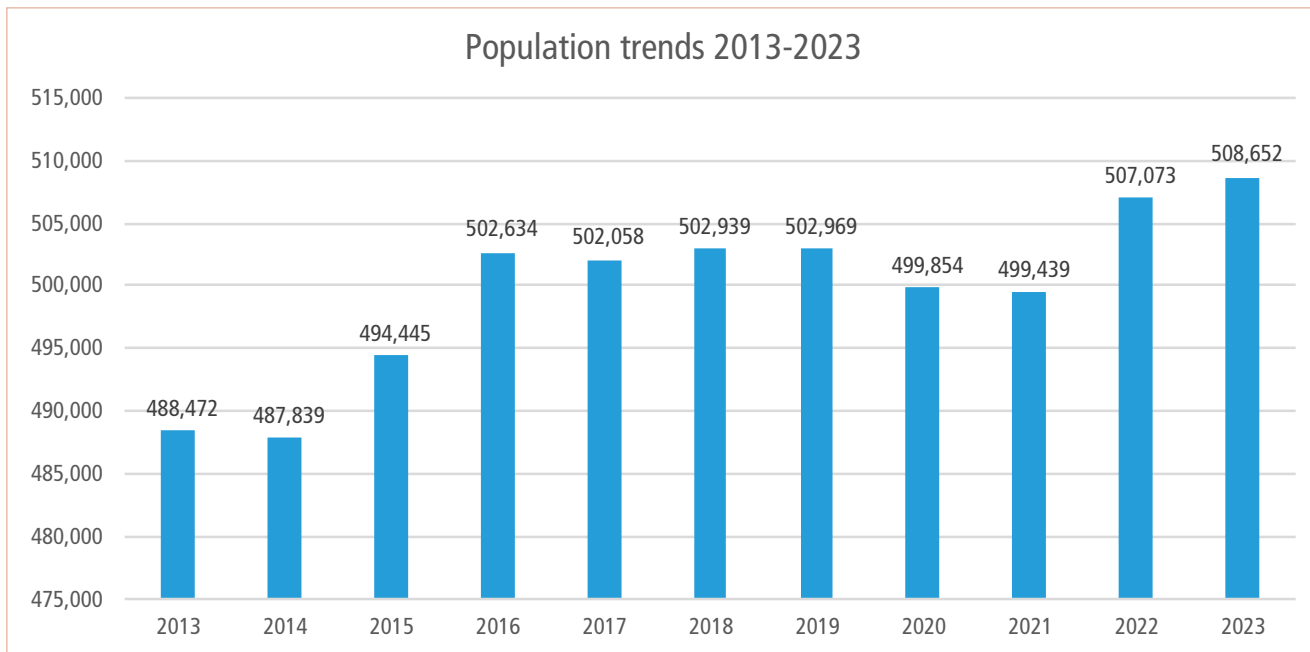


Figure 1: Population trend.<sup>1</sup>

Over the last ten years, the population trend of the City of Duisburg has been generally positive. After a slight decline in 2020 (499,854) and 2021 (499,439) due to border closures caused by the COVID-19 pandemic, the population rose to 507,073 in 2022 and reached a new high of 508,652 in 2023. In 2022 there was a marked influx of Ukrainian citizens due to the war between Russia and Ukraine.

As the population changes, the age structure of the population also changes.

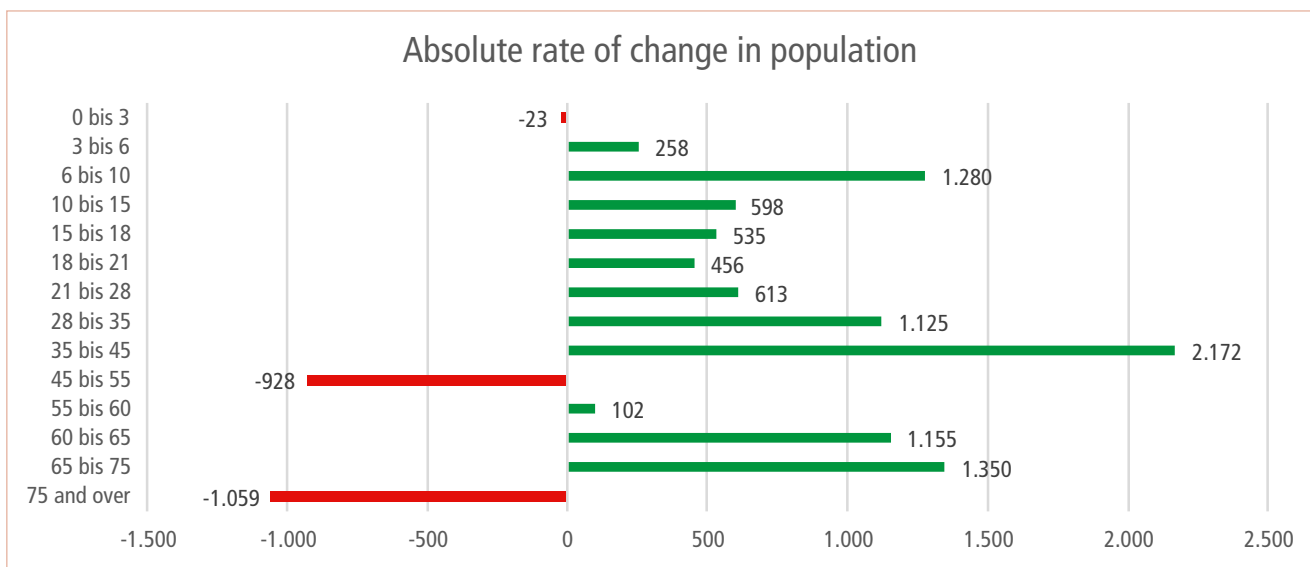


Figure 2: Absolute rate of change in population compared to the previous year (2022 to 2021)<sup>2</sup>

<sup>1</sup> Source: City of Duisburg, status: 09.2023

<sup>2</sup> Source: City of Duisburg, status: 09.2023

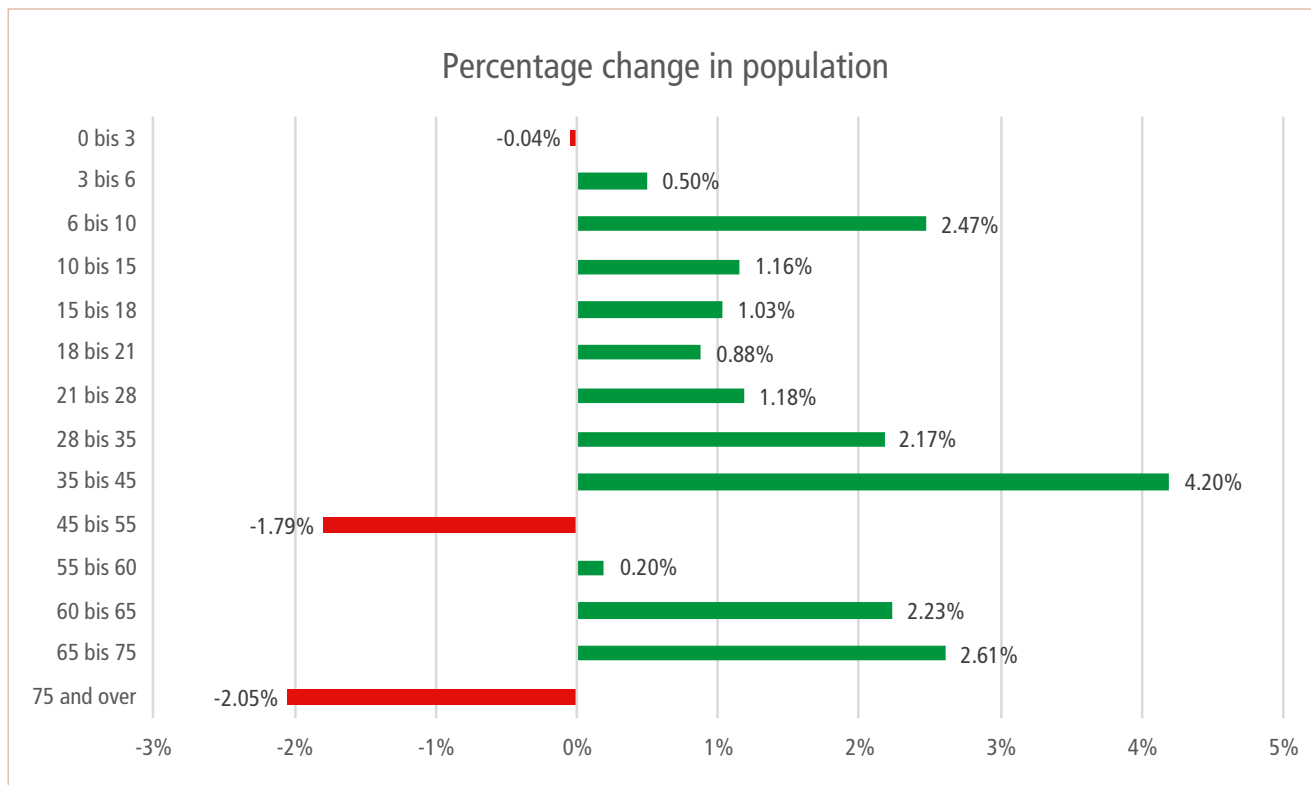


Figure 3: Percentage change in population compared to the previous year (2022 to 2021) <sup>3</sup>

In 2022 the greatest population growth compared to the previous year was in the 35–45 age group. A total of 2,172 people (+4.20%) are assigned to this age group. The 65–75 age group also grew with an increase of 1,350 (+2.61%).

In 2022 there was a negative rate of change in three age groups, The largest decline was in the age group 75 and over with 1,059 (-2.05%) fewer than in the previous year.

There was a decline of 928 (-1.79%) in the 45-55 age group

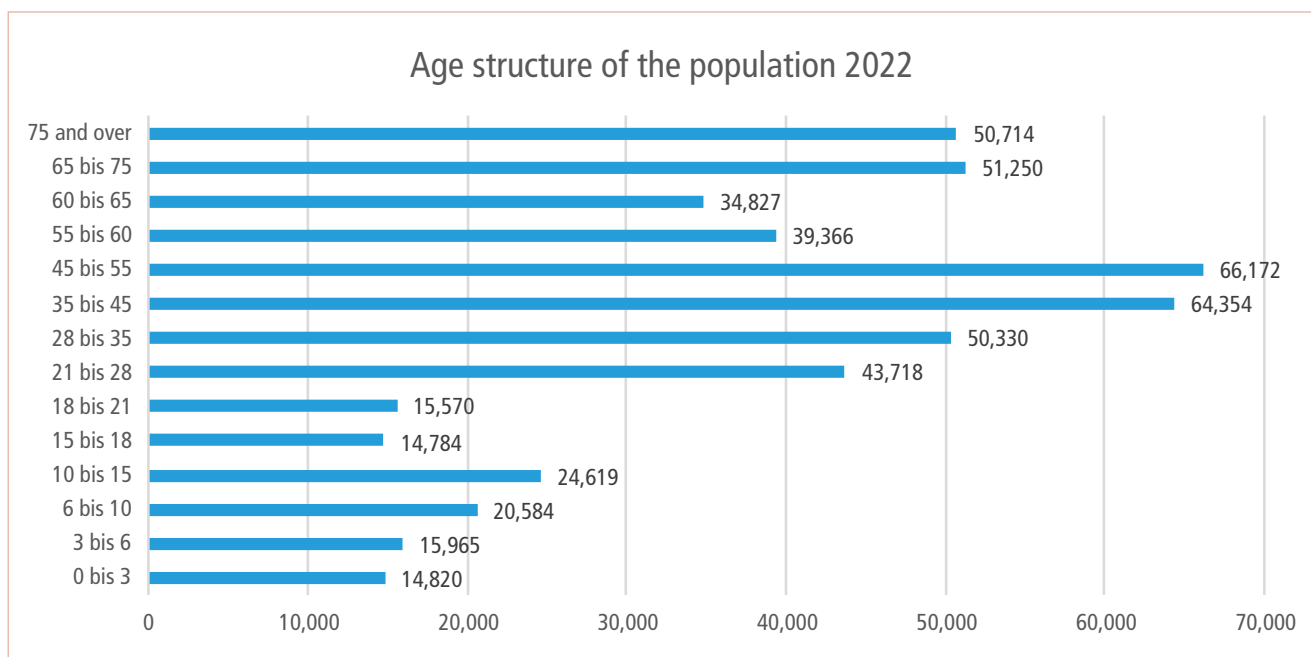
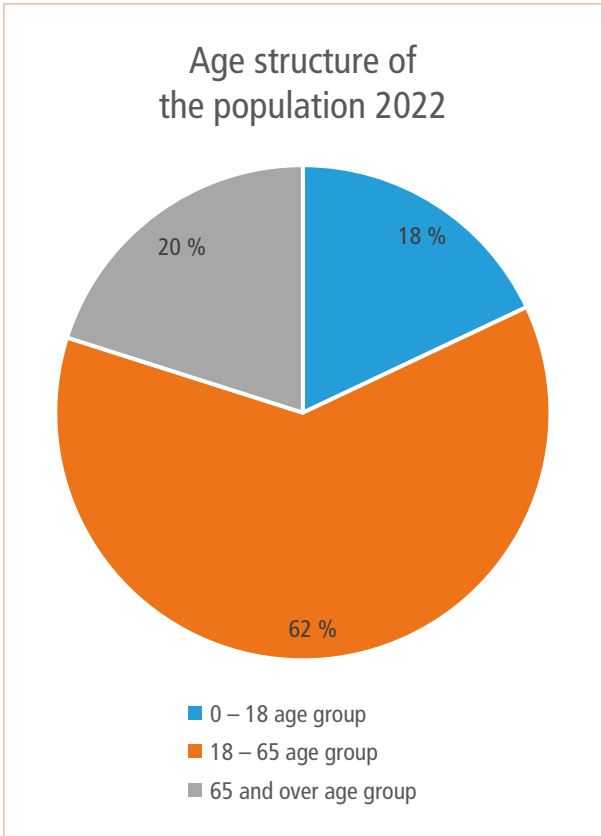


Figure 4: Absolute age structure of the population <sup>4</sup>

3 Source: City of Duisburg, status: 09.2023

4 Source: City of Duisburg, status: 09.2023



There were 23 fewer people (-0.04%) in the 0–3 age group. The largest group of the Duisburg population is in the age range 45 to 55 with a total of 66,172 people. The 35–45 age group was of a similar size with a population of 64,354.

Figure 5: Percentage age structure of the population <sup>5</sup>

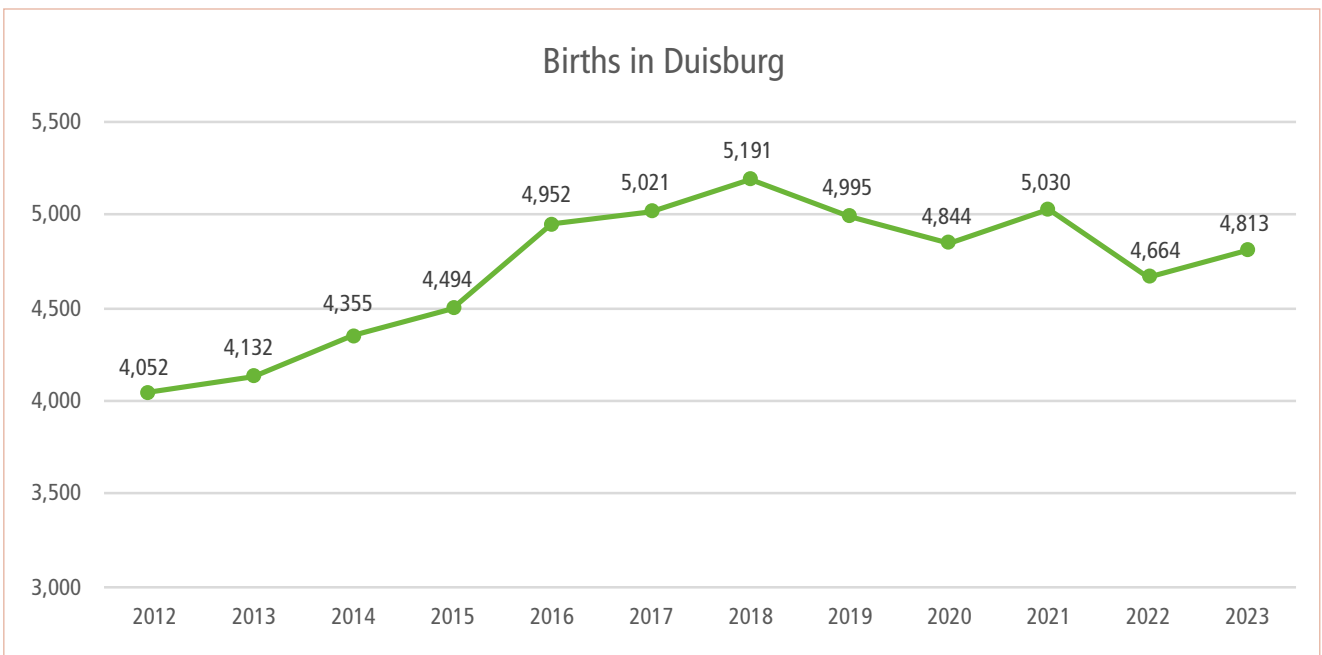


Figure 6: Birth rate in Duisburg <sup>6</sup>

The number of births in Duisburg has grown continuously since 2012. This reached a maximum in 2018 with 5,191 births. The numbers declined slightly in the following years 2019 (4,995) and 2020 (4,844). In 2021 there was another increase compared to the previous year with 5,030 births. In 2022 the number fell again to 4,664, increasing again to 4,813 in 2023.

<sup>5</sup> Source: City of Duisburg, status: 09.2023

<sup>6</sup> Source: City of Duisburg, status: 09.2023

## 1.2 Integration, internationality and linguistic diversity

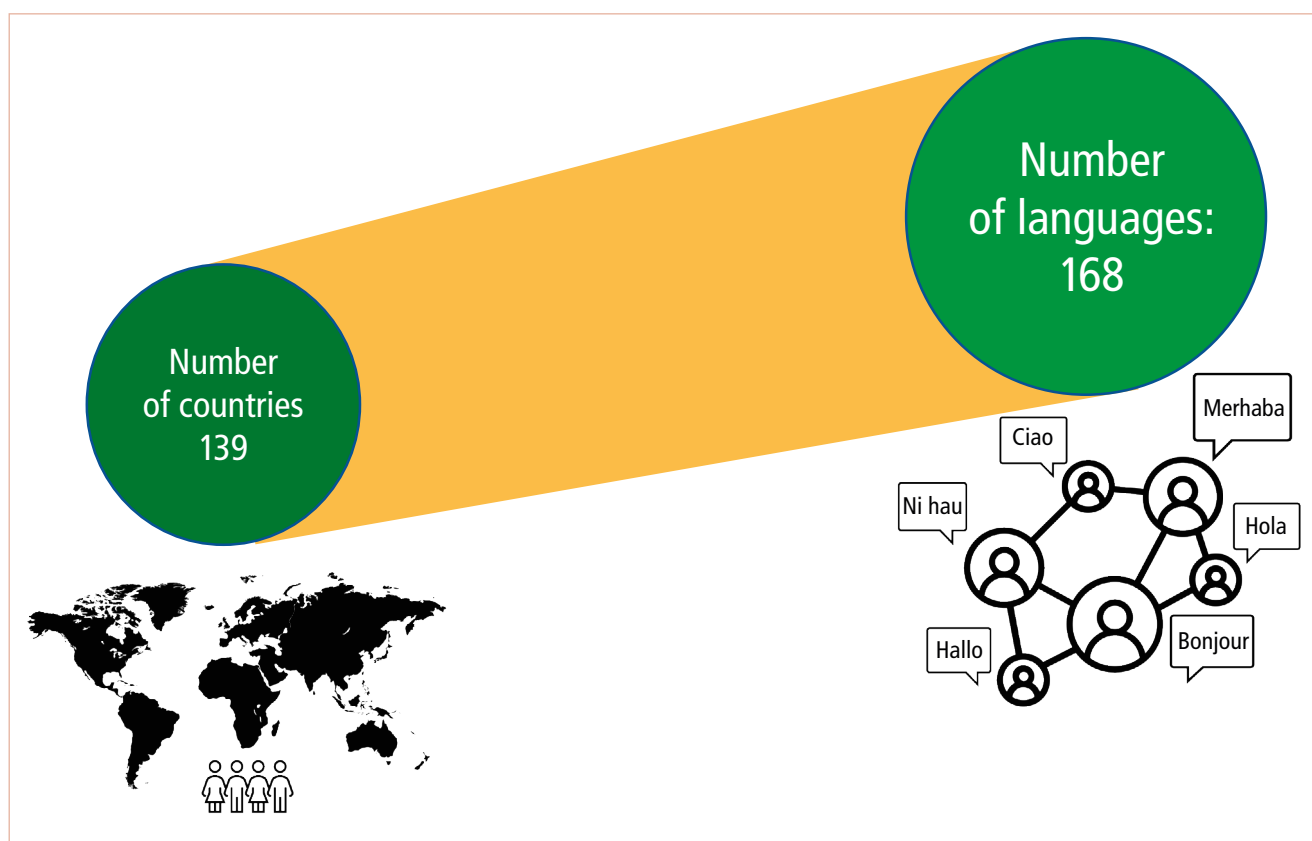


Figure 7: Internationality in Duisburg <sup>7</sup>

The city of Duisburg is international. For decades the population has been characterised by immigration and multi-cultural influences. The main reasons were the post-war period and the 'economic miracle'. In the early 1950s the economy of the Federal Republic boomed. The number of job vacancies far exceeded the number of job seekers. In 1955 the first recruitment agreement for labour migration was signed between Germany and Italy. Further agreements followed with other countries. In 2021 the German-Turkish labour migration agreement celebrated its 60th anniversary and also the flows of refugees from Syria and other African countries in 2015 and 2016 as well as from Ukraine in 2022 have contributed to the diversity of the City of Duisburg. Furthermore, the University of Duisburg-Essen and the Folkwang University of the Arts in Duisburg attract numerous international students. This identity-forming diversity for Duisburg is reflected in the special linguistic and cultural diversity of the population. Thus in 2023 there were people from 139 different countries living in Duisburg, speaking 168 different languages.



<sup>7</sup> Source: City of Duisburg, status: 03.2023

## 2. Labour market and training

### 2.1 Unemployment rate

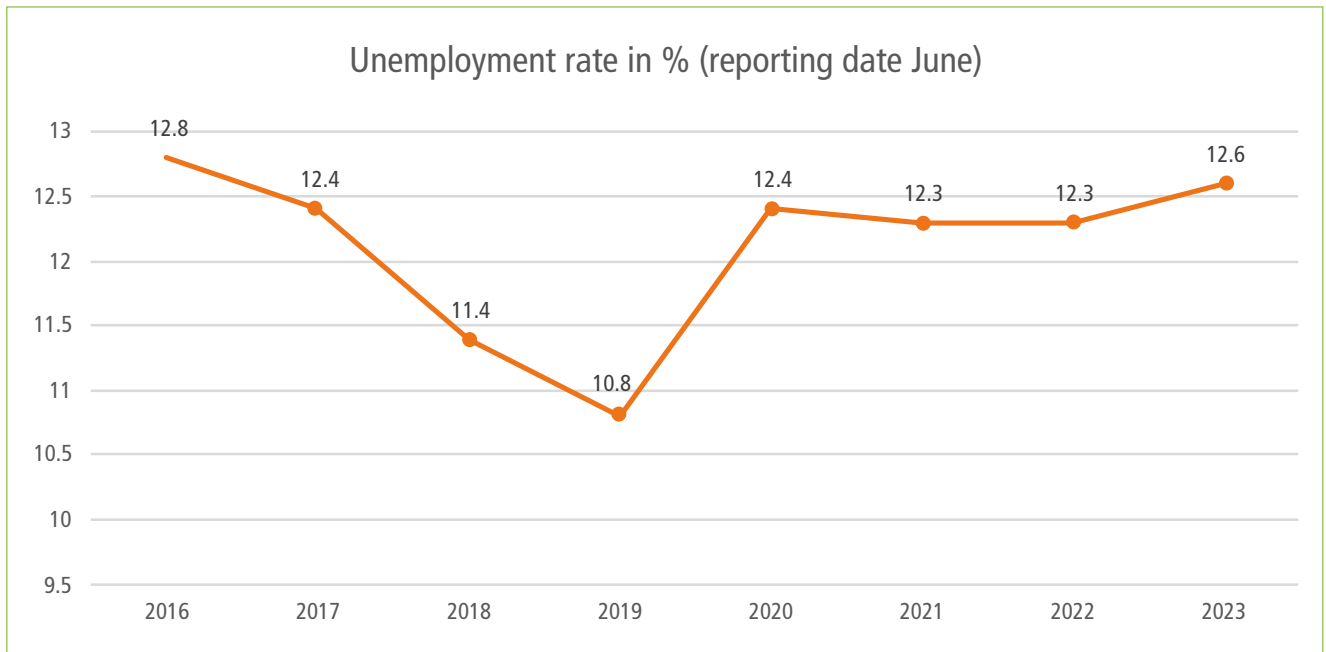


Figure 8: Unemployment rate <sup>8</sup>

Between 2016 and 2019 the unemployment rate in Duisburg declined by 2 percentage points from 12.8% to 10.8%.

After the unemployment rate reached its lowest level in the period under review in 2019, in the following years an increase was recorded. In 2020 12.4% of Duisburg residents of working age were registered as unemployed. In 2021 and 2022 the figure stagnated at this level at 12.3% and rose in 2023 to 12.6%.

### 2.2 Number of socially insured employees

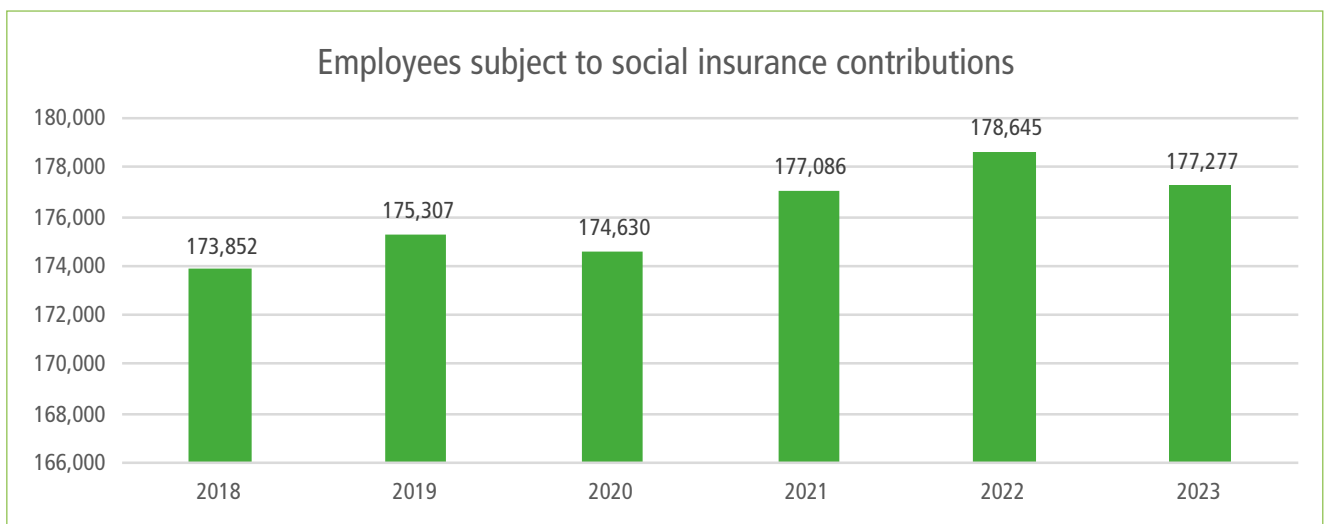


Figure 9: Socially insured employees <sup>9</sup>

<sup>8</sup> Source: Statistics of the Federal Employment Agency, status: 03.2023

<sup>9</sup> Source: Statistics of the Federal Employment Agency, status: 03.2023

In 2020 there was slight decline compared to the previous year in the number of socially insured employees recorded in the workplace from 175,307 to 174,630. In 2021, a new peak of 177,086 was reached, which rose again in the following year (2022) to 178,645. In 2023 the number of socially insured employees in Duisburg dropped to 177,277 due to the slow decline in inflation and slowly falling and stabilising energy prices. However, persistently high inflation worldwide is forcing the US Federal Reserve and the European Central Bank (ECB) to maintain their high base rates. High base rates increase the cost of finance to companies for investment projects. This can lead to a decline in orders and ultimately to a reduction in jobs.

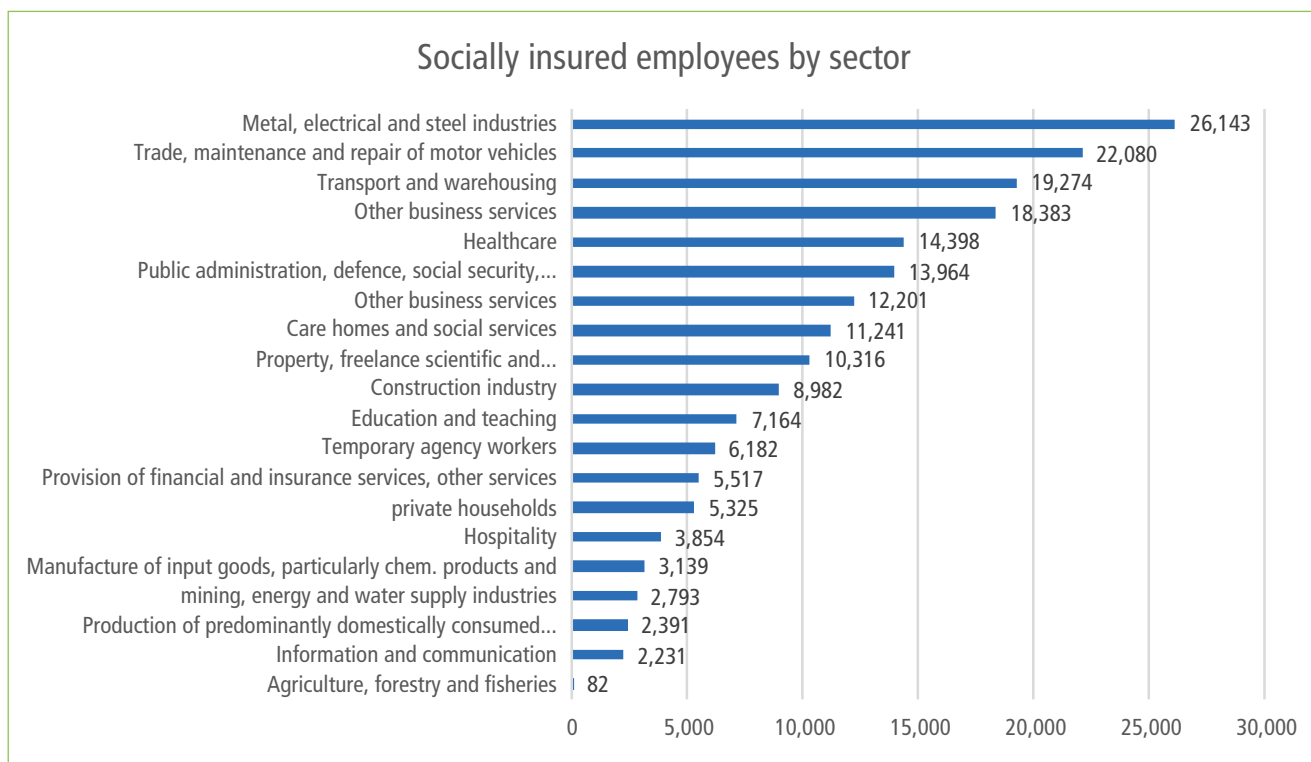


Figure 10: Socially insured employees by sector <sup>10</sup>

In 2023, the sector with the highest number of socially insured employees in the workplace was the metal, electrical and steel industry with 26,143 (status: June 2023).

Also important for Duisburg as a business location were the sectors: trade, maintenance and repair of motor vehicles (22,080); transport and warehousing (19,274); other business services without temporary agency workers (18,383) and the healthcare sector (14,398).

In 2023 agriculture, forestry and fisheries had the smallest number of socially insured employees with a total of 82 people.



<sup>10</sup> Source: Statistics of the Federal Employment Agency, status: 06.2023

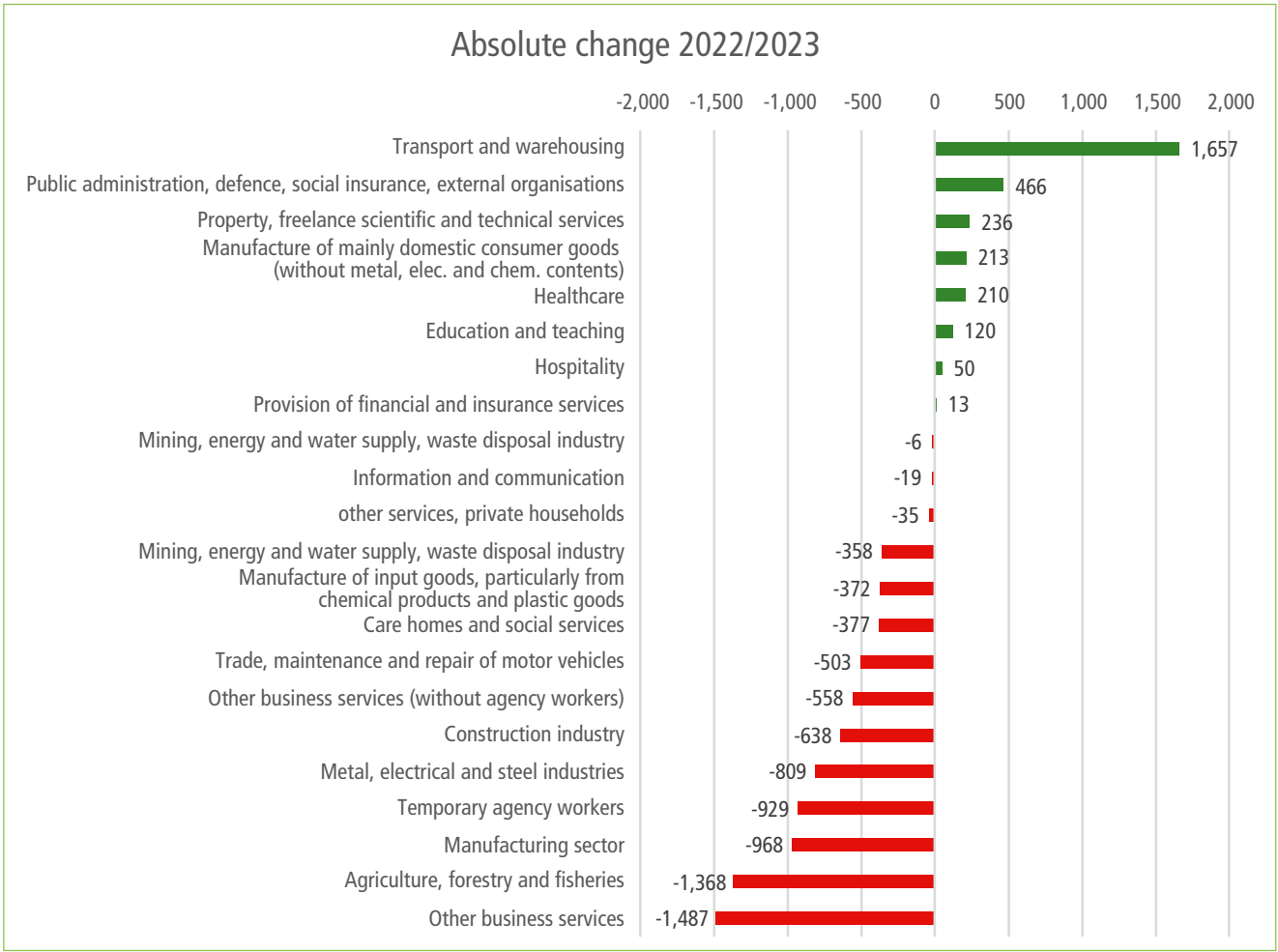


Figure 11: Absolute change in socially insured employees compared to the previous year <sup>11</sup>

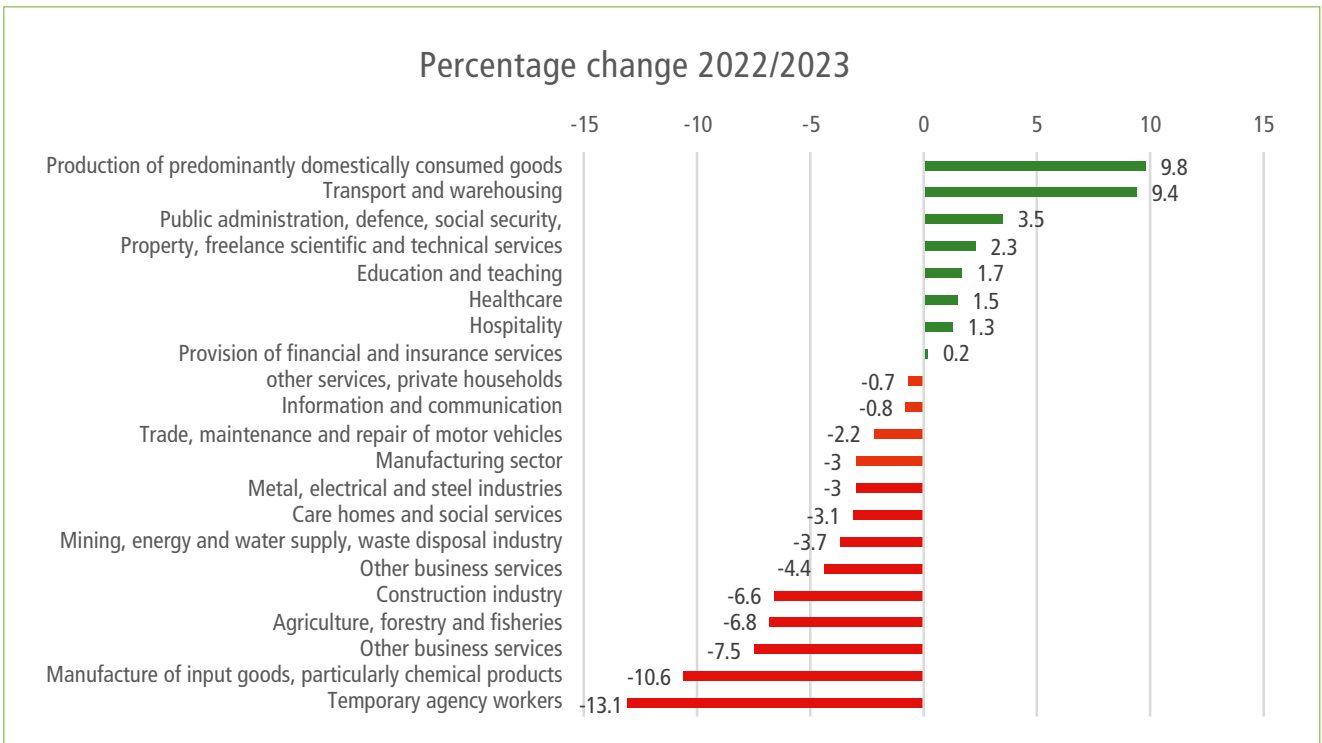


Figure 12: Percentage change in socially insured employment compared to the previous year <sup>12</sup>

11 Source: Statistics of the Federal Employment Agency, status: 06.2023

12 Source: Statistics of the Federal Employment Agency, status: 06.2023



The strongest absolute growth compared to the previous year 2022 was recorded by the transport and warehousing sector with 1,657 (+9.4%) socially insured employees. In 2023 the manufacture of domestic consumer goods or other consumer goods employed 213 more socially insured people than in the previous year, thus recording the highest percentage growth (+9.8%). In absolute numbers, other commercial services recorded the strongest negative trend. In 2023 1,487 fewer people (-7.5%) were socially insured employees in this sector. The largest percentage decline was in the category temporary agency workers with 929 socially insured employees (-13.1%).

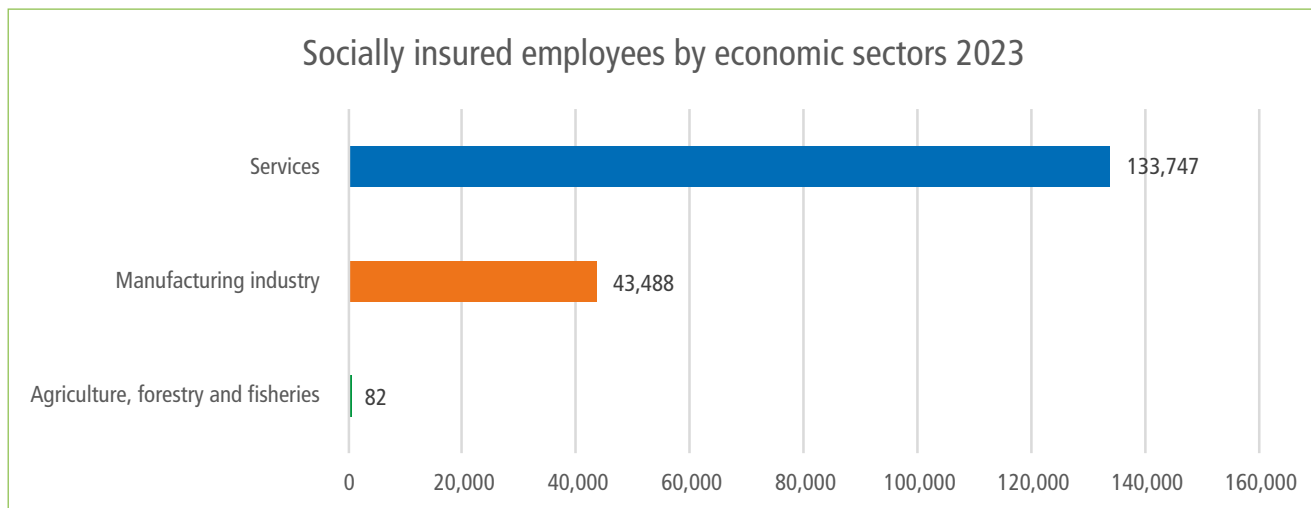
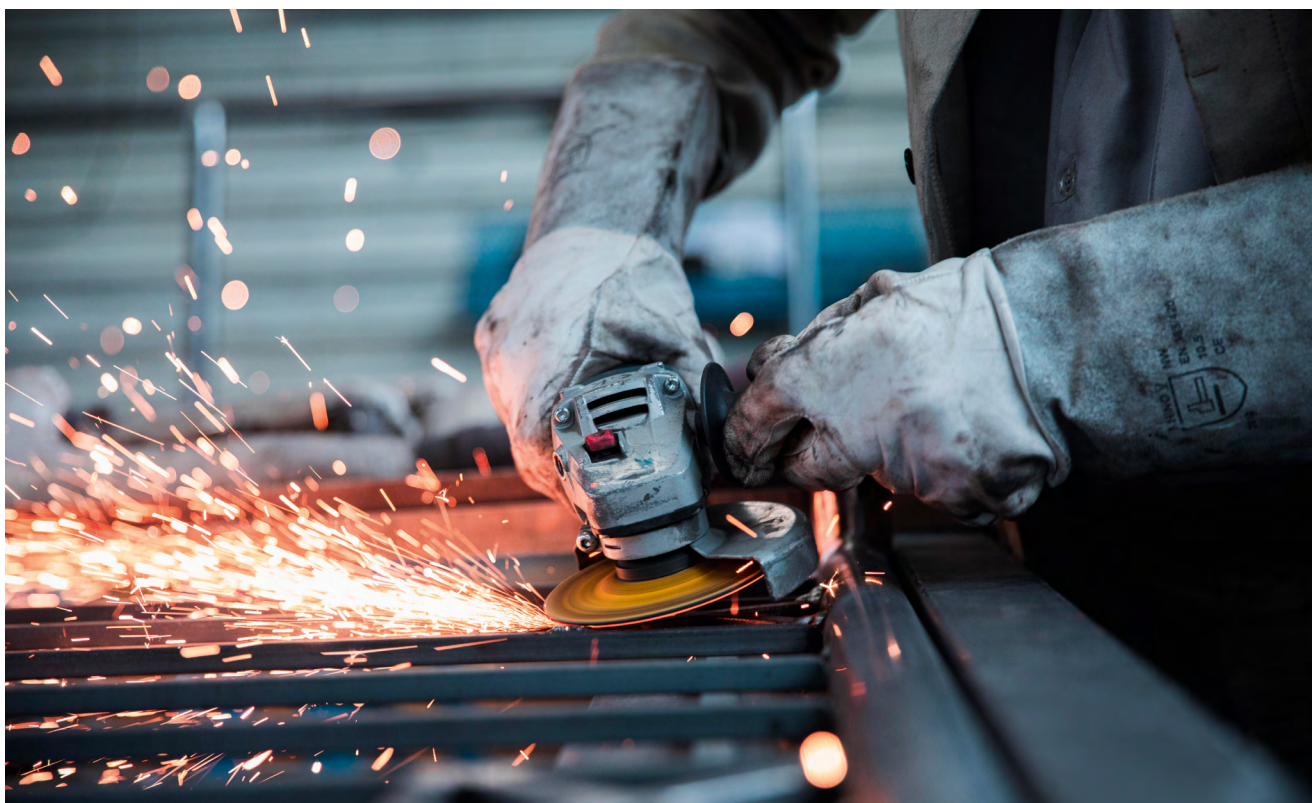


Figure 13: Socially insured employees by economic sectors <sup>13</sup>

In 2023, 133,747 people or three-quarters of socially insured employees worked in the Duisburg services sector.

In manufacturing industry there were 43,488 socially insured employees. In the agriculture, forestry and fisheries sector in Duisburg there were just 82 socially insured employees.



<sup>13</sup> Source: Statistics of the Federal Employment Agency, status: 06.2023

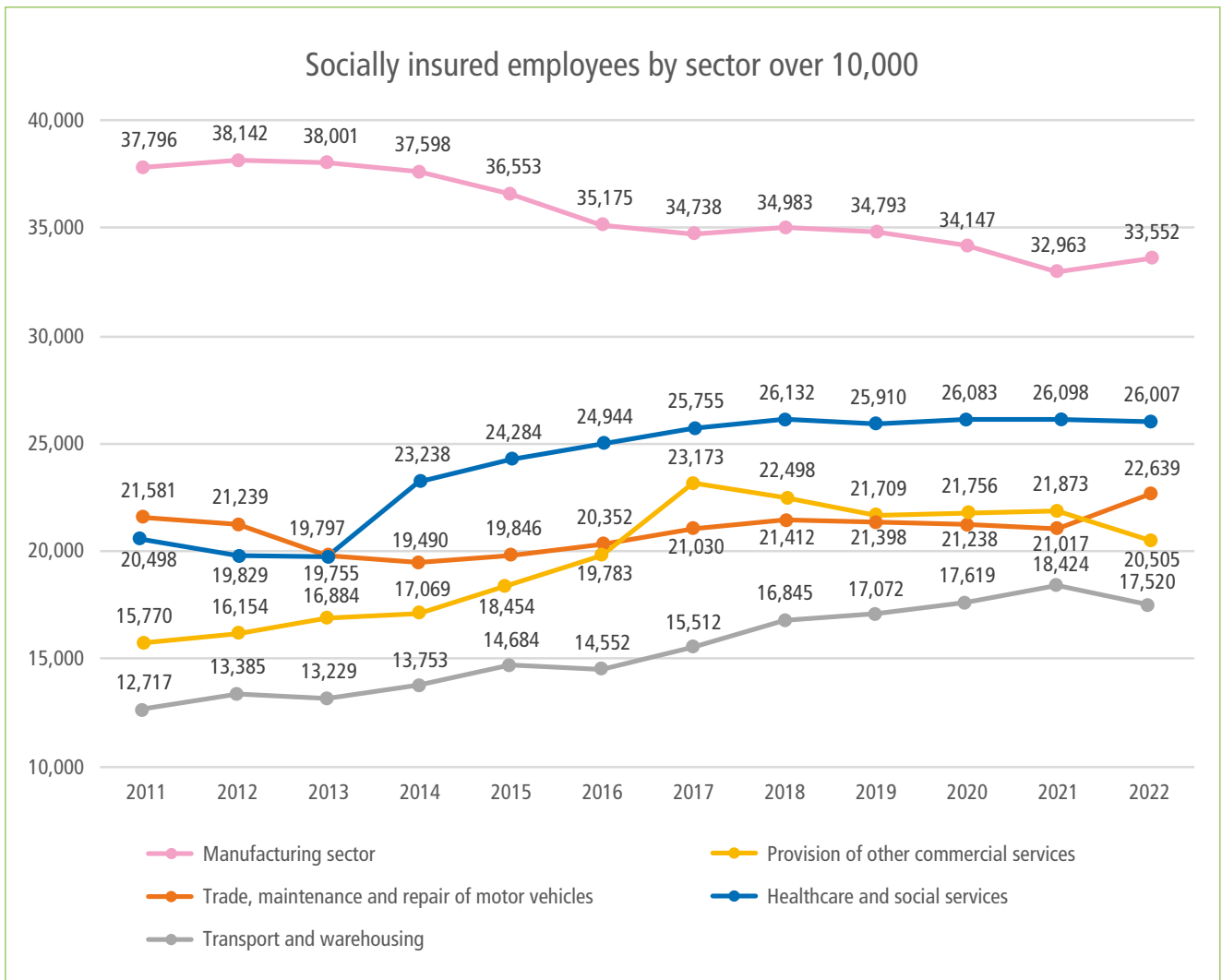
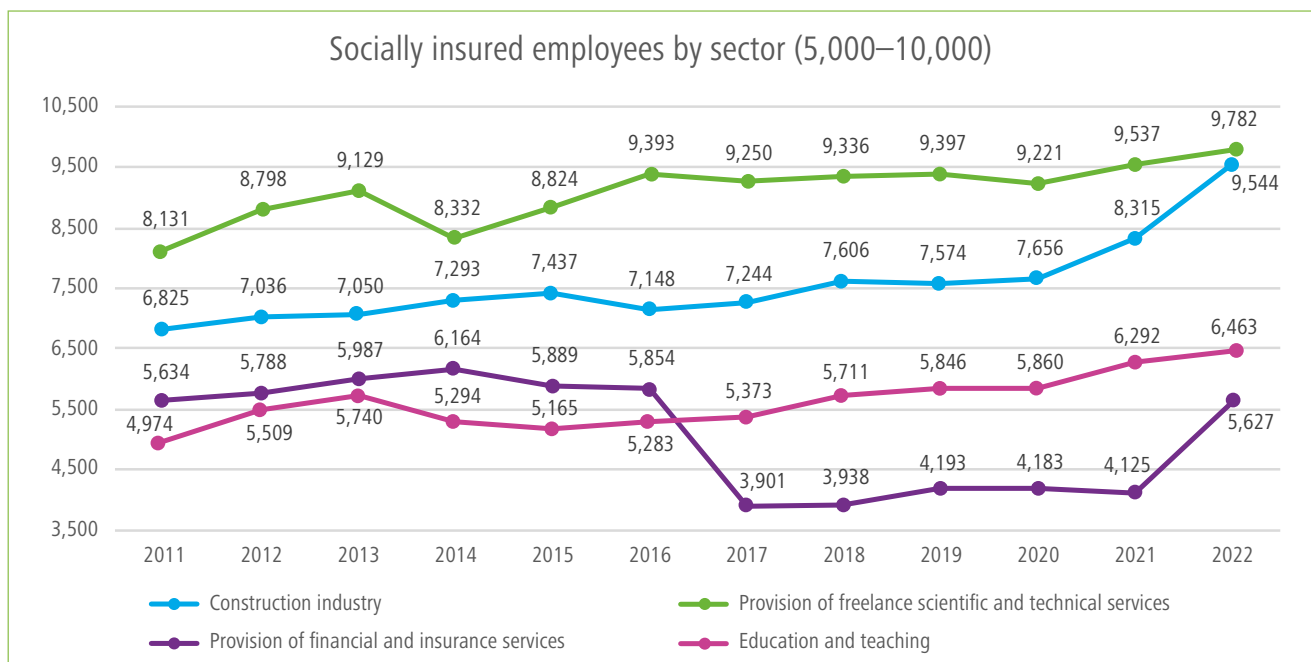


Figure 14: Sectors with over 10,000 socially insured employees <sup>14</sup>

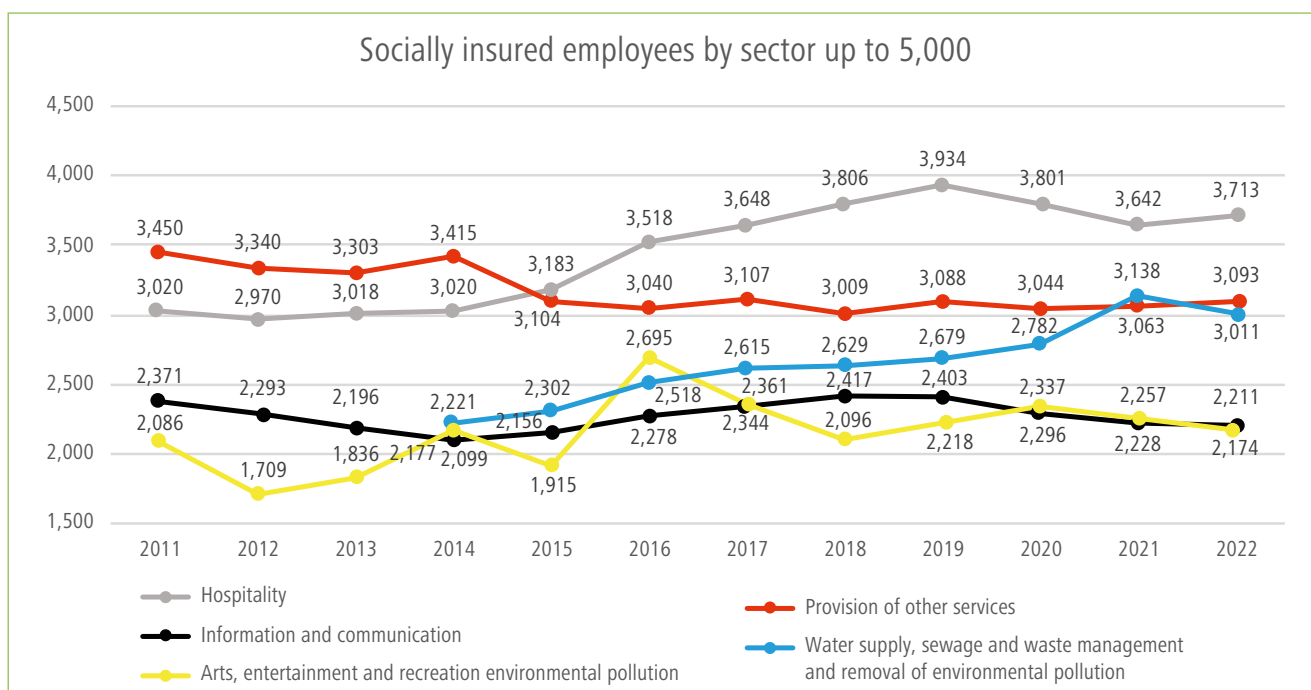
For a decade now, among the sectors with more than 10,000 employees, the most socially insured employees are to be found in manufacturing. The numbers have fallen in recent years. The number of socially insured employees rose again for the first time from 32,963 in 2021 to 33,552 in 2022. In the healthcare and social services sector, there were hardly any changes between 2020 (26,083) and 2022 (26,007). In the sectors trade, maintenance and repair of motor vehicles, there was an increase in 2022 (22,639) compared to the previous year 2021 (21,017). The number of socially insured employees in the provision of other commercial services rose slightly in 2020 (21,756) and 2021 (21,873), before falling sharply in 2022 (20,505). The transport and warehousing sector had the lowest number of socially insured employees. After steady growth in recent years, there was a decline from 18,424 in 2021 to 17,520 in 2022.

<sup>14</sup> Source: NRW State Database © IT.NRW, Düsseldorf / Federal Employment Agency, status: 09.2023 In comparison with Figure 10, here the health care and social services sectors have been combined into one sector by the State Database IT.NRW.



Figures 15: Sectors with 5,000 to 10,000 socially insured employees <sup>15</sup>

In the last decade, the provision of freelance, scientific and technical services was the sector with the largest number of socially insured employees in the range 5,000 to 10,000. The number increased continuously from 9,221 (2020) to 9,537 (2021) to 9,782 (2022). The number of socially insured employees in the construction sector had already experienced a sharp rise from 7,656 (2020) to 8,315 (2021), before an extreme rise to 9,544 in 2022. The prolonged period of zero interest rates over the past ten years has lowered construction costs and driven up demand for construction projects. This has increased the number of socially insured employees in the construction sector. In the financial and insurance services sector, the number of socially insured employees dropped sharply from 5,854 (2016) to 3,901 (2017), before recovering and ending in 2022 almost on the level of 2016. In the education and teaching sector the number of socially insured employees rose steadily, with another increase from 2021 (6,292) to 2022 (6,463).



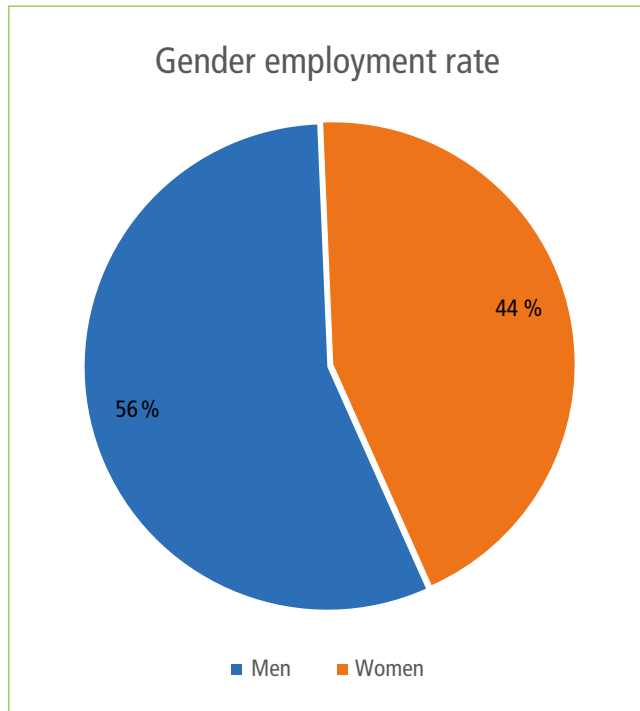
Figures 16: Sectors with up to 5,000 socially insured employees <sup>16</sup>

15 Source: NRW State Database © IT.NRW, Düsseldorf / Federal Employment Agency, status: 09.2023

16 Source: NRW State Database © IT.NRW, Düsseldorf / Federal Employment Agency, status: 09.2023

The sector with the most socially insured employees in the range up to 5,000 was hospitality. The numbers declined between 2019 (3,934) and 2021 (3,642) until 2022 (3,713), when there was another increase. The second largest employment figures were in the provision of other services. The sector fluctuated slightly between 2016 (3,040) and 2022 (3,093). The water supply industry enjoyed continuous positive growth from 2014 (2,221) to 2021 (3,138), until 2022 (3,011), when for the first time it recorded a decline. The information and communication sector experienced an upturn until 2018 (2,417), after which, however, it declined every year until 2022 (2,211). The arts, entertainment and recreation sector recorded a decline from 2020 (2,337) to 2022 (2,174).

### 2.3 Female labour force participation



In 2023 the labour force participation of employed women was about 44%, while the labour participation of employed men was 56%..

Figure 17: Gender employment rate <sup>17</sup>

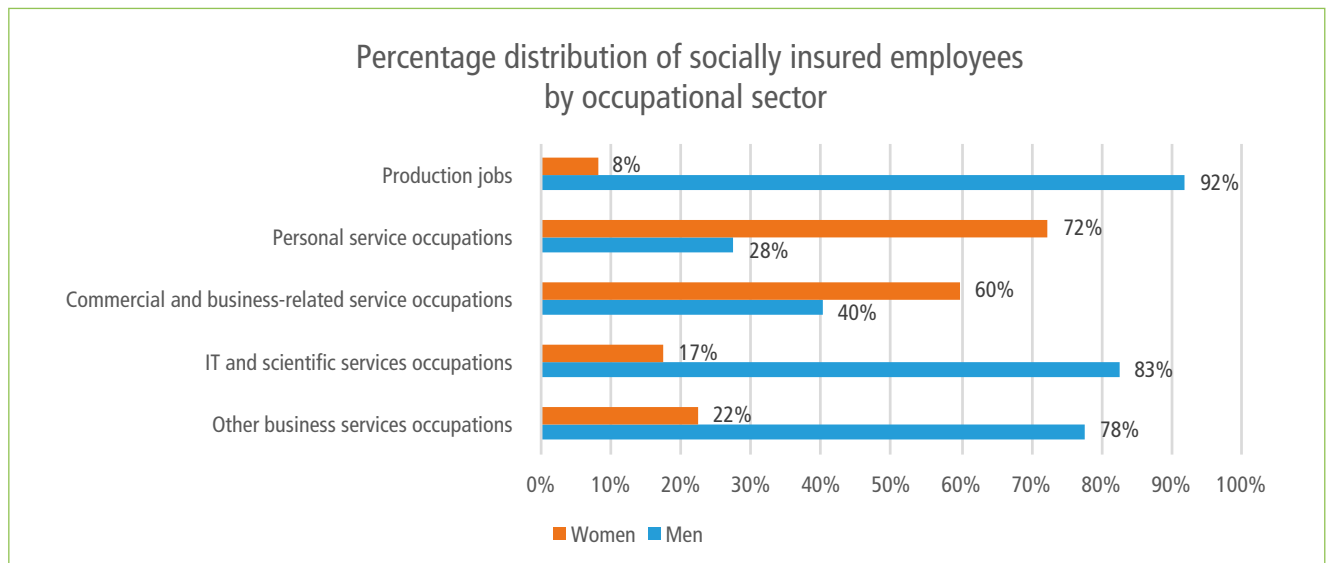


Figure 18: Percentage distribution of socially insured employees by occupational segments <sup>18</sup>

17 Source: Statistics of the Federal Employment Agency, status: 01.2023

18 Source: Statistics of the Federal Employment Agency, status: 01.2023

Men and women are predominantly employed in different occupational segments. In 2023 women were more frequently active than men in personal service occupations. This occupational segment had the highest proportion of women at 72%. Women also predominate in commercial and business-related service occupations (60%). The highest proportion of male socially insured employees with 92% was in production jobs. Men were also significantly more frequently employed in IT and scientific occupations (83%) as well as in occupations in other commercial services (78%).

One exemplary initiative to promote the participation of women in the labour market is the Lower Rhine Woman and Job Competence Centre. The aims of the team at the Competence Centre are to sensitise SMEs to approach female professionals, to open up family- and life-phase-oriented corporate management, to activate change and diversity in companies through best practice and role models and to consolidate female mentoring programmes for start-ups and female entrepreneurs. The project was funded by the Ministry for Children, Youth, Family, Equality, Refugees and Integration of the State of North Rhine-Westphalia. Having been established in the City of Duisburg since 2012, the Competence Centre cooperates with partners from the business world to secure skilled workers for women and promotes equal opportunities in the workplace.<sup>19</sup>

## 2.4 Commuting numbers

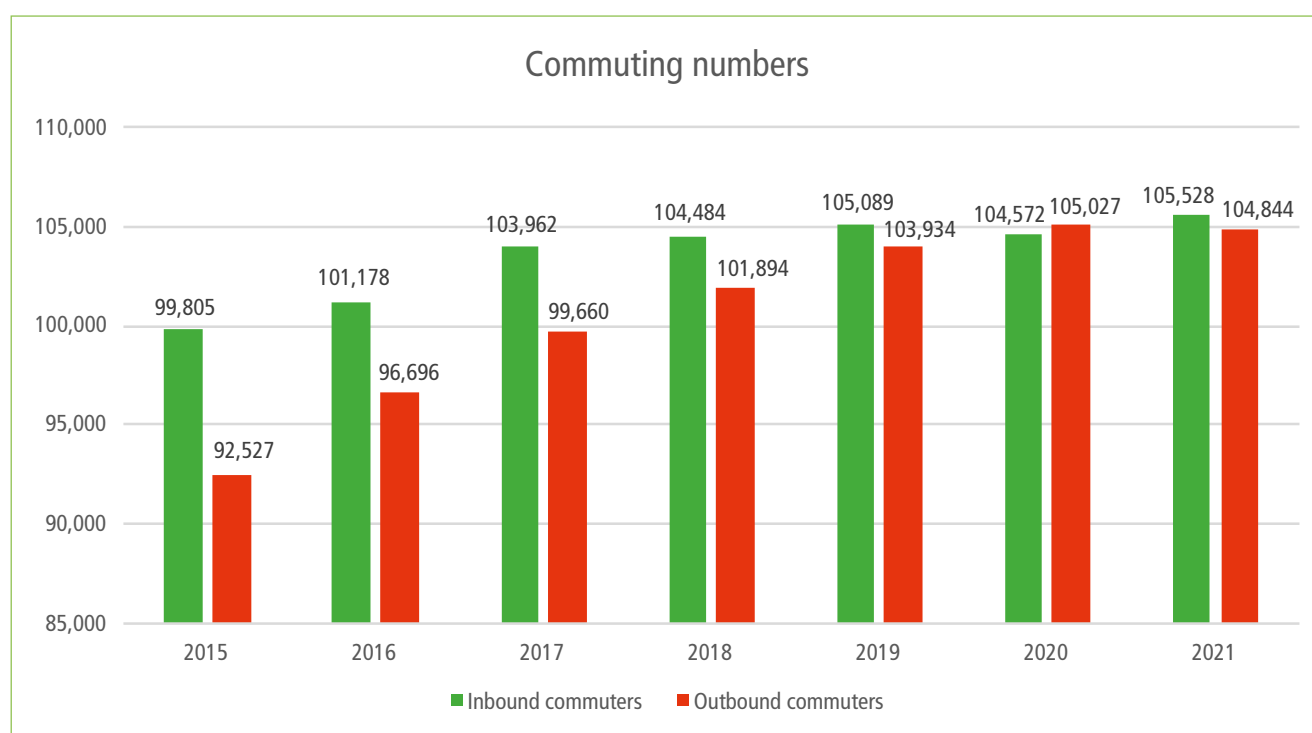


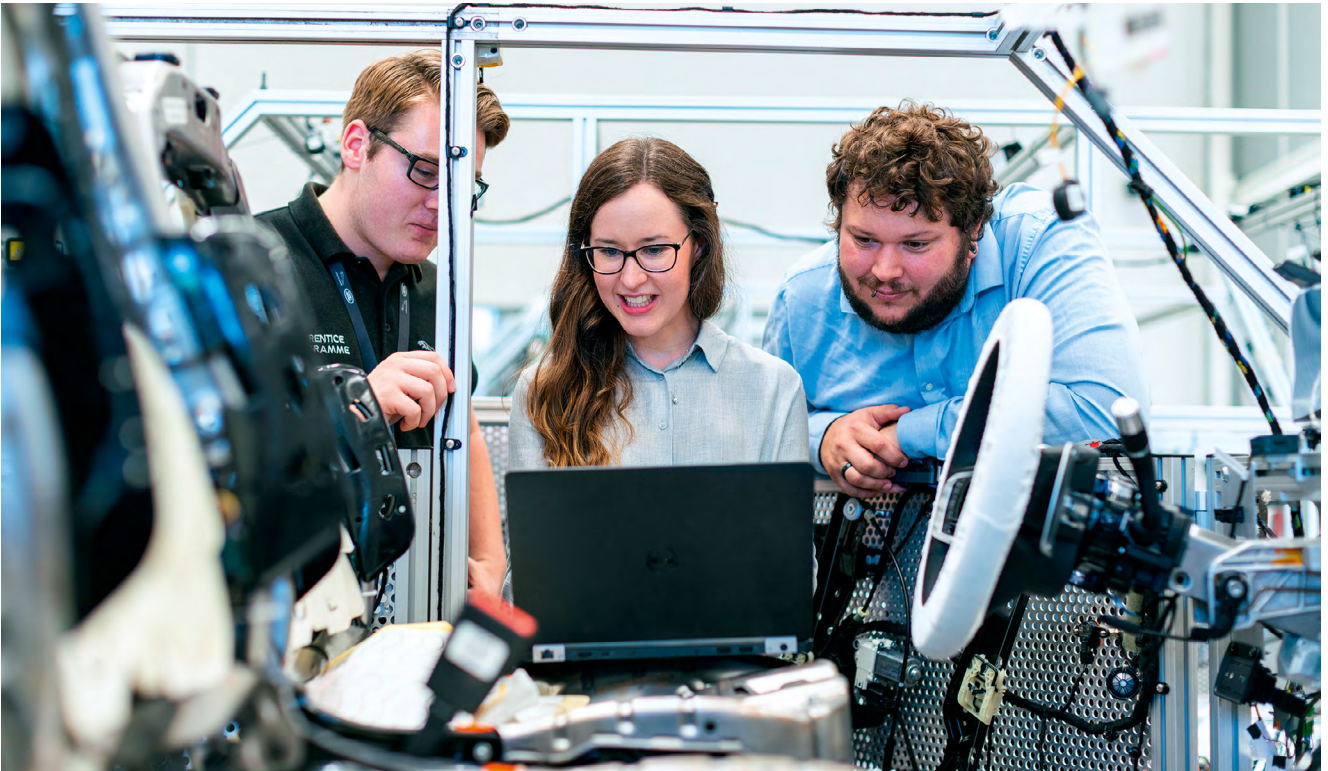
Figure 19: Absolute commuter numbers<sup>20</sup>

The average number of daily commuters in Duisburg rose continuously from 2015 to 2019. Over this period, the number of inbound commuters rose from 99,805 to 105,089 (+5.29%) while the number of outbound commuters increased from 92,527 to 103,934 (+12.33%). While in 2020 the number of outbound commuters increased to 105,027 compared to previous years, the number of inbound commuters decreased to 104,572. In 2021 the number of inbound commuters reached a new high. An average of 105,528 people commuted daily to Duisburg. In contrast, the number of outbound commuters in 2021 fell to 104,844.

<sup>19</sup> Source: Competentia NRW – Kompetenzzentrum Frau und Beruf Niederrhein:

<https://duisburg.de/microsites/wirtschaft/projekte-themen/team-kontakt.php>, status: 09.2023

<sup>20</sup> Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 03.2023



### 2.5 Number of trainees by sector

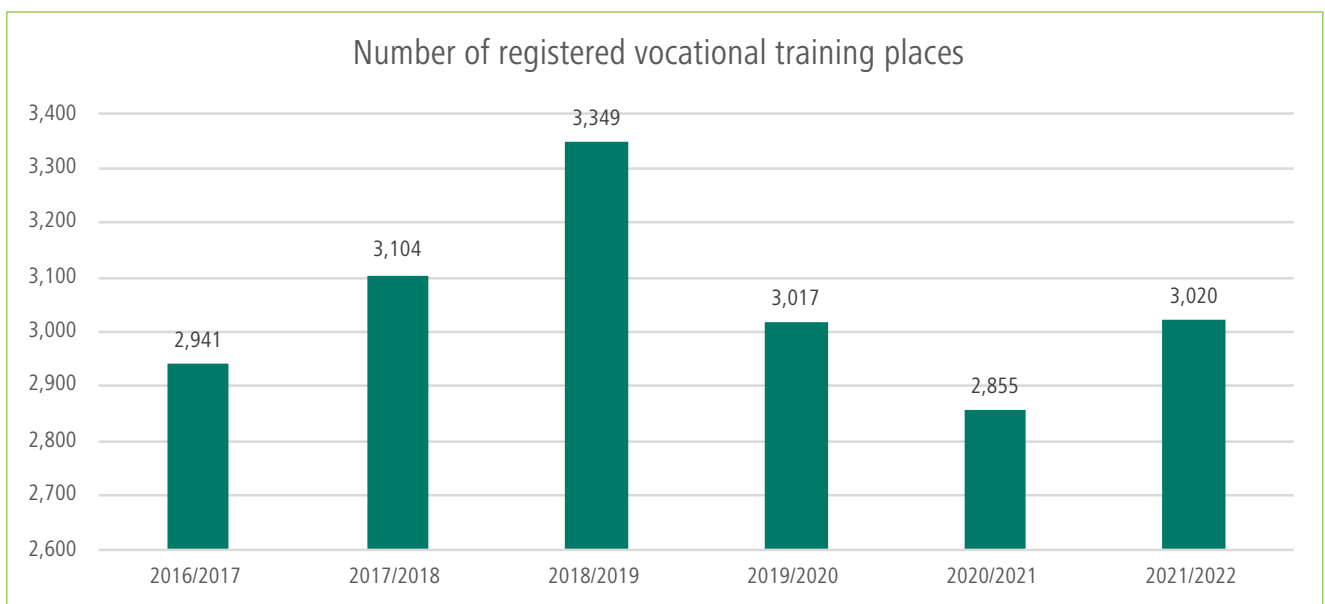


Figure 20: Number of registered vocational training places <sup>21</sup>

In recent years, the number of registered vocational training places at the workplace has been subject to regular fluctuations. In the training years 2016/2017 to 2018/2019 the number of registered vocational training places rose continuously. This meant that a record number of 3,349 vacancies were filled in the reporting year 2018/2019. In the two subsequent reporting years, the number dropped to 3,017 and 2,855 respectively.

<sup>21</sup> Source: Statistics of the Federal Employment Agency, status: 03.2023

Over this period, the limitations imposed by the COVID-19 pandemic made long-term staff planning difficult for many firms, which led to a reluctance to take on trainees. After the adverse effects of the COVID-19 pandemic had subsided in the reporting year 2021/2022, the number of trainee places rose to 3,020. The statistics only include places for training occupations that are recognised under the Vocational Training Act.

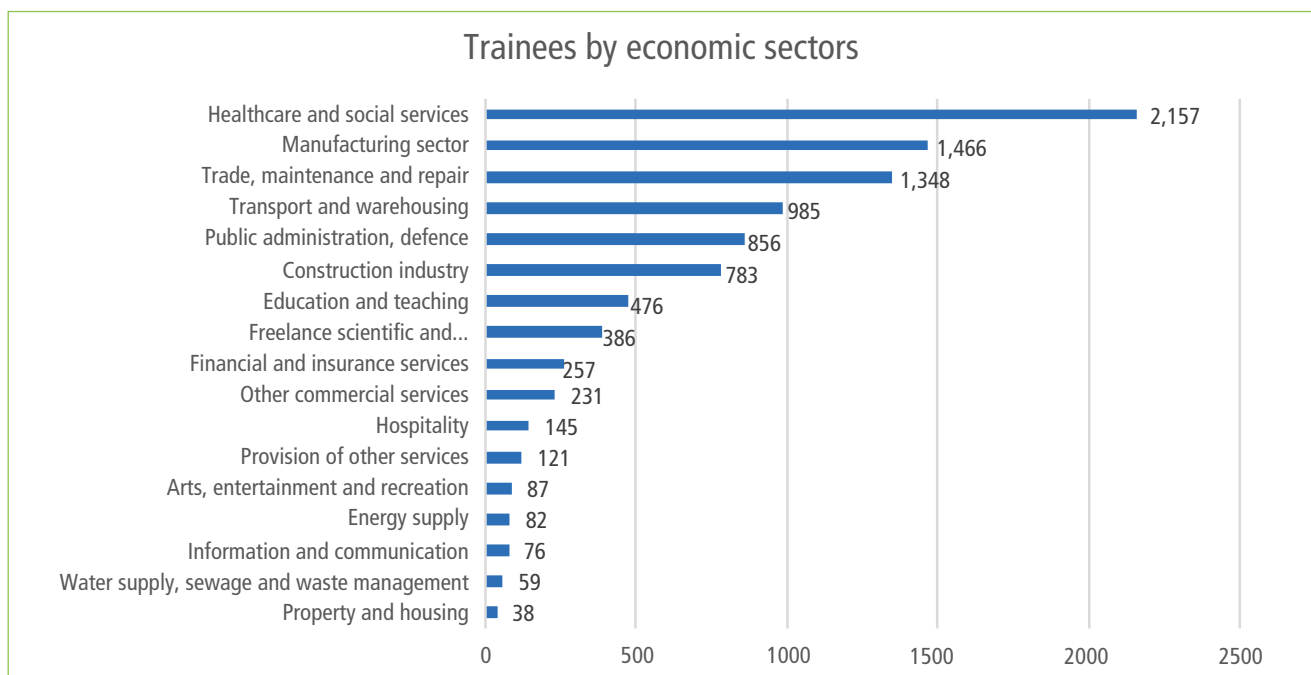


Figure 21: Number of trainees by sectors <sup>22</sup>

In September 2022 over 9,500 people were in vocational training with an employer in Duisburg Of these, 2,157 were undergoing training in healthcare and social services. The manufacturing sector was training 1,466 people. There were 1,348 trainees in the trade, maintenance and repair of motor vehicles. Taken together, over half of all trainees were in one of these three sectors. In Duisburg significantly fewer people were undergoing training in the sectors information and communication (76), water supply, sewage and waste management (59), property and housing (38).

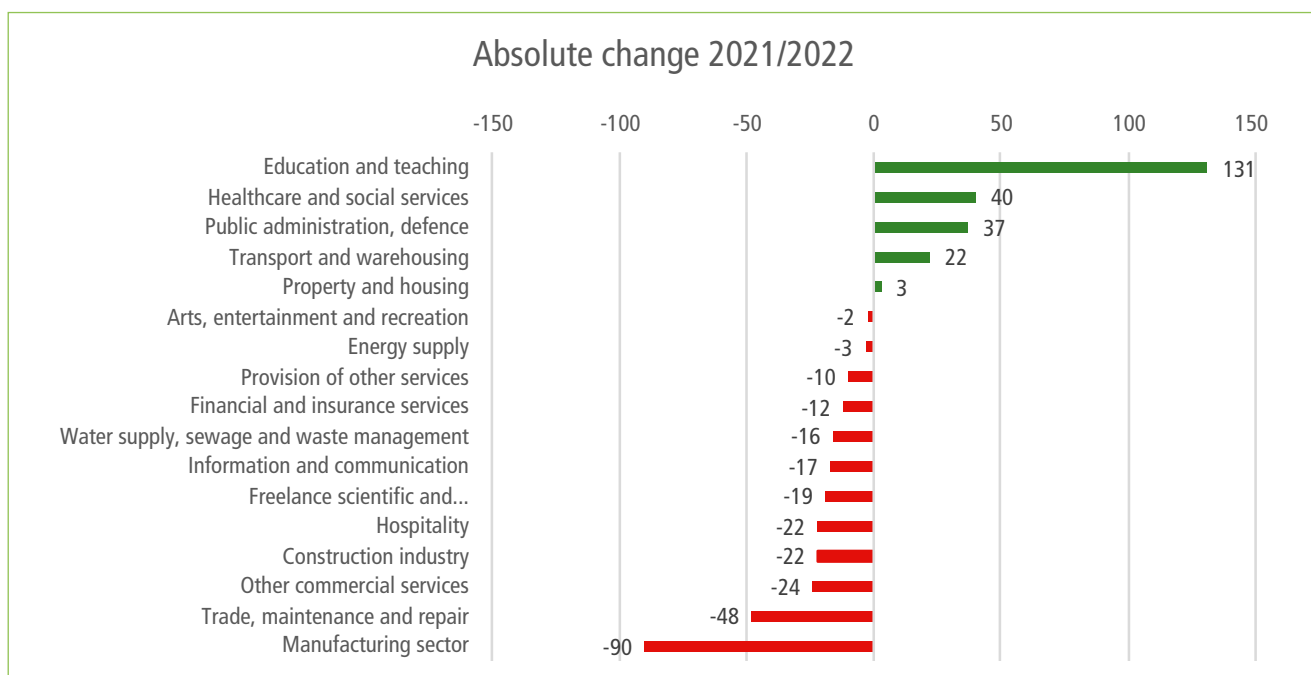


Figure 22: Year-on-year absolute change in trainees by sector <sup>23</sup>

<sup>22</sup> Source: Statistics of the Federal Employment Agency, status: 04.2023

<sup>23</sup> Source: Statistics of the Federal Employment Agency, status: 04.2023

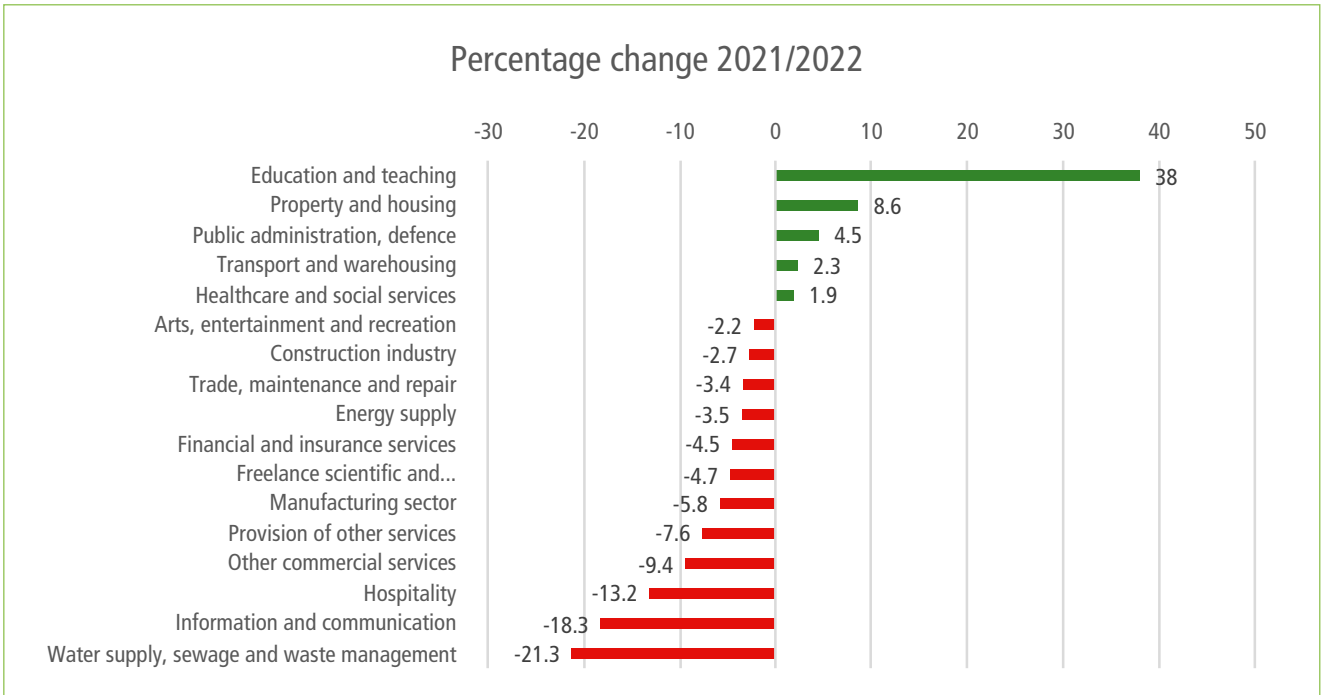


Figure 23: Percentage change in trainees by sector compared to the previous year <sup>24</sup>

The highest rise in the number of trainees compared to the previous year was in the education and teaching sector, both in percentage and absolute terms. In this sector, 131 more people (+38%) were undergoing training. Other sectors in 2022 with an increase in trainees over the previous year were: property and housing (+8.6%); public administration, defence (+4.5%); transport and warehousing (+2.3%), healthcare and social services (1.9%). The sharpest absolute decline in trainee numbers was in manufacturing, with a drop of 90 trainees (-5.8%). The strongest negative change in percentage terms was in water supply, sewage and waste management, with a drop of 16 trainees (-21.3%).



<sup>24</sup> Source: Statistics of the Federal Employment Agency, status: 04.2023



## 3. Economy

### 3.1 Gross domestic product and gross added value

Traditionally, two different national account indicators are used to analyse and evaluate the performance of a business location: gross domestic product (GDP) and gross value added (GVA). GDP comprises the value of all goods and services that are generated in a given area in a year. GDP is measured at market prices and includes non-deductible taxes on products, but excludes intermediate consumption such as subsidies<sup>25</sup> Gross value added at production prices for each sector of the economy is the gross value of production at production prices less intermediate consumption.<sup>26</sup> Thus, GDP represents gross added value plus taxes on goods and less the subsidies on goods.

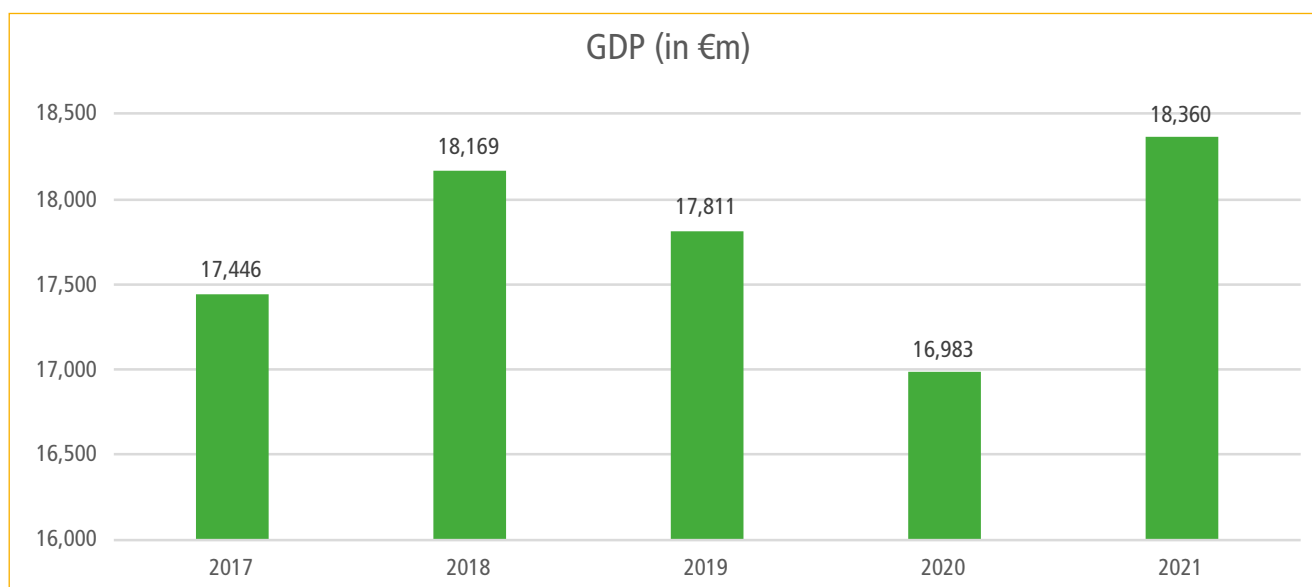


Figure 24: Gross domestic product of the city of Duisburg<sup>27</sup>

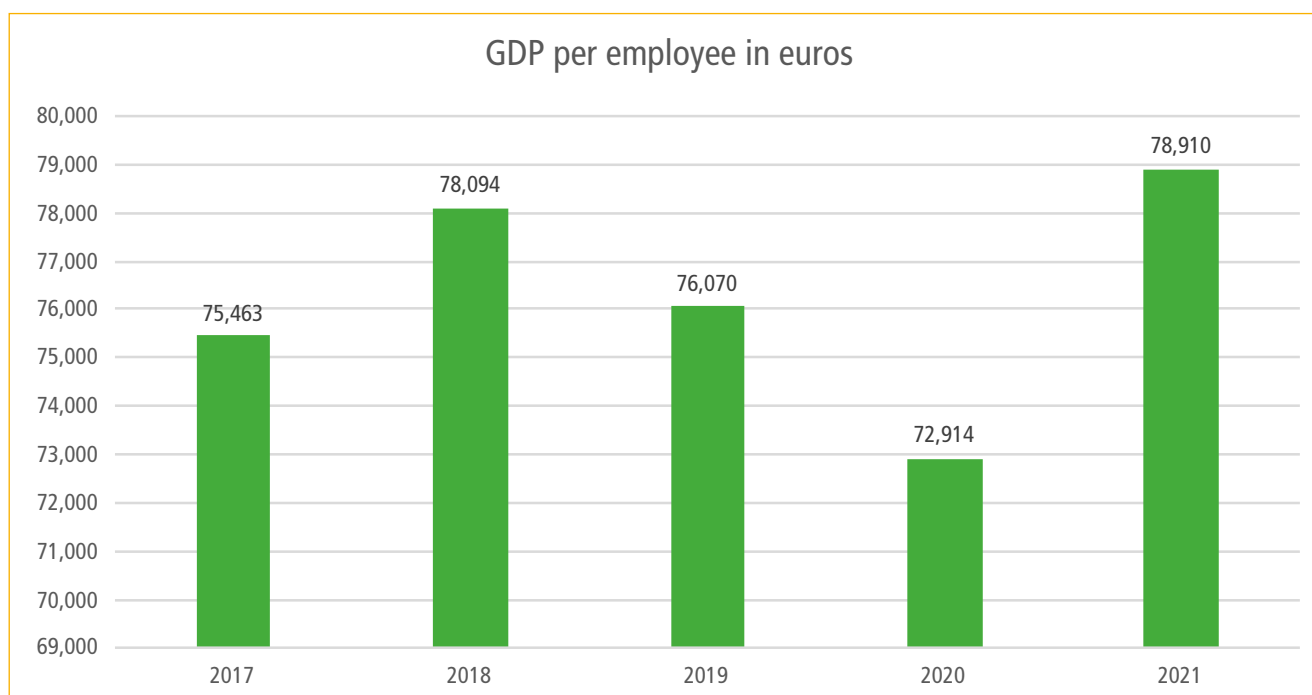


Figure 25: Gross domestic product per employee<sup>28</sup>

<sup>25</sup> Source: Gabler Wirtschaftslexikon: <https://wirtschaftslexikon.gabler.de/definition/bruttoinlandsprodukt-bip-27867>, status: 07.2023

<sup>26</sup> Source: BWL-Lexikon: <https://www.bwl-lexikon.de/wiki/bruttowertschoepfung/>, status: 07.2023

<sup>27</sup> Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 09.2023

<sup>28</sup> Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 09.2023

After a short period of decline in 2019 (€17,811 m) and 2020 (€16,983 m) a new high was reached in 2021 with a GDP of over €18.3 bn. This represents a growth of over 8% compared to the previous year. The GDP per employee recovered in 2021 after a decline in the two previous years. In 2021 GDP per employee was €78,910 and thus reached the highest value in the period under review.

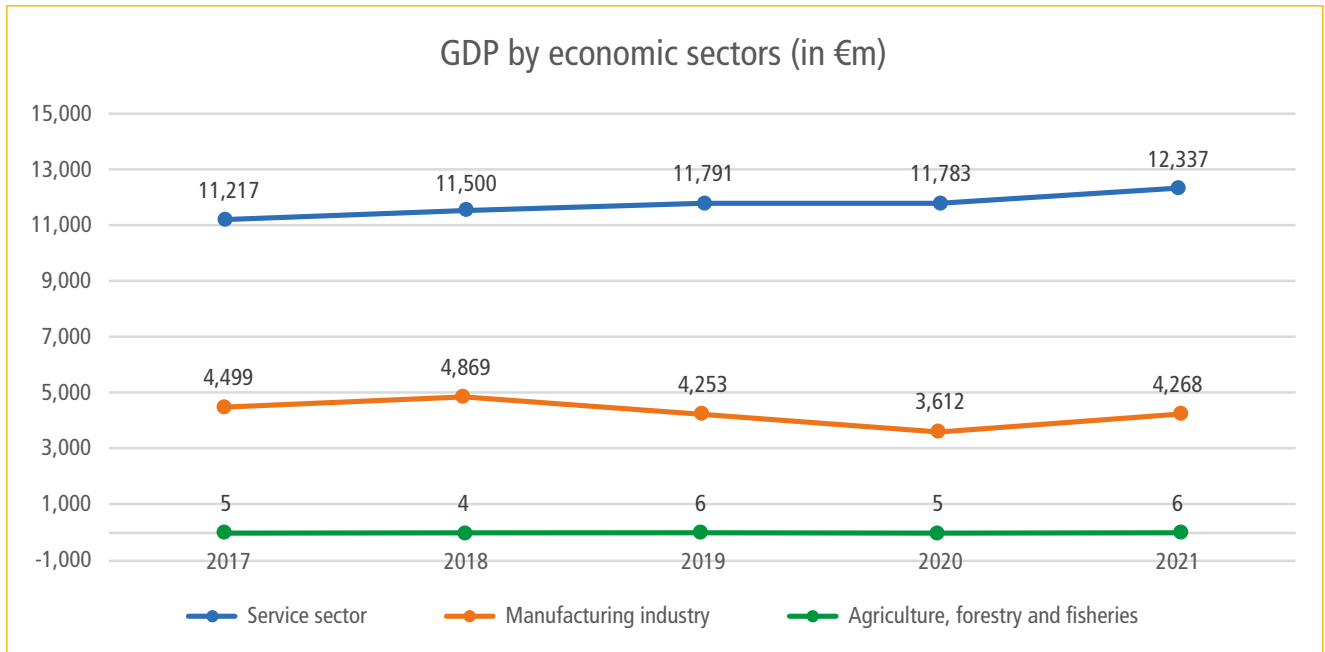


Figure 26: Gross value added chart <sup>29</sup>

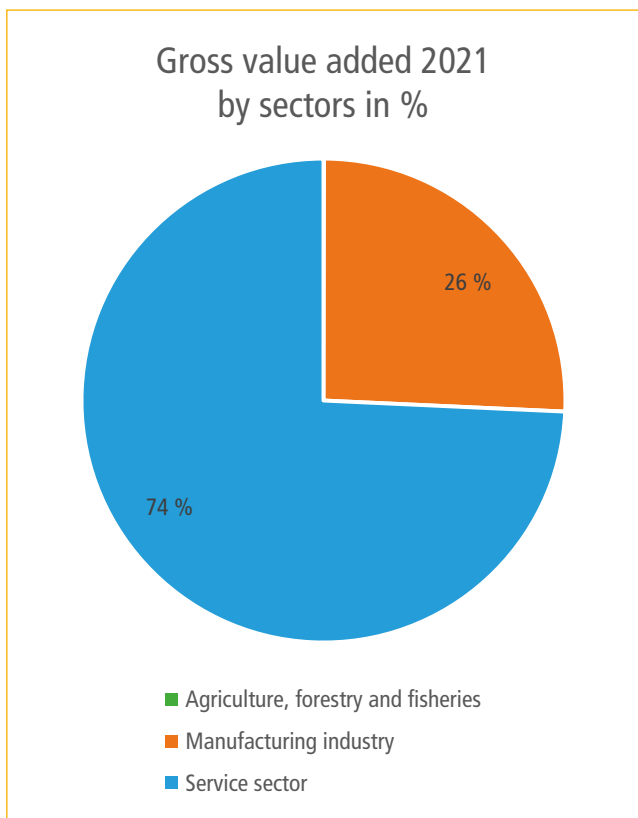


Figure 27: GDP by economic sectors 2021 <sup>30</sup>

In 2021 the total GDP in Duisburg was €16,611 m. This was €1 billion higher than in the previous year and reached a similar level as before the COVID-19 pandemic. With a value of €12,337 m in 2021, the service sector alone accounted for 74% of Duisburg’s GDP. The second largest sector was manufacturing industry with a share of about 26% (€4,268 m). Agriculture, forestry and fisheries played a subordinate role in terms of gross value added.

29 Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 09.2023

30 Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 09.2023

## 3.2 Disposable income

In economic accounts, a distinction is drawn between the disposable income of an entire economy and the disposable income of private households. Disposable income is the total value of the income of companies and private households, less taxes and social contributions and plus subsidies and social benefits from the state. The disposable income of private households is what remains of household income after deduction of social security contributions and taxes.<sup>31</sup>

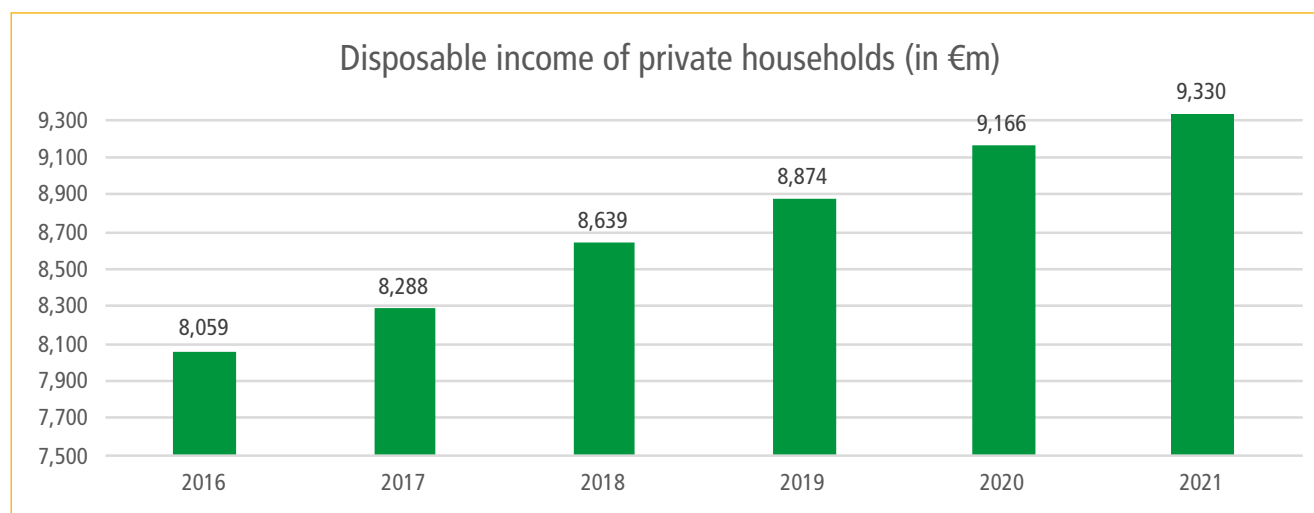


Figure 28: Disposable income of private households <sup>32</sup>

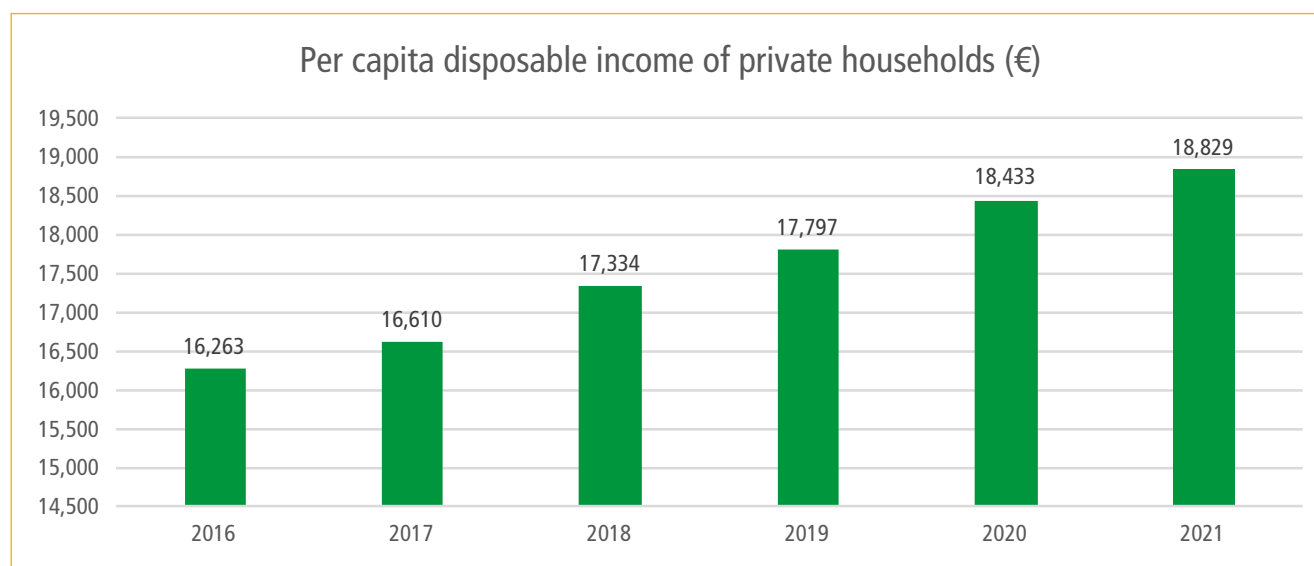


Figure 29: Per capita disposable income <sup>33</sup>

<sup>31</sup> Source: Federal Agency for Civic Education:

<https://www.bpb.de/kurz-knapp/lexika/lexikon-der-wirtschaft/20977/verfuegbares-einkommen/>, Stand: 07.2023

<sup>32</sup> Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 09.2023

<sup>33</sup> Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 09.2023

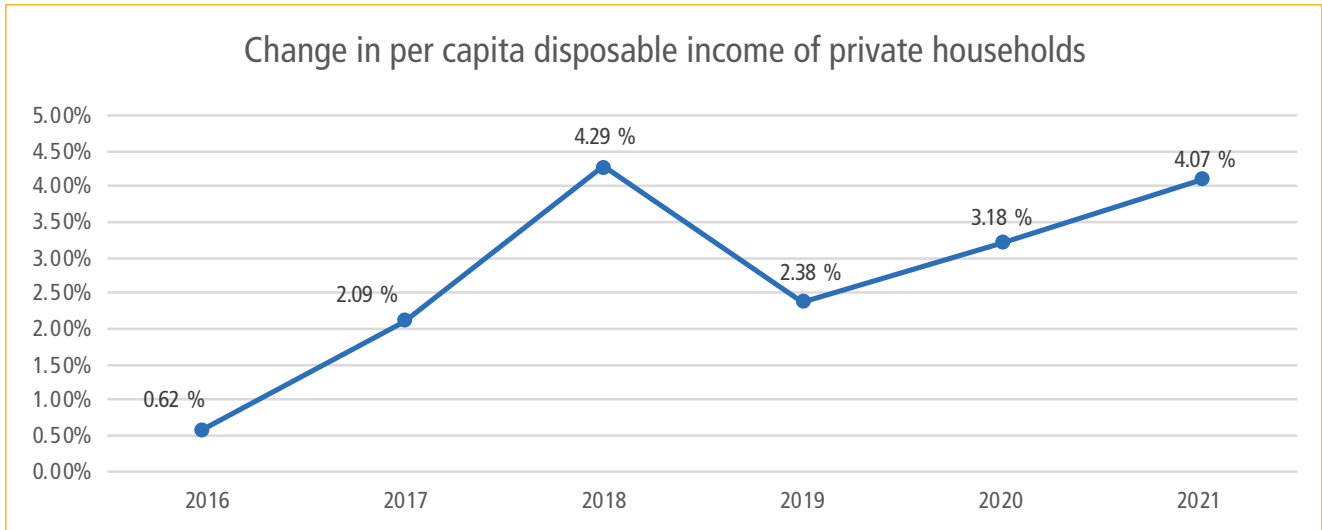


Figure 30: Rate of change of per capita disposable income<sup>34</sup>

The disposable income of private households has risen continuously during the period under review. In 2016 total disposable income of private households in Duisburg was about €8.0 bn, which corresponds to a per capita disposable income of €16,263. In 2020 a disposable income of private households of over €9.0 bn was reached for the first time. This level was maintained in 2021. With an annual disposable income of private households of €9.33 bn each inhabitant of Duisburg had an average disposable income of €18,829. Since 2019 the annual rate of change of per capita disposable income has steadily risen. In 2019 there was an increase of +2.38%. In the following year the value increased by +3.18% and by 4.07% in 2021.

### 3.3 Areas of expertise and economic structure

Despite the ongoing structural changes, metal production and processing remains an important mainstay for the city of Duisburg. Compared to the reference region of North Rhine-Westphalia, about seven times as many socially insured employees worked in this area of expertise in Duisburg. At the same time, metal production and processing was one of the shrinking sectors in Duisburg. Both the number of employees and turnover have declined in recent years.

In order to maintain the competitiveness of Duisburg as the largest steel location in Europe, in the medium and long term there is a trend towards green industry taking place in this sector, i.e. a transformation to sustainable and carbon-neutral production. With conventional steel production, heating iron ore using a great deal of energy releases large quantities of carbon dioxide into the air. This also involves high costs, because the companies have to acquire European emission authorisations. For these reasons and to meet the climate targets of the European Union, a change to more sustainable and “greener” steel production was initiated. A first significant milestone for this was reached in July 2023: the EU Commission approved billions in German subsidies for the construction of a more climate-friendly steel production plant in Duisburg. In the long term, the plant will operate entirely on hydrogen, thus saving around 3.5 million tonnes of CO<sub>2</sub> per year. This is a significant development for both the energy transition and the city of Duisburg. The steel industry creates thousands of jobs for the population of Duisburg and is an important part of the value chain in Duisburg and the adjoining regions.

Due to the trimodal accessibility of Duisburg via waterways, rail and roads, warehousing and logistics is another core competence of the business location. There are two and a half times as many socially insured employees working in this sector compared to the reference region of North Rhine-Westphalia. Between 2017 and 2022 warehousing and logistic services grew by about 30%. That makes them one of the strongest growing sectors in Duisburg. In order to maintain this core competence as a mainstay of the Duisburg economy, but to minimise the amount of space used for warehousing and logistics, the sector is undergoing continuous, future-oriented development. Among other things, this development can be implemented in the form of more sustainability.

<sup>34</sup> Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 09.2023

Today, the Port of Duisburg already relies on combined transport (CT). A large proportion of freight transport will be shifted from road to rail and inland waterways, resulting in around 100,000 fewer lorries on the motorways each year. Furthermore, the Port of Duisburg is now building the first carbon-neutral container terminal powered by hydrogen.

Smart logistics is another important part of a sustainable warehousing and logistics sector. This buzzword stands for a more efficient logistics process, partly through progressive digitalisation and automation. This includes the use of modern 5G and 6G mobile phone technologies and the application of artificial intelligence in logistics processes.

There is great potential for Duisburg's economy in waste collection and disposal, as well as with recycling. While the number of socially insured employees is currently below the reference region of North Rhine-Westphalia, nevertheless at 40%, the sector has the highest growth rate in Duisburg. The opportunities of digitalisation should be used to further establish the sector in Duisburg and to achieve specialisation in this field of competence. One exemplary approach is the use of artificial intelligence for separating waste. Up to 40% of waste from private households in the yellow or yellow sack is incorrectly disposed of.<sup>35</sup> On the other hand, packaging waste is often thrown into the residual waste container, which results in recyclable waste being incinerated instead of being reused. Automated waste separation with the help of artificial intelligence (AI) can contribute to an improvement of the recycling rate. An optimisation of waste management through AI can also be achieved by automatically recording the fill levels of waste containers in order to enable needs-based emptying.

As a cross-sectional industry, the energy sector permeates all core competences of the Duisburg business location. A reliable energy supply is indispensable for a stable economy. For some years now, the origin of the electricity has also played an important role. Many companies, but also private households, attach importance to the fact that their electricity comes from sustainable sources. One promising renewable energy source is green hydrogen. This gas is present in combination with oxygen, for example, in the form of water. Oxygen and hydrogen can be separated by electrolysis. This process makes it possible to store the hydrogen so that it can be subsequently used to generate electricity. Green hydrogen means that the electrolysis was performed with renewable energies and is thus carbon neutral.

Hydrogen can be used as a feedstock, fuel or energy carrier and storage medium. Furthermore, hydrogen can be used for a variety of applications in industry, transport, the energy sector and buildings. But first and foremost, its use causes no CO<sub>2</sub> emissions and almost no airborne pollutants. It thus provides a solution for the decarbonisation of industrial processes and sectors in which a reduction of CO<sub>2</sub> emissions is both urgent and difficult to achieve.

Duisburg has the largest inland port in the world. The city lies on the rivers Rhine and Ruhr and is thus ideally connected to the inland waterway network. In Duisburg shipping is thus a highly specialised sector, which is also of great importance to other sectors. In 2022 the ports of Duisburg transshipped 104.9 million tonnes of goods a year.<sup>36</sup> This gives the logistics firms based in Duisburg the possibility of transporting large quantities of goods from Duisburg to destinations all over the whole world. Industry in Duisburg also benefits from shipping. Among other things, raw materials for steel production can be delivered flexibly and reliably by water. Moreover, shipping is an essential component on the way to a carbon-neutral industrial transformation. In Germany about 71% of transport capacity (measured in kilometre tonnes: kilometres travelled x transported goods in tonnes) is provided by HGVs, which cause 60% of greenhouse gas emissions. Inland shipping accounts for 8% of transport capacity and causes 2% of greenhouse gas emissions. This is the second lowest figure after rail freight transport.<sup>37</sup> Increasing the shift of freight transport from the roads to waterways is therefore an important component for a carbon-neutral industrial transformation.

35 Source: Umwelt Bundesamt: <https://www.umweltbundesamt.de/themen/ohne-muelltrennung-kein-recycling>, Stand: 09.2023

36 Source: Duisport: <https://www.duisport.de/hafeninformation/>, status 09.2023

37 Source: Federal Environment Agency:

[https://www.umweltbundesamt.de/sites/default/files/medien/5750/publikationen/2021\\_fb\\_umweltfreundlich\\_mobil\\_bf.pdf](https://www.umweltbundesamt.de/sites/default/files/medien/5750/publikationen/2021_fb_umweltfreundlich_mobil_bf.pdf), Stand: 09.2023

### 3.4 Number of business registrations

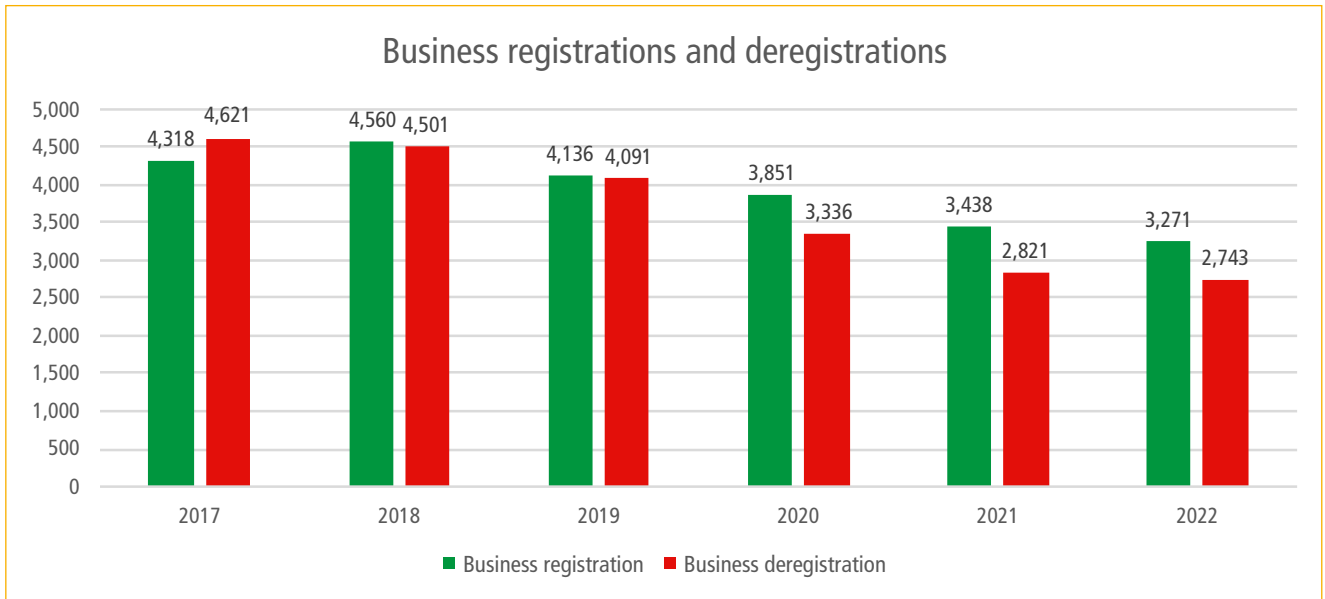


Figure 31: Business registrations and deregistrations <sup>38</sup>

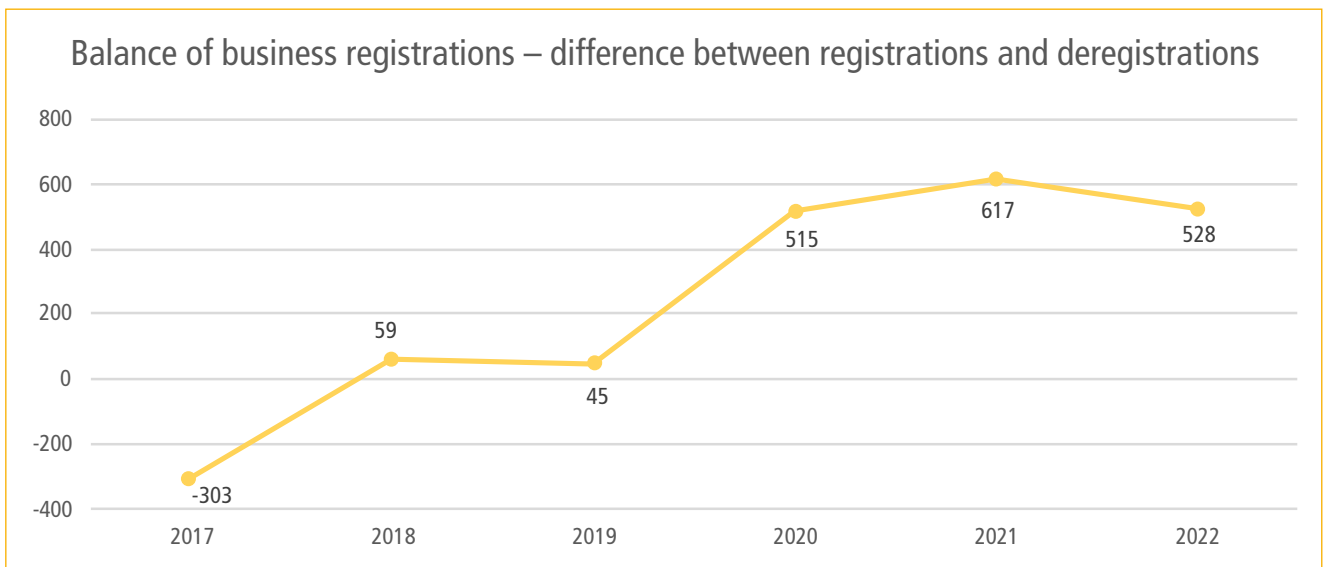


Figure 32: Balance of business registrations <sup>39</sup>

<sup>38</sup> Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 03.2023

<sup>39</sup> Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 03.2023

Since 2020 the balance of business registrations has been consistently over 500. The City of Duisburg has been able to win tradespeople and retain them in the long term. In 2022, however, there were about 1,000 fewer business registrations than in 2017. But at the same time, there were about 2,000 fewer deregistered firms in 2022 than in 2017. Thus, in 2022 there were 3,271 business registrations as against 2,743 deregistrations. In 2017 there were 4,318 firms registered with 4,621 deregistrations.

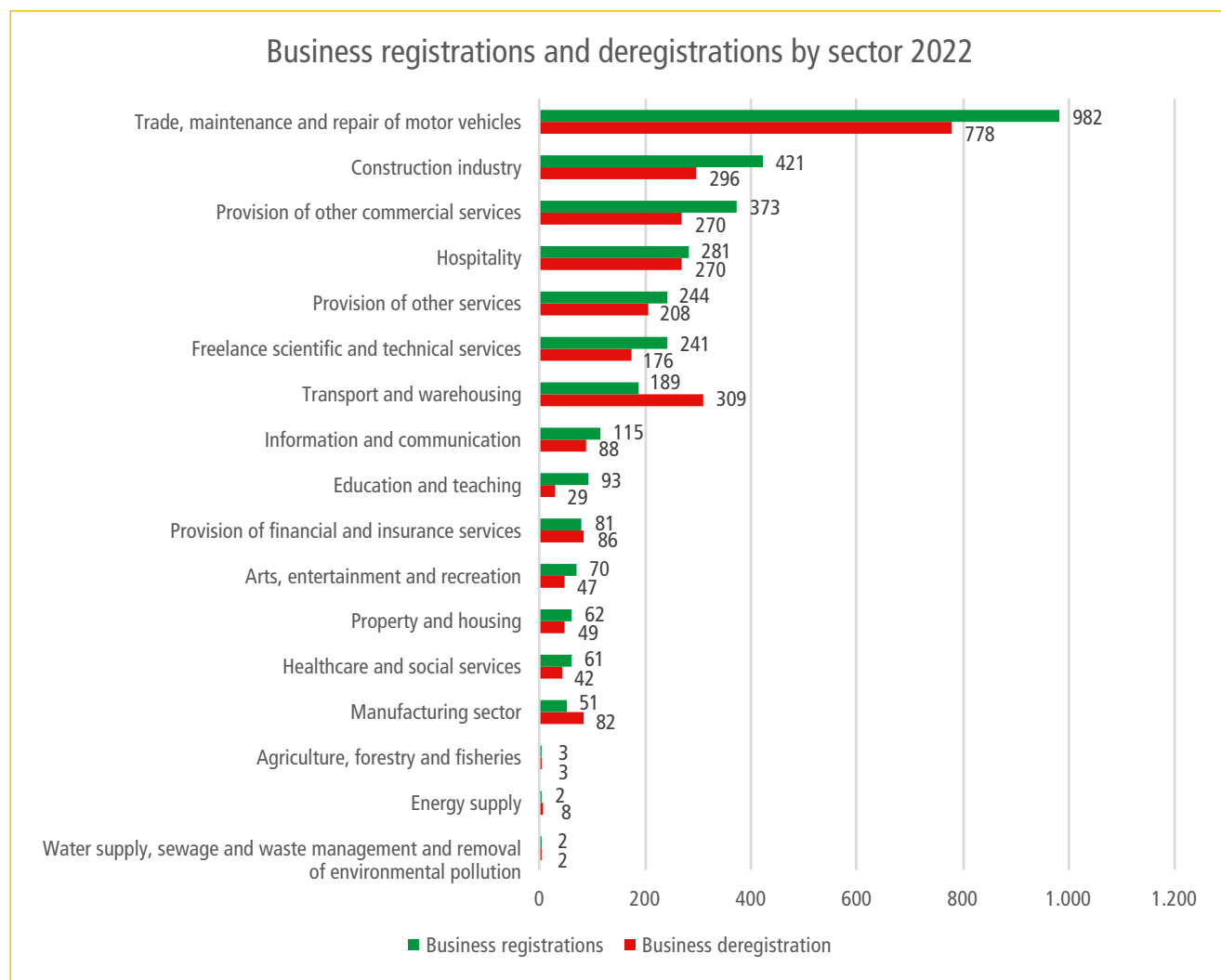


Figure 33: Business registrations and deregistrations by sector 2022 <sup>40</sup>

In 2022 most of the business registrations were attributable to the sector trade, maintenance and repair of motor vehicles. A total of 982 firms were registered in this sector. At the same time, this was the sector with the most deregistrations. A total of 778 companies gave up their business. The highest negative balance was in transport and warehousing. Here 189 companies registered a business, while at the same time 309 businesses were deregistered.

<sup>40</sup> Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 03.2023

### 3.5 Integrative power of the business location

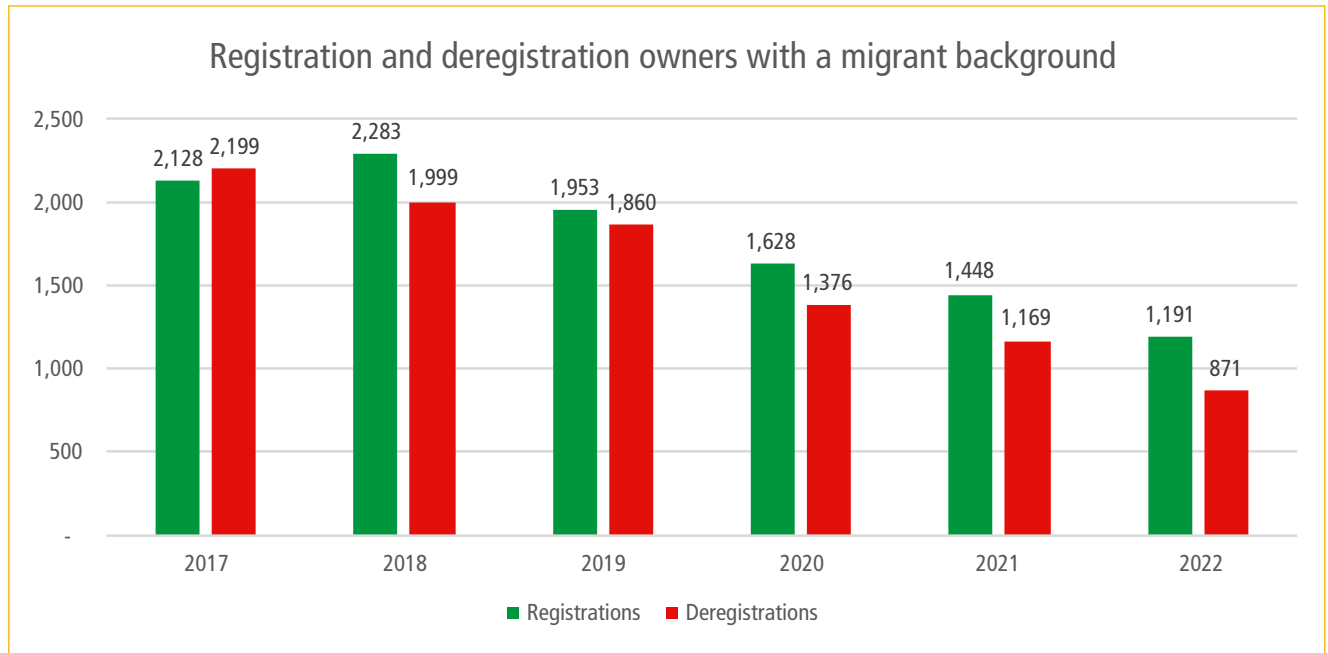


Figure 34: Registration and deregistration owners with a migrant background <sup>41</sup>

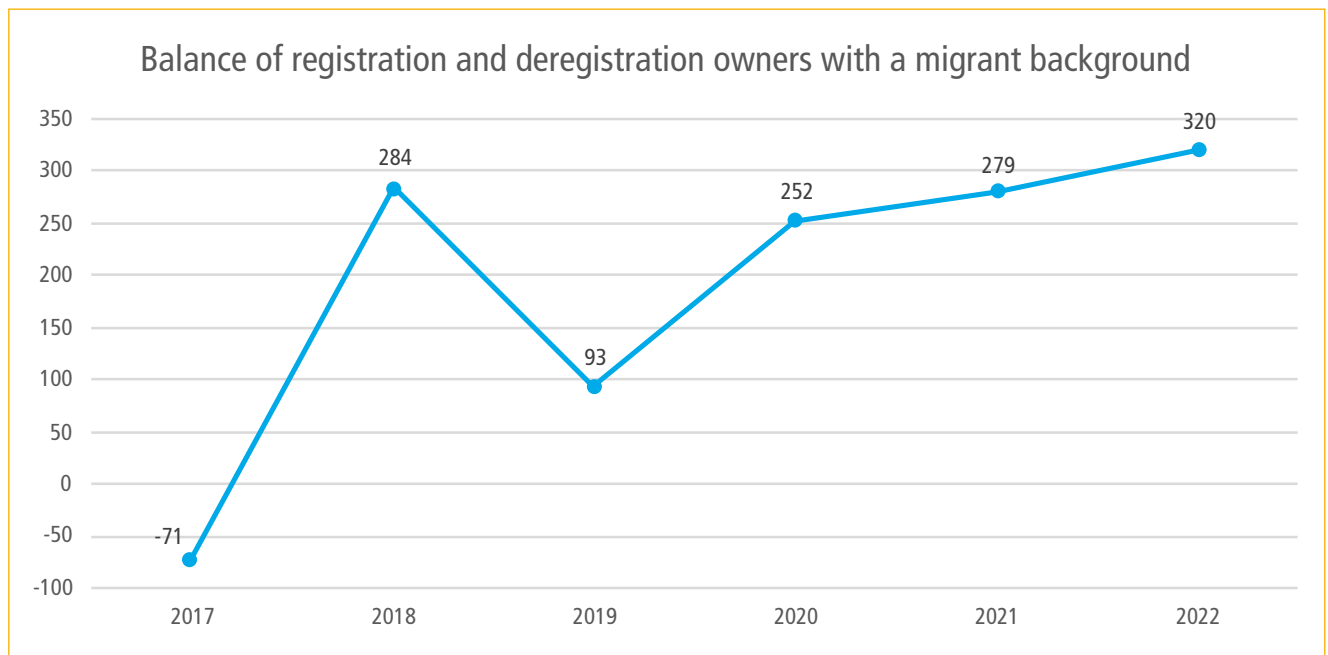


Figure 35: Balance of registration and deregistration owners with a migrant background <sup>42</sup>

The changes in registrations and deregistrations of owners with a migrant background presents a similar picture to the registrations and deregistrations in the entire Duisburg economic location. In 2017 the number of registrations was slightly less than the number of deregistrations. In the subsequent years to 2022 there were more businesses registered each year than deregistered. From 2019 the balance also continued to grow. Since 2020 the balance has remained constant at over 200. It reached its highest point in 2022, when there 320 more businesses registered than deregistered. Business owners with a migrant background were thus permanently retained in Duisburg.

<sup>41</sup> Source: City of Duisburg, status: 02.2023

<sup>42</sup> Source: City of Duisburg, status: 02.2023



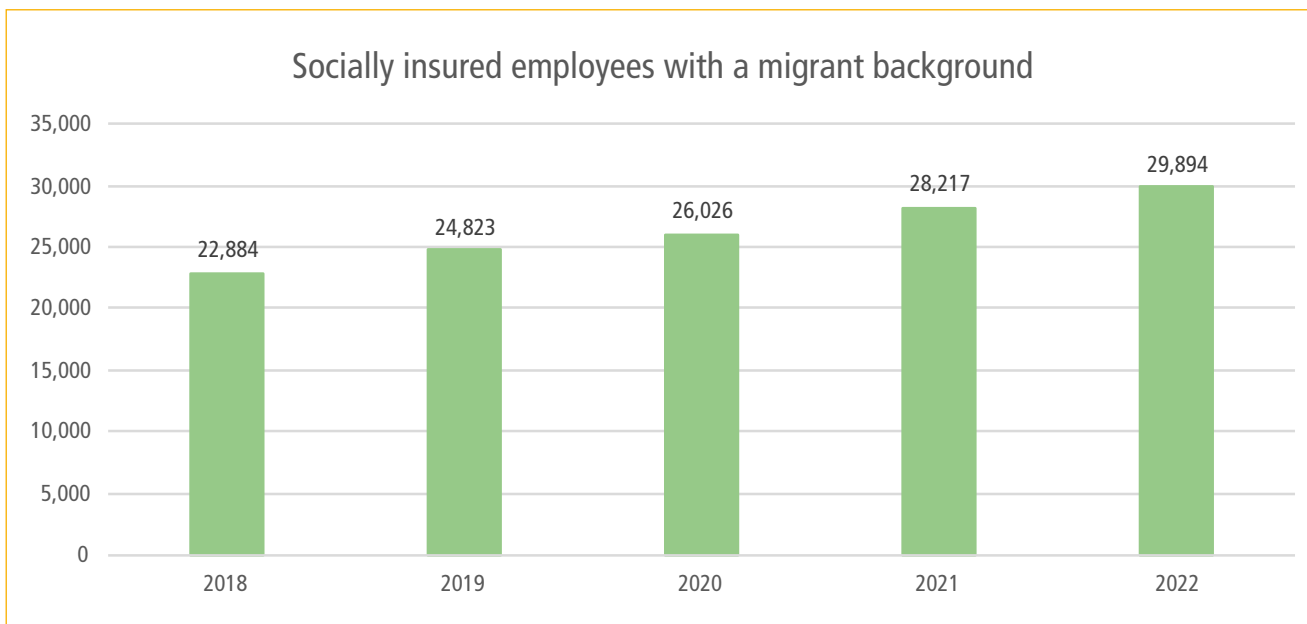


Figure 36: Socially insured employees with a migrant background <sup>43</sup>

In 2018 there were 22,884 socially insured employees with a migrant background. This represents about 13% of all socially insured employees in Duisburg. In the following years the number of socially insured employees with a migrant background rose continuously, particularly due to the refugees from Syria and Ukraine. In 2022 there were 29,894 socially insured people with a migrant background employed in Duisburg. Their share in that year was therefore about 17%.

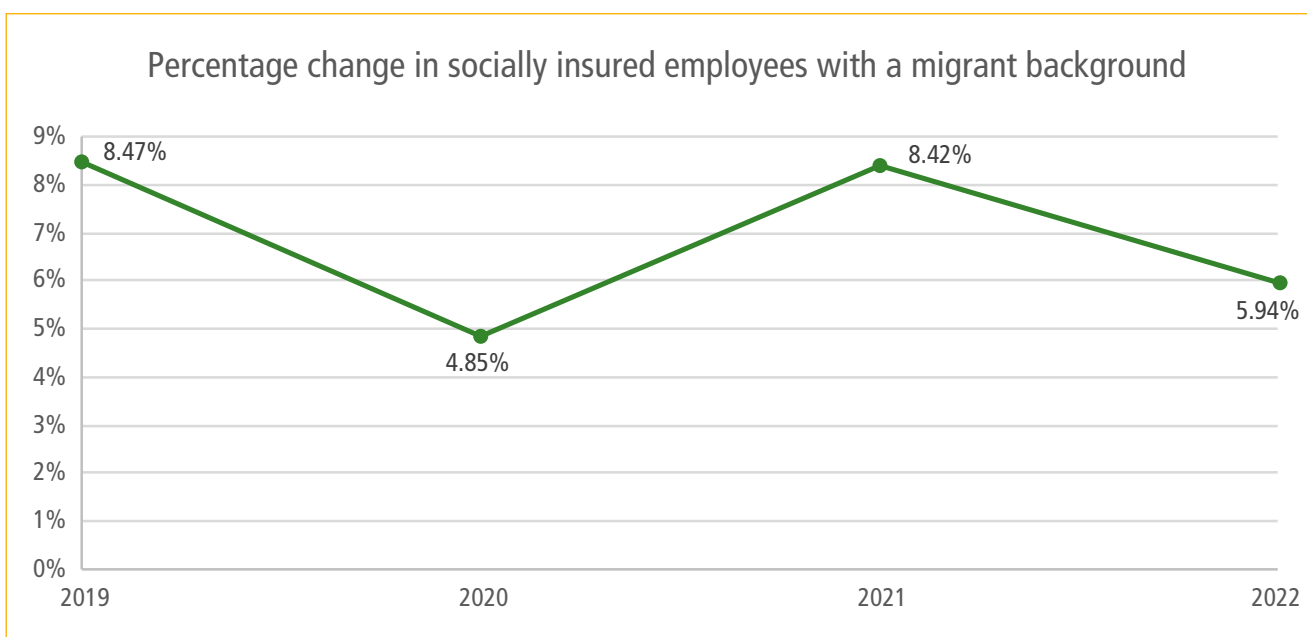


Figure 37: Year-on-year % change in socially insured employees with a migrant background <sup>44</sup>

<sup>43</sup> Source: City of Duisburg, status: 02.2023

<sup>44</sup> Source: City of Duisburg, status: 02.2023

### 3.6 Community integration projects

Duisburg is culturally diverse, which is a result of the many immigrations of the last decades. Integration therefore plays a major role in Duisburg, which is undertaken by the Community Integration Centre. The Community Integration Centre accompanies and supports the various fields of integration work with its multidisciplinary and intercultural team. The Community Integration Centre has set itself the goal of actively supporting immigrants and families in their integration into society through numerous projects. It is a network of relevant actors in local government, independent organisations and immigrant organisations. Two main areas of action arise from their work. The first of these is "integration through education". Here the focus is on strengthening ability in the German language and multilingualism through advice and support for educational institutions and actors. This is intended to increase equal opportunities in education and training for immigrant children and young people. The second area of action is the definition and promotion of "integration as a cross-sectoral task". This is a task that has to be undertaken by several organisations. The focus here is on the expansion of decentralised integration services and their digital networking with the aim of improving social cohesion.

Project name	Project target group	Project area	Aim and purpose
Language teaching by the Community Integration Centre (parent education, "Griffbereit und Rucksack" – a programme focused on parent-child interaction to strengthen linguistic development)	Children, young people and their parents as well as schoolchildren whose mother tongue is not German/ who come from abroad	Linguistic educational support	Improvement of language skills
Counselling and integration in Duisburg (EhAP Plus project)	Immigrants from EU countries (especially from south-east Europe) who are at risk of poverty and social exclusion	Combating poverty and social exclusion and prevention of homelessness	Improvement of living situation, social integration
Arrival City Marxloh	Immigrants	Social integration	Planning and design of an arrival neighbourhood in which various objectives are to be implemented in the near future relating to different areas of life such as work, housing, economic infrastructure, integration, education, safety, order and transport infrastructure.
Intercultural orientation of public administration	Administrative staff	Administration	Strengthening intercultural competences and dealing openly with different cultures in the day-to-day work of public authorities

Project name	Project target group	Project area	Aim and purpose
Transition from school to job (Netzwerk Integration durch Ausbildung – NIDA, Kein Abschluss ohne Anschluss (KAoA) – an initiative of the NRW state government)	School students	Labour market integration	Supporting young people in their transition into the world of work
Aletta-Haniel programme	School students in years 8–10.	Transition from school to work / labour market integration	Supporting pupils in obtaining or improving their school-leaving qualifications in order to make direct connections to working life. Work experience placement and support, personality, social and skills training, remedial teaching, job application workshops, leisure activities
Learning support	Secondary school students (Levels I + II)	Labour market integration	Educational support and specialised content-related assistance tailored to individual learning needs. The aim is to obtain a qualified school-leaving certificate, an apprenticeship or a place on a degree course.
Integration measures for immigrants from south-east Europe	Immigrants from south-east Europe	Labour market integration / social integration	Securing minimum standards for children and offering various projects for linguistic, social and professional integration
Communal Integration Management (KIM)	People with a history of migration	Social integration Arriving - shaping participation	Promotion and supporting the integration work of refugees and other immigrants including cross-jurisdictional and individual case management with the involvement of relevant organisations/stakeholders in integration work. The focus of integration management is on promoting and increasing opportunities for participation and participation skills of the local population with a history of migration.

Project name	Project target group	Project area	Aim and purpose
“KOMM-AN NRW” state funding programme	People with a history of migration	Integration through voluntary work	The NRW fund programme KOMM-AN NRW, which was first launched in 2016, supports voluntary work for the integration of people with a history of migration.
Welcome programmes	Children between 10 and 14 without a school place	School education	Children between 10 and 14 without a school place participate in welcome courses, which teach language skills, values and other integrative learning content 3 times a week for 3 hours. The offer is valid until a school place is allocated.
“Reading Tent” action programme	School pupils / children	Reading skills	An educational and play offer for children up to the age of 14 in children's and youth centres and in Duisburg's open all-day primary schools. Aim: the promotion of reading and language skills Stimulating reading motivation and creating reading experience Language input through educationally valuable games. Time out and retreats in the mobile tents.

Table 1: Projects supporting integration in Duisburg <sup>45</sup>

Another community integration project is BIWAQ (Education, Business, Neighbourhood Work) which is being implemented by the Unit for Economic, European and Funding Matters. BIWAQ is a funding programme of the Federal Ministry of Housing, Urban Development and Building in combination with funds from the European Social Fund (ESF).

The aim is to improve the social opportunities of people in the Hochfeld und Marxloh districts of Duisburg. In cooperation with the Duisburg Toolbox and the Society for the Promotion of Employment, it aims to help long-term unemployed people over 27 to get back into work with the help of vocational activation programmes. The project has specially tailored formats is also particularly aimed at supporting women and people with a history of migration. The project promotes social participation, among other things, by teaching skills in dealing with digital media.

Another focus of the project is the digitalisation of local companies. A digital platform of companies in the districts is intended to strengthen their visibility. In addition, joint actions are being implemented in the programme areas that strengthen the identification of the residents and local economic actors with the neighbourhoods and thus also promote social cohesion.



### 3.7 Investments by municipalities and companies

The city of Duisburg is an ideal location for investors and visionaries. Well-organised company networks, a trimodal transport infrastructure and a favourable energy infrastructure for industrial production form the framework for the Duisburg location. Funding programmes and municipal investments have been able in recent years to implement lighthouse projects like the Duisburg Dunes, the renewal of the regatta course and the fibre optic expansion in the urban area.

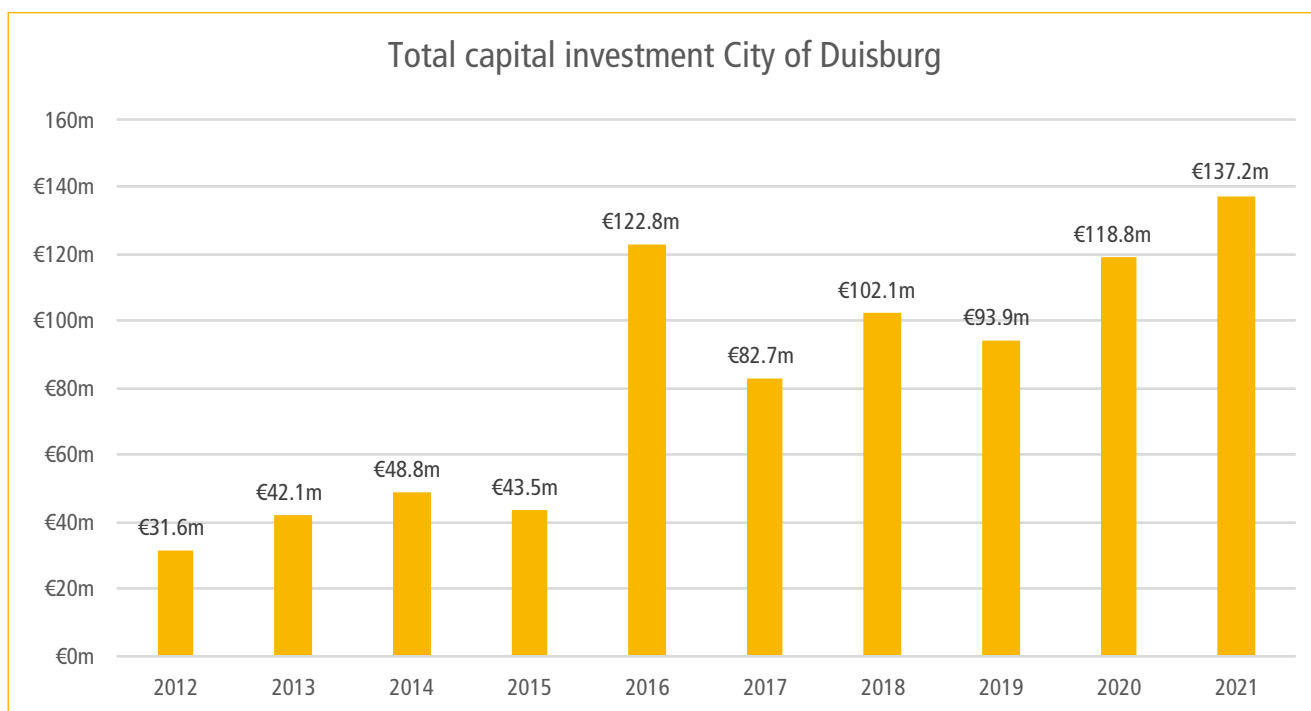


Figure 38: Total capital investment City of Duisburg <sup>46</sup>

<sup>46</sup> Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 03.2023

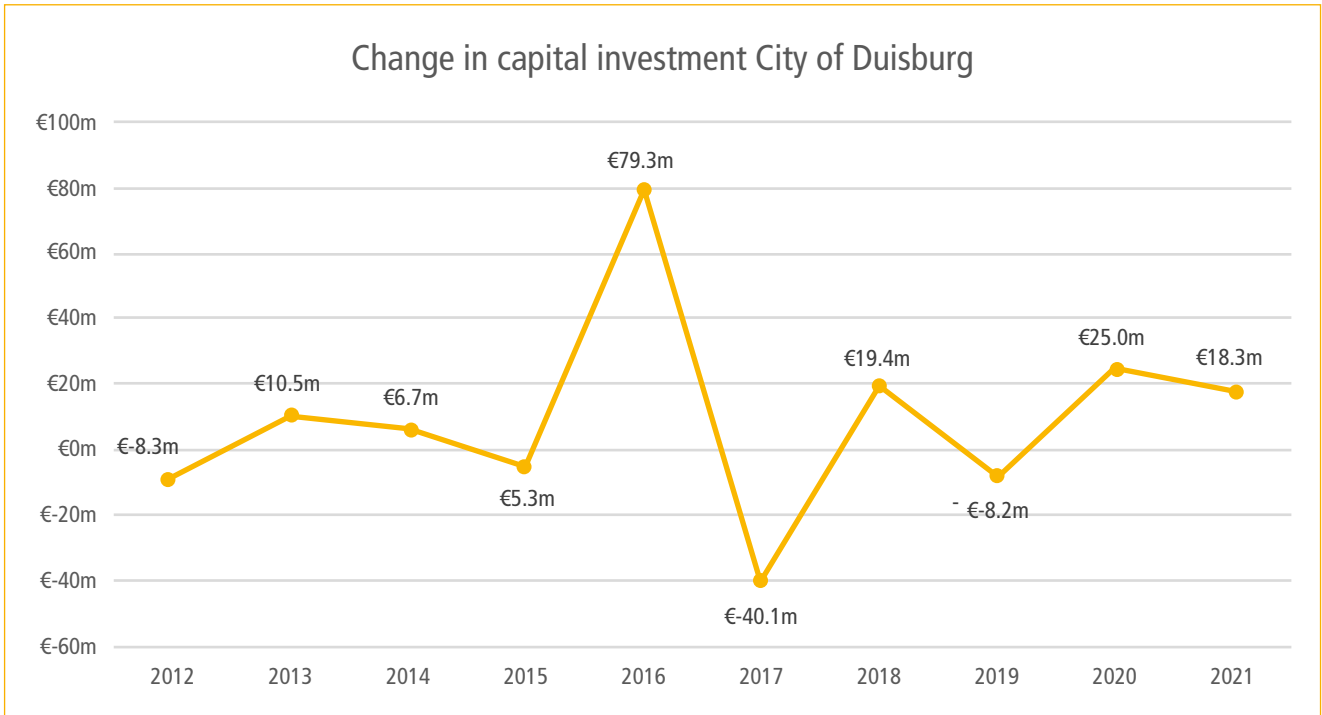


Figure 39: Change in capital investment City of Duisburg <sup>47</sup>

In 2021 the City of Duisburg made investments totalling over €137m. This represents a growth of over €18m compared to the previous year and is a new high for the period under review. The largest change in the investment total was in 2016, with an increase of over €79m compared to the previous year.

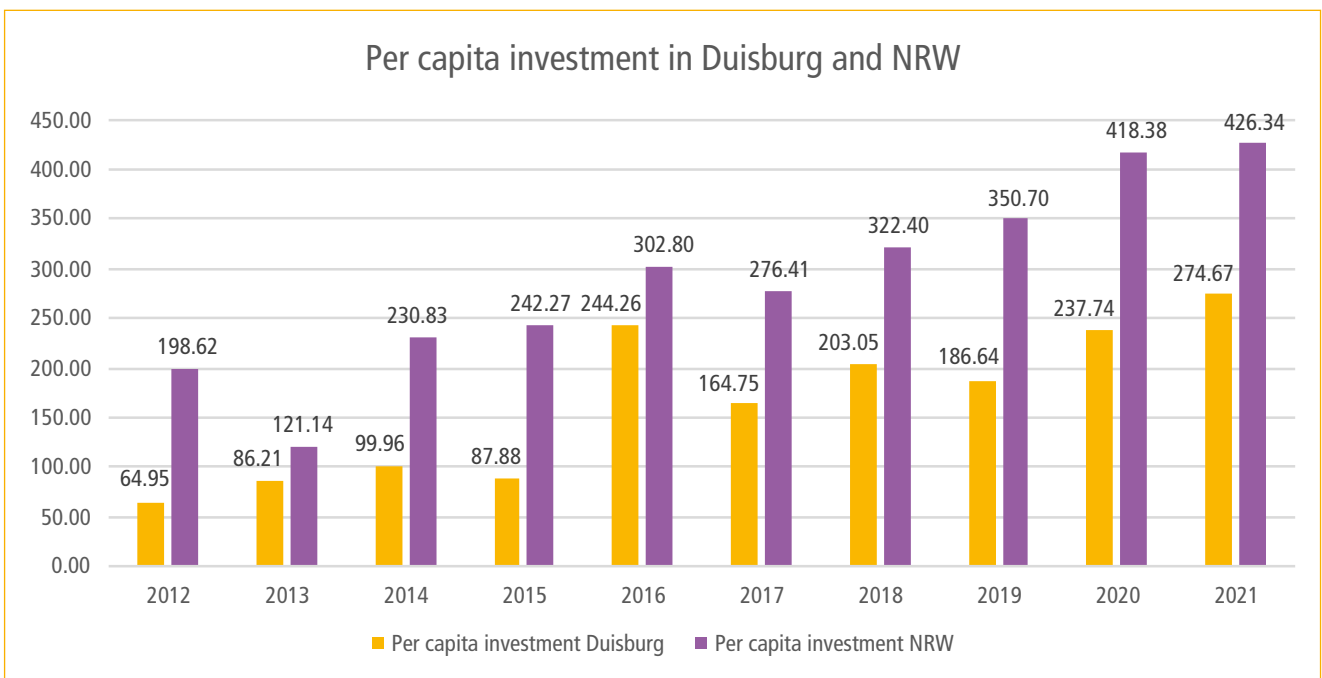


Figure 40: Per capita investment in Duisburg und NRW <sup>48</sup>

47 Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 03.2023

48 Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 03.2023

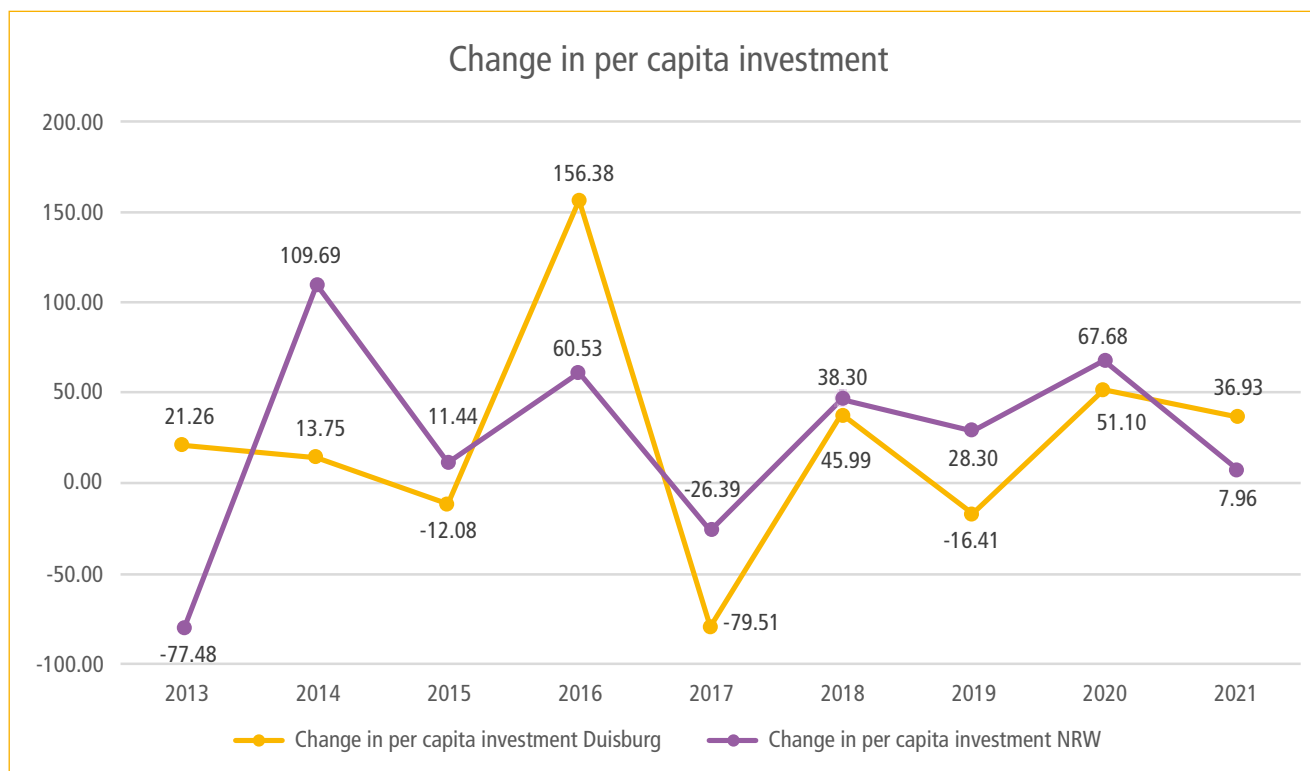


Figure 41: Change in per capita investment <sup>49</sup>

In 2021 the City of Duisburg invested an average of €274.67 per capita, thus reaching a new high. In comparison, the state of North Rhine-Westphalia reached a value of €426.34. The highest year-on-year rise in per capita investment by the city of Duisburg was in 2016 with an increase of €156.38.

### 3.8 Business tax and property tax

Business tax and property tax are among the most profitable sources of income for municipalities.<sup>50</sup> As municipal taxes, the income they yield is generally due to the municipalities, whereby a portion of the trade tax is paid to the federal and state governments through a levy. The respective assessment rate is a determining factor for the calculation of both taxes. This is set by the municipality for both trade tax and property tax. The higher the assessment rate, the greater the tax burden on the taxpayer. Those liable for business tax are businesses with a permanent establishment in Germany. Owners of property are liable for property tax.

Because the level of the assessment rate within a region can vary considerably from municipality to municipality, it represents a competitive location factor.

In recent years, the tax burden of tax payers in Duisburg has been above average, with a business tax assessment rate of 520% and an assessment rate for property tax B of 855%. This was intended to offset budget deficits as part of budget consolidation and fulfil the requirements for receiving consolidation aid from the state of North Rhine-Westphalia. In the long term high assessment rates can have a negative effect on the municipal economy, if local companies move away to reduce their location costs or the establishment of new companies is inhibited as a result. A high business tax assessment rate also increases the living costs of many citizens, because property tax is not only borne by property owners, but can also be passed on to tenants as part of their service charges. Following the end of Duisburg's over-indebtedness with the 2022 annual financial statement, the City Council decided to

<sup>49</sup> Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 03.2023

<sup>50</sup> Source: Federal Agency for Civic Education: <https://www.bpb.de/kurz-knapp/zahlen-und-fakten/datenreport-2021/wirtschaft-und-oeffentlicher-sektor/329740/ausgaben-und-einnahmen-des-oeffentlichen-gesamthaushalts/>, status: 08.2023

lower the business tax assessment rate to 515% from 2023 and the assessment rate for property tax B to 845%. If the economic situation continues to develop favourably, the city is expected to continue to cut taxes to provide lasting relief for companies and the city's citizens. In addition, the City Council has also decided to draw up a reduction plan to reduce property and trade tax in Duisburg over the long term. In 2022 the City Council decided that the economic performance of the city allowed for a continuous reduction in business tax. A gradual reduction in the assessment rate was therefore decided, which was reduced by 5% to 515% in 2023. Reductions of 10% respectively are planned for the years 2024 and 2025, so that an assessment rate of 495% will be reached in 2025.

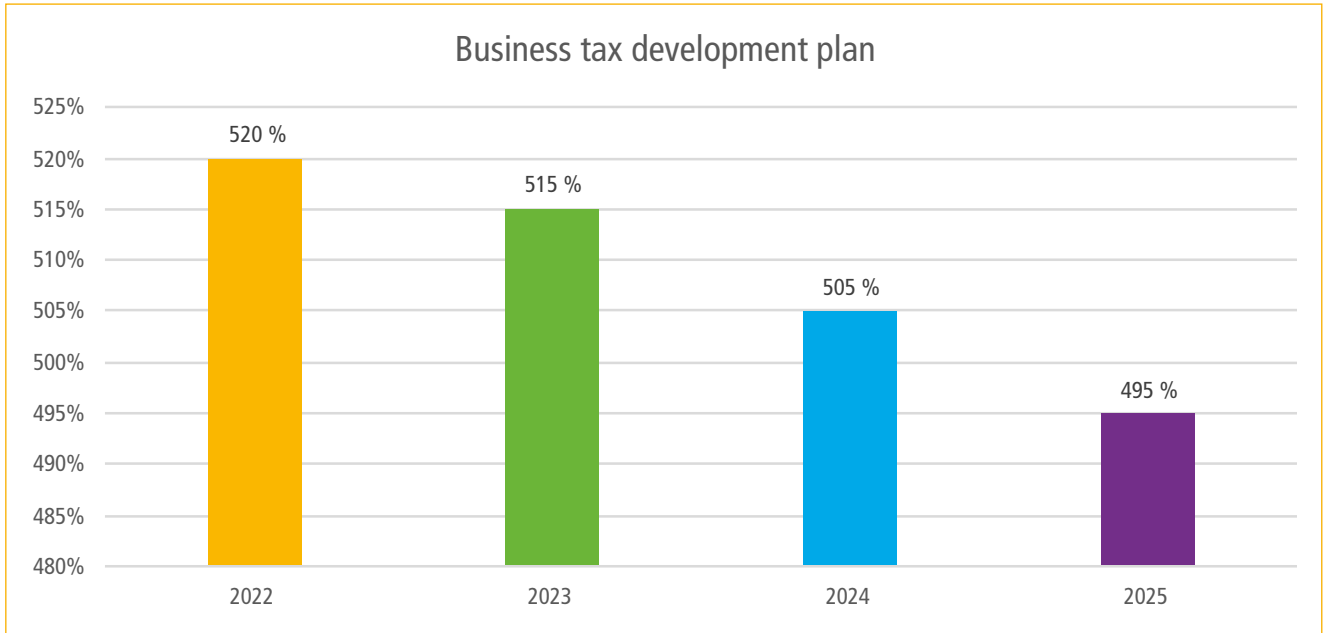


Figure 42: Business tax development plan <sup>51</sup>



<sup>51</sup> Source: City of Duisburg, 11.2023



In 2024 Duisburg has the fourth highest business tax assessment compared to neighbouring cities. Only Oberhausen and Mülheim an der Ruhr have a higher assessment rate with 580% and 510% respectively. Compared to the neighbouring cities, Duisburg is 16 percentage points above the average assessment rate. Through the reductions up to 2025 Duisburg approaches the assessment rate of Moers and Krefeld and with the assessment rate of 495% applicable in 2025 reduces the gap to the current average collection rate to six percentage points.

Neighbouring cities	
Oberhausen	580%
Mülheim an der Ruhr	580%
<b>Duisburg</b>	<b>505%</b>
Rheinberg	510%
Moers	480%
Krefeld	480%
Dinslaken	460%
Meerbusch	450%
Düsseldorf	440%
Ratingen	400%
<b>Assessment</b>	<b>489%</b>

Table 2: Assessment rates of the neighbouring cities <sup>52</sup>

The comparison with the rest of the Ruhr region once again clearly demonstrates the very high business tax in Duisburg. Duisburg is in fourth place in 2024, only five percentage points above Herne. Here too, Mülheim and Oberhausen are in first and second place. In this comparison, Duisburg is 4% above the average business tax assessment rate. Due to the planned reductions, Duisburg will be below the current average assessment rate and will equal Bochum.

Ruhr region	
Oberhausen	580%
Mülheim an der Ruhr	580%
Kreis Recklinghausen	520%
Duisburg	505%
Herne	500%
Bochum	495%
Bottrop	490%
Dortmund	485%
Kreis Unna	481%
Gelsenkirchen	480%
Essen	480%
Hamm	465%
Kreis Wesel	448%
<b>Ruhr region assessment rate</b>	<b>501%</b>

Table 3: Assessment rates of the Ruhr region <sup>53</sup>

<sup>52</sup> Source: Own data collection; websites of the respective municipalities; 11.2023

<sup>53</sup> Source: Own data collection; websites of the respective municipalities; 11.2023

### 3.9 Rental index and property market

The property market in Duisburg is in a state of flux. Recently planned districts and neighbourhoods are laying the foundations for new developments and a dynamic property market in which rents will remain moderate.

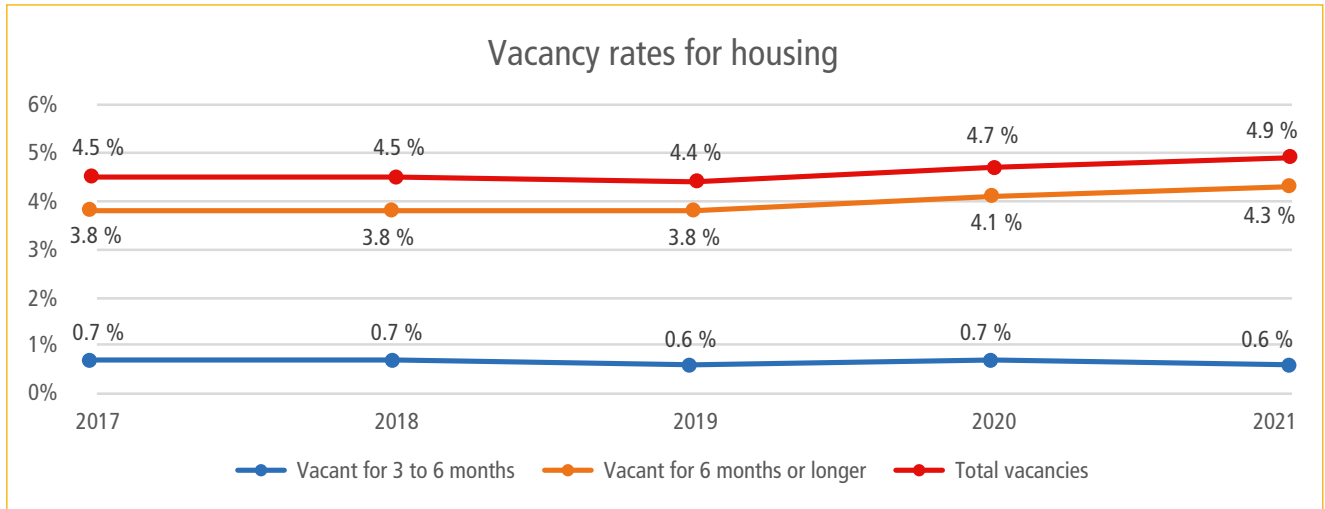


Figure 43: Housing vacancy rate <sup>54</sup>

In the period 2017 to 2021, the housing vacancy rate in Duisburg remained almost constant. In 2017, 4.5% of Duisburg homes were vacant. For 3.8% of Duisburg homes the vacancy lasted at least 6 months. In comparison, the vacancy rate in 2021 is slightly higher at 4.9 %. In 2021, 4.3% of Duisburg homes were vacant of at least 6 months.

The net rental index for residential property in the city of Duisburg for buildings built after 1985 ranged from €6.08/m<sup>2</sup> to €7.91/m<sup>2</sup> for a living space over 90m<sup>2</sup> with heating, bathroom and double glazing. For homes that diverge from the basic characteristics in the table of rental values, surcharges or reductions must be taken into account when determining the local comparative rent.<sup>55</sup> At the end of 2023 the average rent for newbuild homes was €10.80/m<sup>2</sup> and increased by €0.80/m<sup>2</sup> compared to the reference year.<sup>56</sup>

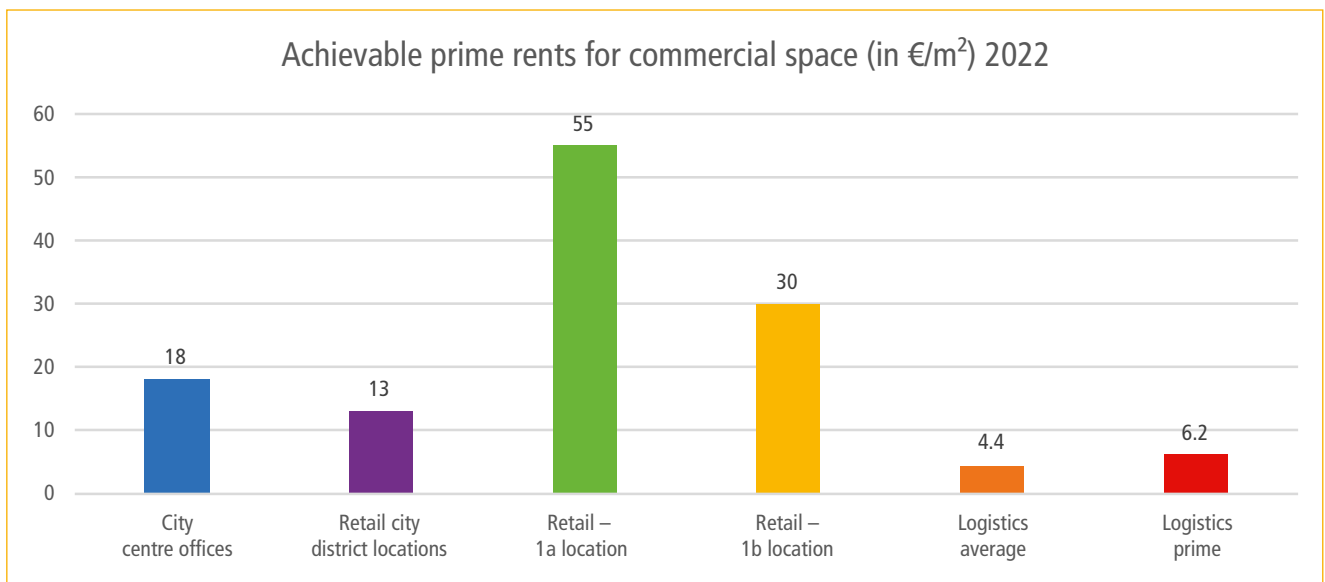


Figure 44: Achievable prime rent by type of use <sup>57</sup>

<sup>54</sup> Source: City of Duisburg, 03.2023

<sup>55</sup> Source: Mietspiegel 2024: file:///U:/Download/Mietspiegel-Duisburg-2024-Broschuere\_Korrektur-Stand-09.02.2024%20(1).pdf

<sup>56</sup> Source: Duisburg Immobilienmarktbericht 2023: [https://www.duisburg-business.de/fileadmin/duisburg-business/Downloads/Immobilienmarktbericht\\_H1\\_2023/IMB\\_H123\\_DU.pdf](https://www.duisburg-business.de/fileadmin/duisburg-business/Downloads/Immobilienmarktbericht_H1_2023/IMB_H123_DU.pdf), (duisburg-business.de)

<sup>57</sup> Source: Business Metropole Ruhr: <https://www.business.ruhr>, Stand 05.2023

With a prime rent of €55/m<sup>2</sup> in 2022, the highest rents can be achieved in the retail sector for properties in 1a locations. These include retail space in busy city centre locations. Retail space in 1b locations, so for example, in side streets of the centre, were being let for a prime rent of €30/m<sup>2</sup>. Up to €18/m<sup>2</sup> was being paid for office space in the city centre. In 2022 the cheapest rents were to be found in the logistics sector. Here, the average rents were €4.40 and prime rents €6.20. You can find more detailed information in the property market report of Duisburg Business & Innovation GmbH and the City of Duisburg.<sup>58</sup>

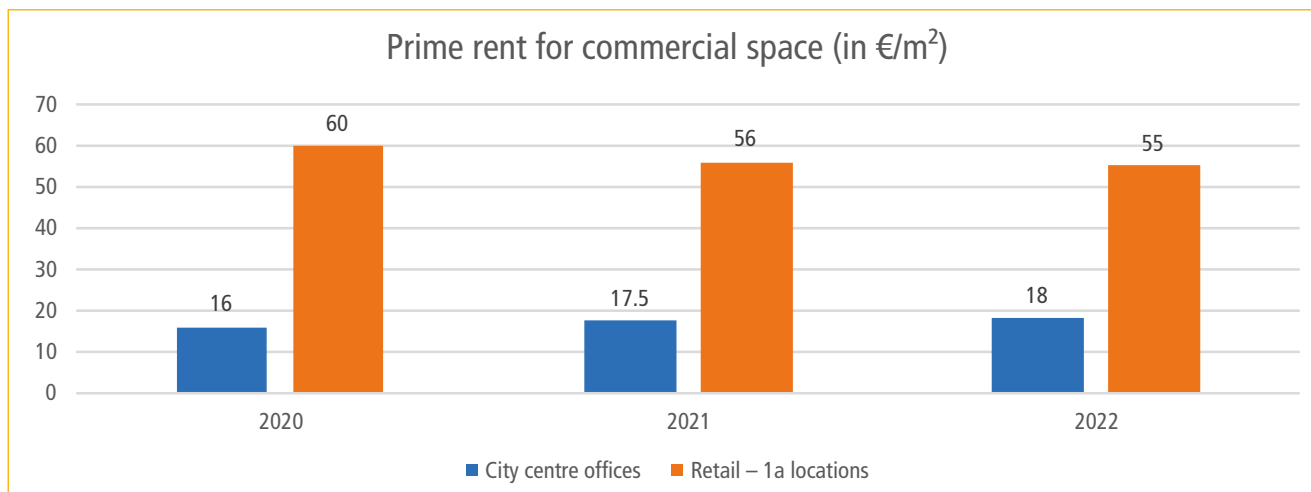


Figure 45: Prime rents for commercial space<sup>59</sup>

Between 2020 and 2022, prime rents for city centre office space rose minimally by two euros per square metre. Over the same period, prime rents for retail space in 1a locations fell by five euros.

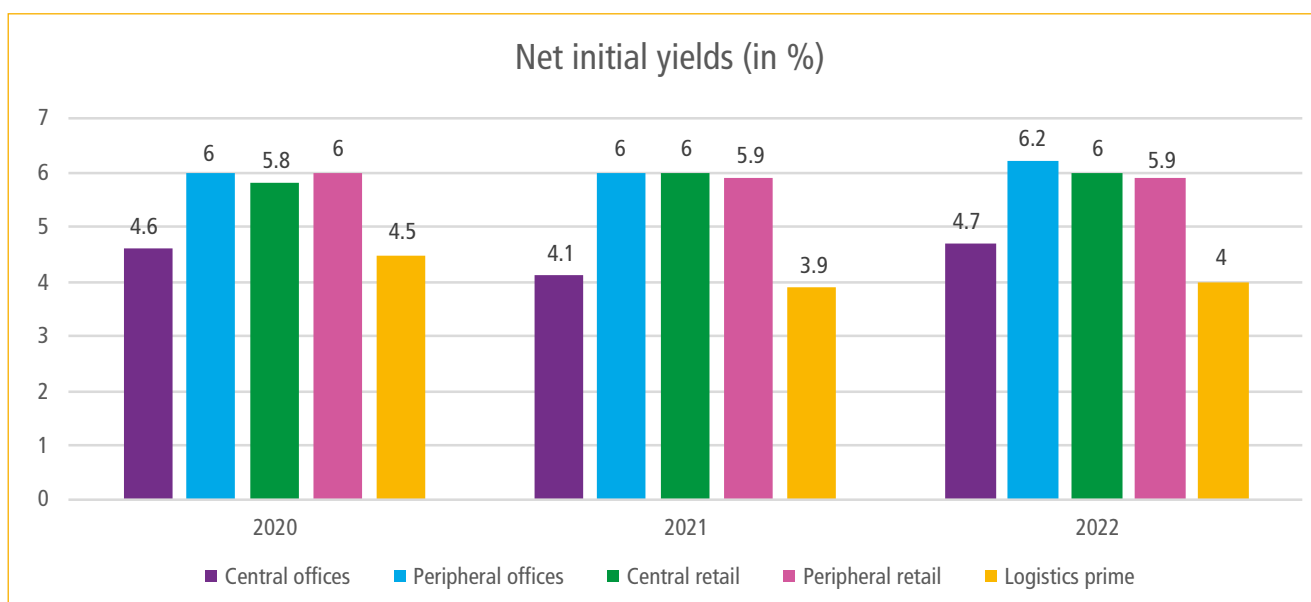


Figure 46: Net initial yields<sup>60</sup>

From 2020 to 2022, the net initial yields of all use types have remained practically stable. The highest net initial yields of about 6% were achieved by peripheral office properties as well as central and peripheral retail spaces. The lowest net initial yields of about 4.5% to 3.9% were achieved in logistics as well as in central office locations.

<sup>58</sup> Source: Business Metropole Ruhr: <https://www.duisburg-business.de/downloads>

<sup>59</sup> Source: Business Metropole Ruhr: <https://www.business.ruhr>, status 05.2023

<sup>60</sup> Source: Business Metropole Ruhr: <https://www.business.ruhr>, status 05.2023

## 4. Education

### 4.1 Overview of schools and vocational colleges

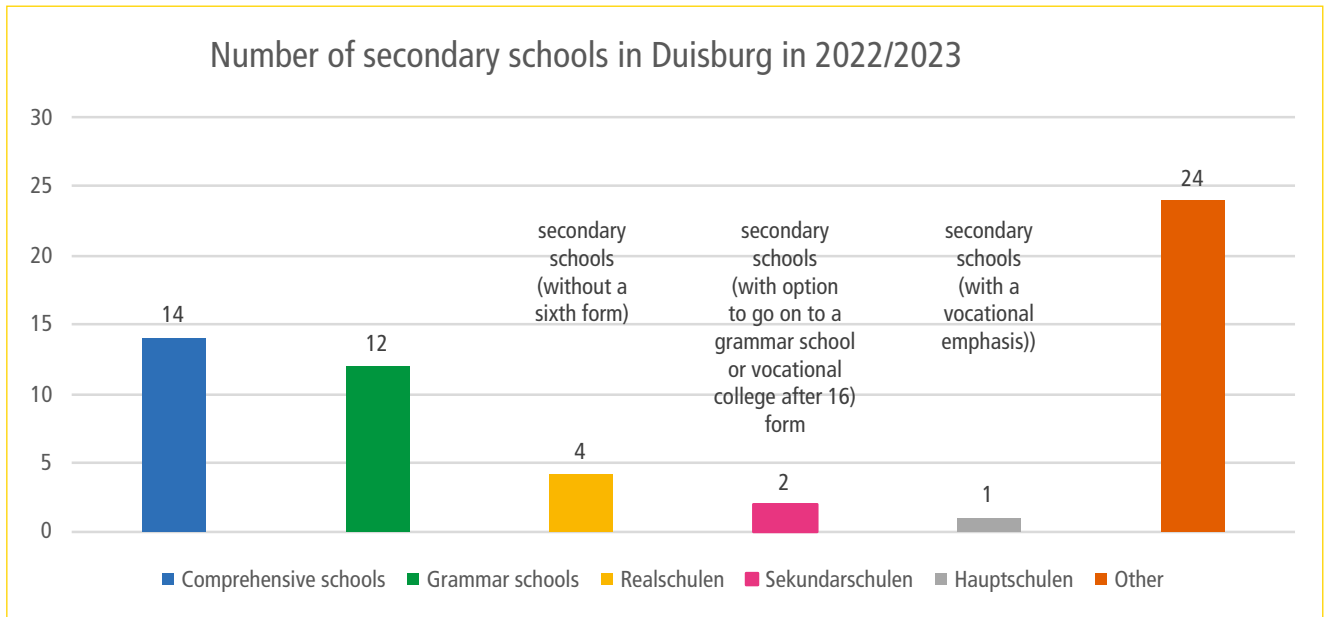


Figure 47: Secondary schools in Duisburg <sup>61</sup>

In the school year 2022/2023 there were a total of 76 primary schools for children of primary school age in the Duisburg city area, as well as 13 special schools and one free Rudolf Steiner school with a primary school entry. The secondary level comprises 57 secondary schools. These included 14 comprehensive schools, 12 grammar schools, 4 Realschulen, 2 Sekundarschulen and a Hauptschule (see above). In addition, the secondary school landscape in Duisburg included twelve special schools and one Rudolf Steiner school with a secondary level, ten vocational colleges and one further education college.

#### The ten vocational schools in the city of Duisburg covered the following training specialisms

- Health
- Social pedagogy and education
- Business and administration
- Technology
- Gastronomy
- Mechanical engineering
- Shipping

In the Homberg district of Duisburg, the vocational college Schiffer-Berufskolleg RHEIN trains aspiring inland waterway boatmen and boatwomen and other shipping related occupations. It is the only one of its kind in Germany. The vocational college optimally complements the logistics, warehousing and shipping fields of expertise and makes an important contribution to maintaining these sectors through the long-term training of skilled workers.

<sup>61</sup> Source: State Database NRW © IT.NRW, Düsseldorf, 2023, status: 06.2023; City of Duisburg, status: 09.2023

## 4.2 Number of school pupils by school type

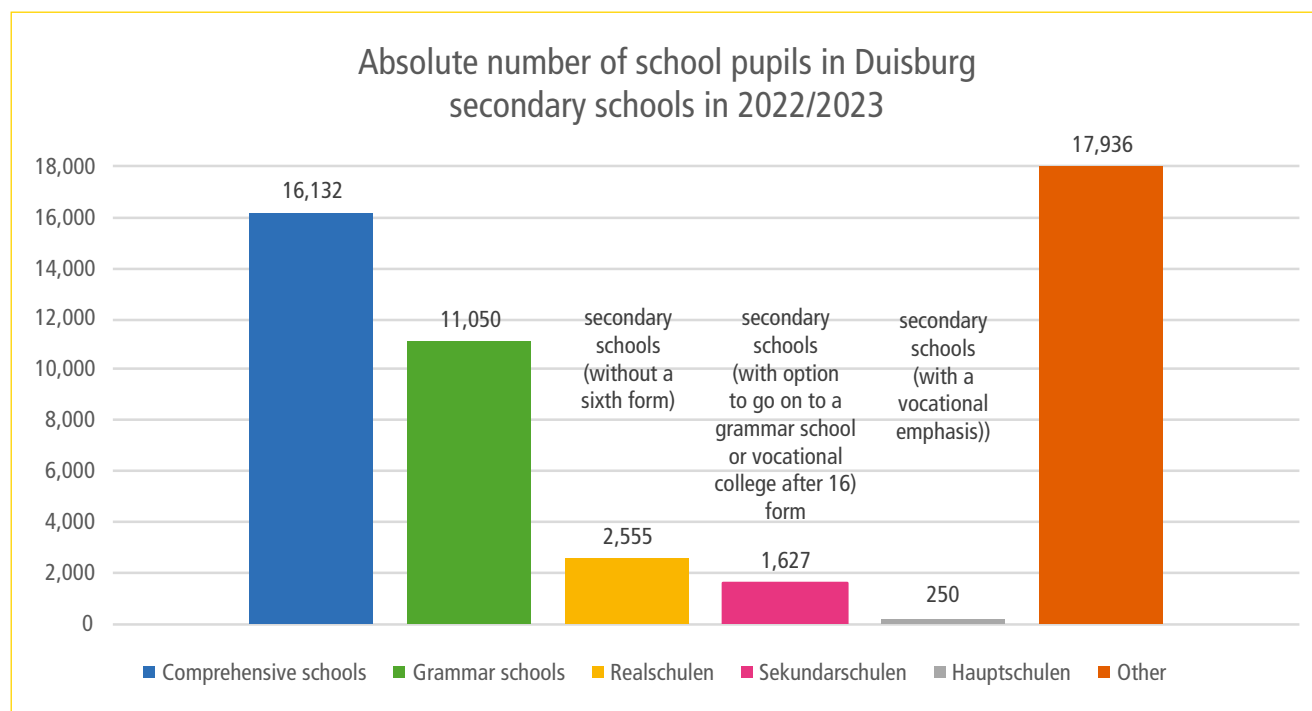


Figure 48: Absolute number of secondary school pupils in Duisburg 2022/2023 <sup>62</sup>

In the school year 2022/2023 there were about 50,000 pupils enrolled at secondary schools in Duisburg. A total of 16,132 pupils (33%) attended one of the 14 comprehensive schools in the city. A total of 11,050 Duisburg school pupils went to a grammar school. The four Realschulen and two Sekundarschulen had respectively 2,555 (5%) and 1,627 (3%) pupils enrolled. At the Hauptschule in the Walsum district 250 pupils (1%) were on the school roll. The remaining "other" school types were attended by 17,936 (36%) of pupils.<sup>63</sup>

A total of 19,882 pupils were enrolled at the 76 primary schools in Duisburg in the 2022/2023 school year.

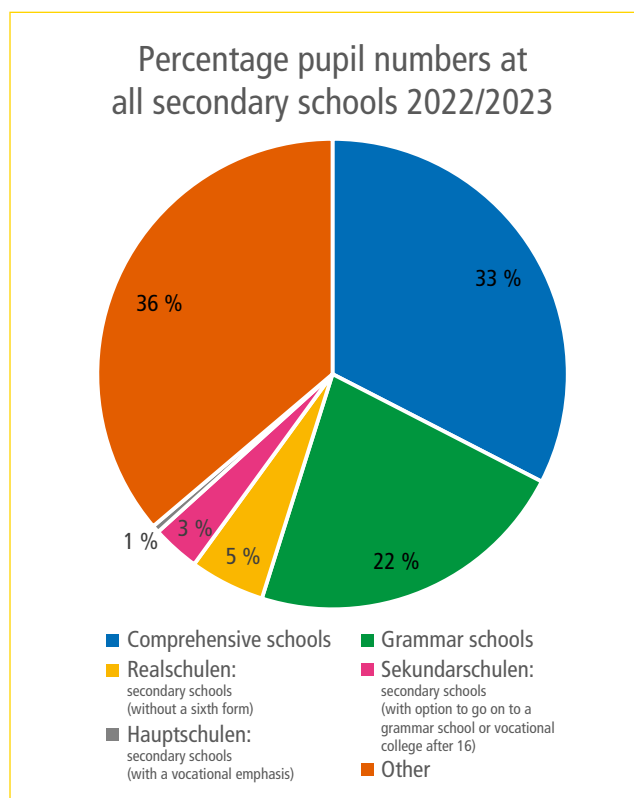


Figure 49: Percentage pupil numbers at secondary schools <sup>64</sup>

<sup>62</sup> Source: State Database NRW © IT.NRW, Düsseldorf, 2023, status: 06.2023; City of Duisburg, status: 09.2023

<sup>63</sup> Source: State Database NRW © IT.NRW, Düsseldorf, 2023, status: 06.2023; City of Duisburg, status: 09.2023

<sup>64</sup> The special schools and the free Rudolf Steiner school teach both the primary and secondary levels. In the statistics the pupil numbers of the respective level are not clearly separable from each other, therefore in the graphic, the total number of school pupils has been used.

### 4.3 Educational qualification statistics

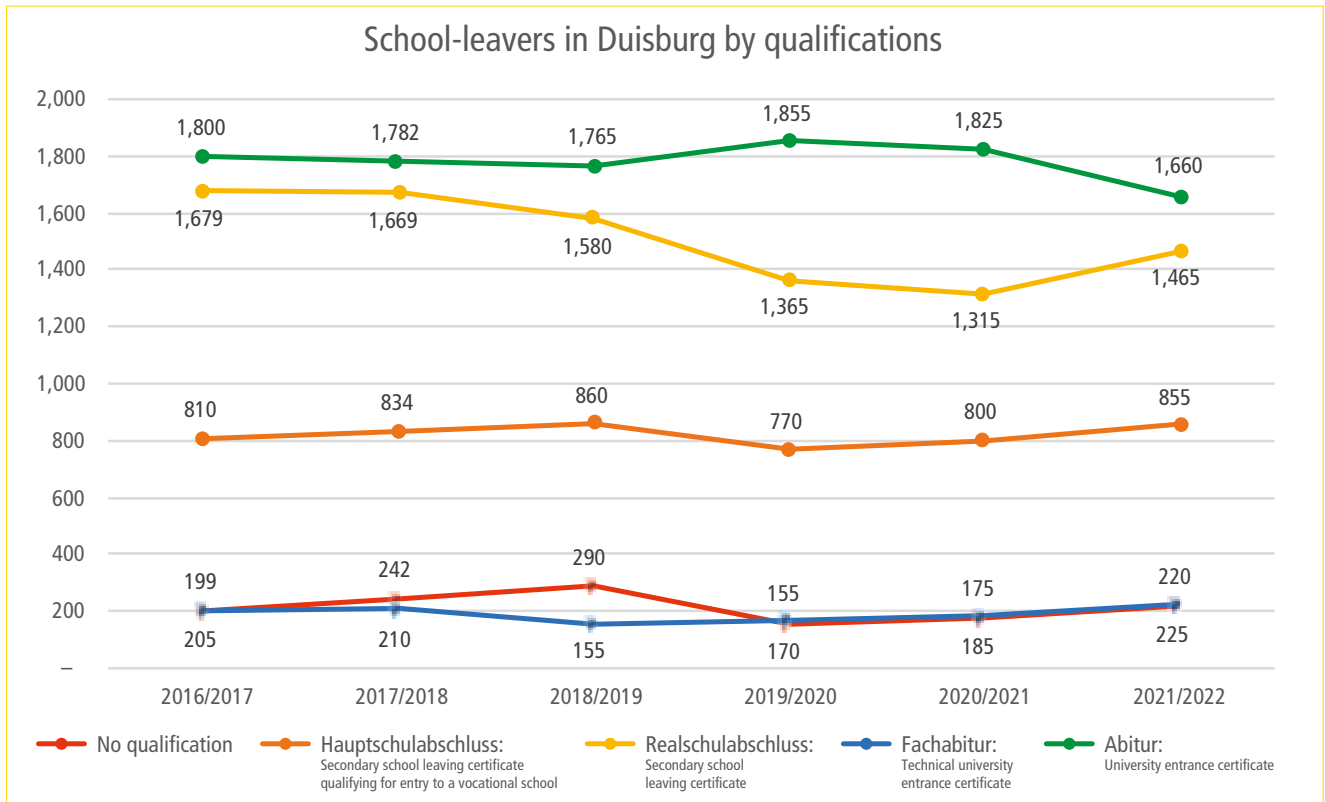


Figure 50: School-leavers by qualifications <sup>65</sup>

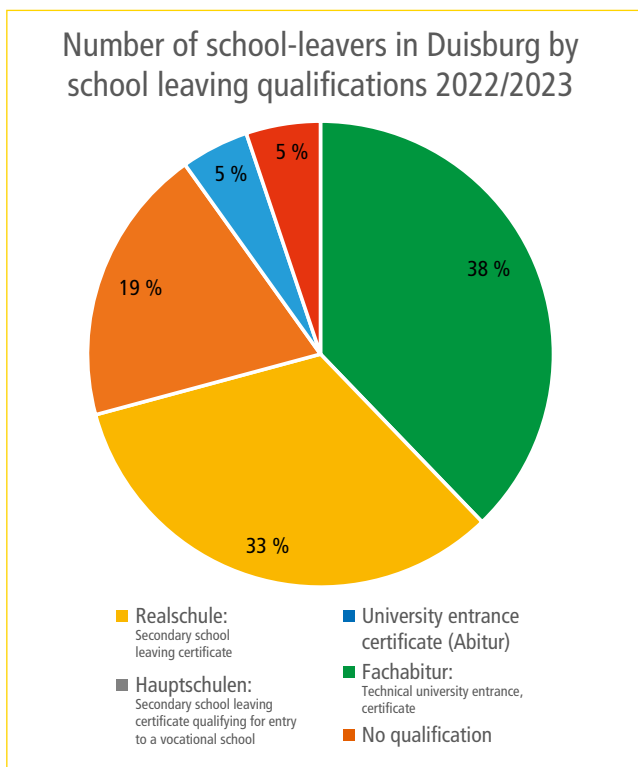


Figure 51: Number of school-leavers in Duisburg by leaving qualifications <sup>66</sup>

In the school year 2021/2022, there were a total of 4,425 school-leavers. The number of students leaving with the Abitur has dropped compared to previous years, but at 1,660, nevertheless accounts for more than a third (38%) of school leaving qualifications. A total of 1,465 school-leavers (33%) achieved a Realschulabschluss, which is an increase over the two previous years. A total of 885 (19%) of school-leavers ended their schooldays with a Hauptschulabschluss and 225 (5%) with the Fachabitur. In the school year 2021/2022, the number of school-leavers leaving without any qualification was 220, corresponding to about 5%.

In total, 4,200 school-leavers received a school leaving qualification at a Duisburg school, providing the location Duisburg with potential skilled workers, who could start an apprenticeship or a university course in Duisburg.

<sup>65</sup> Source: State Database NRW © IT.NRW, Düsseldorf, 2023, status: 06.2023; City of Duisburg, status: 09.2023; the figures at the bottom of the graphic give the numbers of school-leavers with the Fachabitur (blue graph); the figures directly above show the number of school-leavers without a qualification (red graph).

<sup>66</sup> Source: State Database NRW © IT.NRW, Düsseldorf, 2023, status: 06.2023; City of Duisburg, status: 09.2023

### 4.4 Childcare

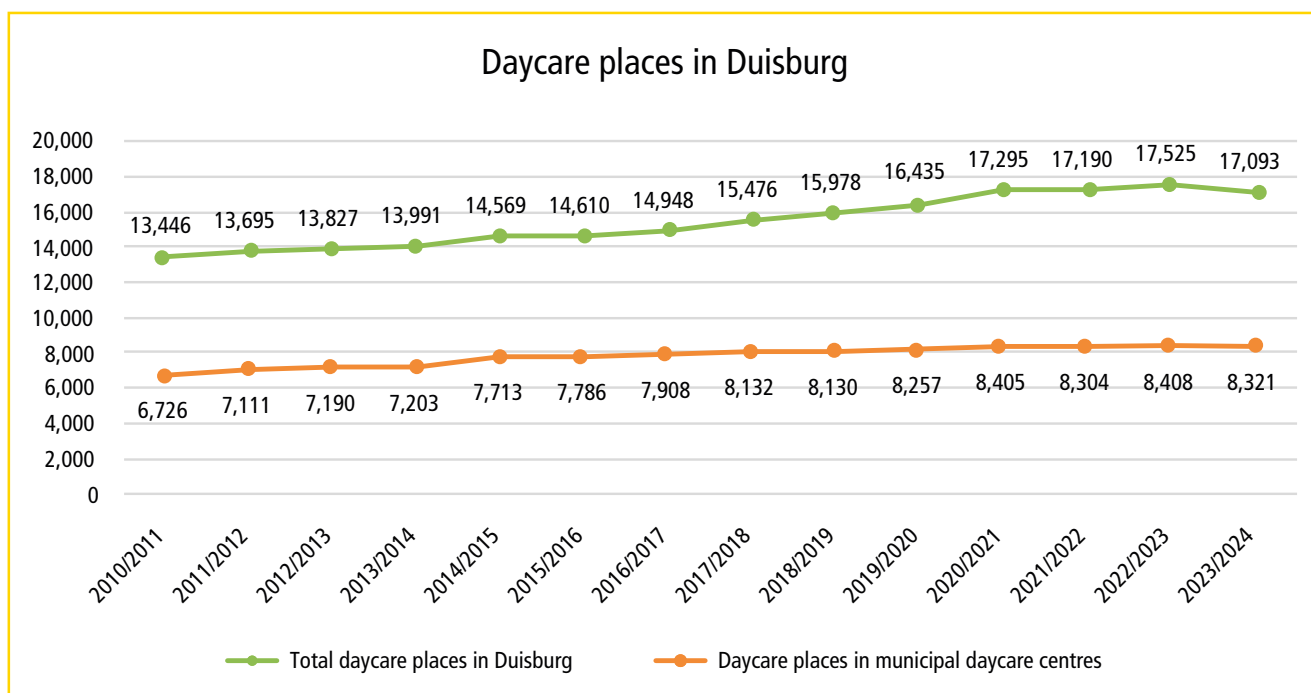


Figure 52: Number of daycare places<sup>67</sup>

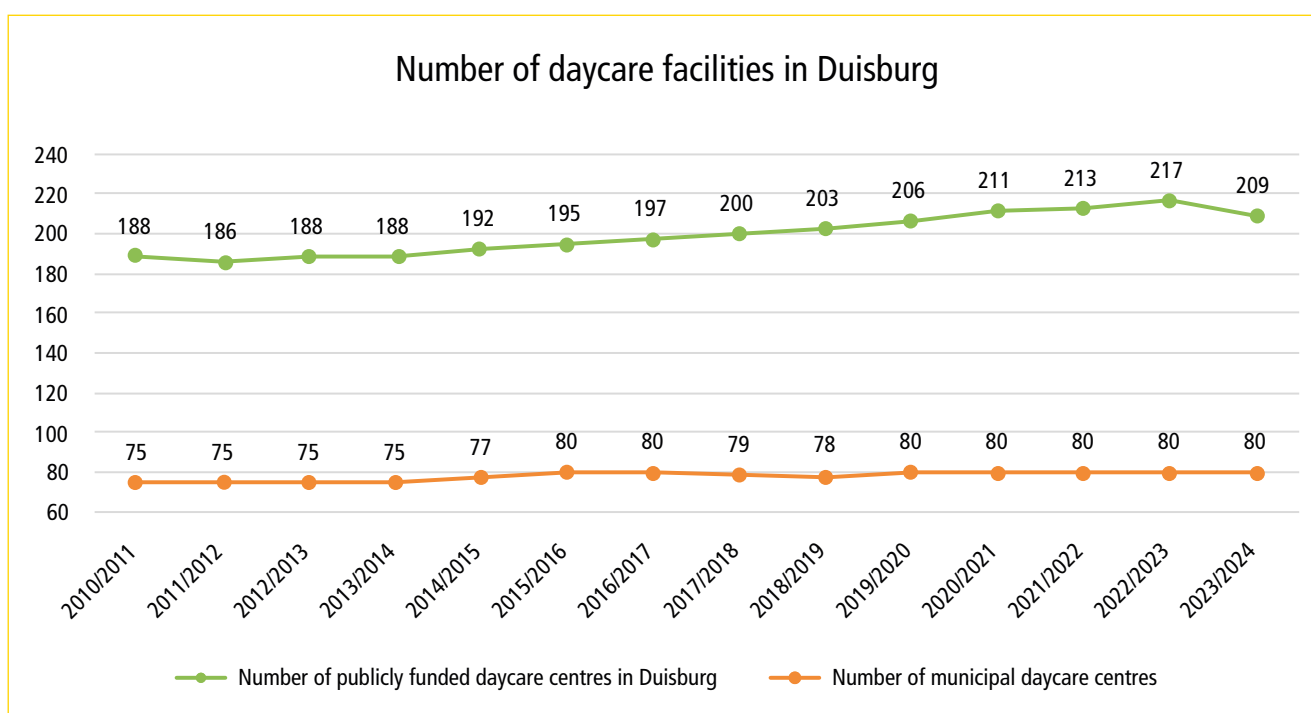


Figure 53: Number of daycare facilities in Duisburg<sup>68</sup>

Since the 2020/2021 kindergarten year, over 17,000 daycare places have been continuously available in the city of Duisburg, of which about 8,300 are in municipal daycare centres. Since the kindergarten year 2017/2018, there have always been at least 200 publicly funded daycare centres. In the entire period under review, the number has been between 75 and 80. In the kindergarten year 2023/2024, there are 17,093 daycare places available in the 209 public funded daycare centres in Duisburg.

67 Source: City of Duisburg, status: 09.2023

68 Source: City of Duisburg, status: 09.2023

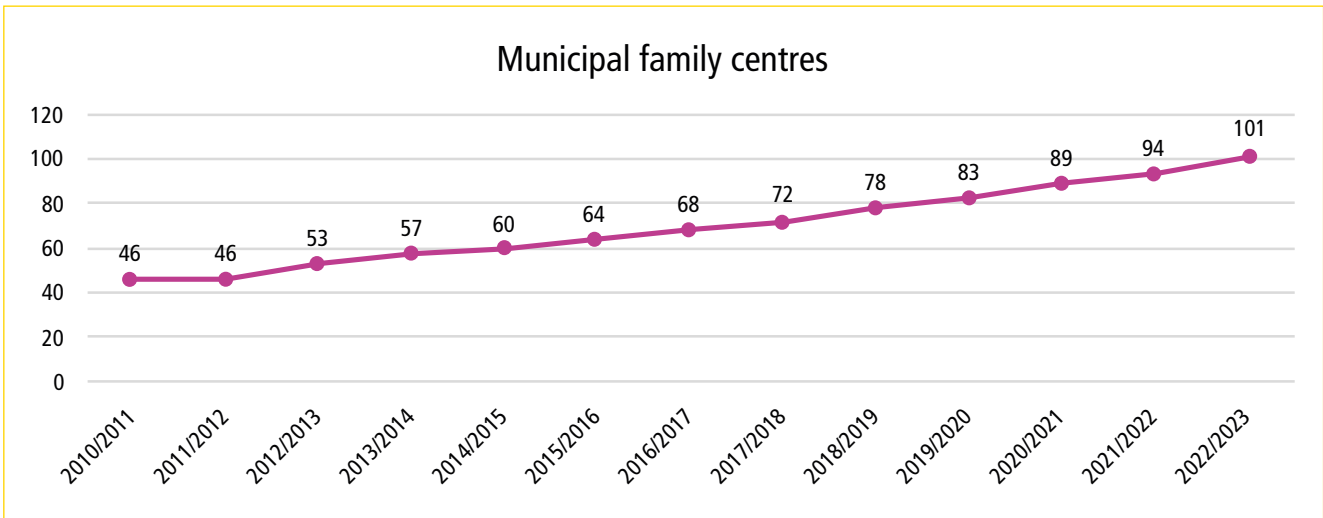


Figure 54: Municipal family centres <sup>69</sup>

Some of the daycare facilities in Duisburg are certified as family centres. Family centres provide social environment-based nurturing and support services for children and families in different life situations and with different needs. They pursue a family-oriented approach, that addresses the family as a whole and creates a living space for the entire family. Access to the family centres' services is designed to be as low-threshold as possible. This enables them to talk to their parents or grandparents in a familiar environment. Among others, the following programmes are offered in the Duisburg family centres: parents' café, mini-club, father-child course, granny-grandchildren course, relaxation course, self-defence, walking groups and various creative offers. In the kindergarten year 2010/2011 and following year there were 46 family centres in the city of Duisburg. Since then, the number has more than doubled, so that in 2022/2023 101 family centres were supporting families in Duisburg. This represents a year-on-year growth of 7 facilities.

The State of North Rhine-Westphalia is currently funding three family primary school centres. Parents are strengthened in their child-rearing skills through tailored offers, so that they can support their children in school and everyday life. In this way, the family primary school centres are helping to improve the educational chances of children in difficult socio-economic circumstances and the integration and social inclusion of the families. Another popular offer of the City of Duisburg is the three-week "Stadtranderholung" (children's activity programme) in the second half of the summer holiday, which in 2023 took place for the seventy-first time. At 15 different locations in the city area, children between primary school age up to 13 years can participate in a varied programme of games, sport and excursions. Reliable care and supervision is guaranteed by the full-time and volunteer carers. Open child and youth work is another important element of family help. This takes place in youth leisure facilities, youth centres, youth houses, open youth clubs and on construction and adventure playgrounds. The offer is aimed at all young people from 6 to 27 years and is oriented towards the needs of the users of the facility, the social environment and the providers. The facilities are open every weekday and during the holidays, special holiday programmes are organised by qualified specialist staff. In addition to educational play and leisure activities, the facilities also offer counselling services for young people and their families as well as cultural events for special occasions, such as summer parties, Christmas parties and concerts. This means that not only the users benefit, but entire city neighbourhoods.

<sup>69</sup> Source: City of Duisburg, status: 09.2023



## 5. Research

### 5.1 List of universities and research institutes

The transformation of the image of the Ruhr region from an industrial area to a knowledge region is in full swing and the university landscape in the Ruhr metropolitan region is already one of the densest in Europe. This ongoing structural change emphasises the significance of Duisburg as a scientific centre and has a positive effect on the expansion and funding of scientific institutions.

#### The following universities and colleges are based in Duisburg:

- University of Duisburg-Essen
- FOM, Academic Centre Duisburg
- University of Applied Sciences for Police and Public Administration
- Folkwang University of the Arts

#### In addition, Duisburg's knowledge infrastructure also includes a total of 14 research institutes

- Centre for Nanointegration (CENIDE)
- NanoEnergieTechnikZentrum (NETZ)
- DST Development Centre for Marine Engineering and Transport Systems e.V.
- Duisburg Institute for Linguistic and Social Research e.V.
- FehS- Institute for Building Materials Research e.V.
- Fraunhofer inHaus-Zentrum
- Fraunhofer Institute for Microelectric Circuits
- FGW Research Institute for Social Development (e. V. i. L.)
- Institute for Energy and Environmental Technology
- Rhine-Ruhr Institute for Social Research and Policy Advice
- Salzgitter Mannesmann Research GmbH (steel research)
- Social Science Survey Centre GmbH
- ZBT Centre for Fuel Cell Technology
- Centre for Semiconductor and Optoelectronics

#### In addition, two new research institutes are in the start-up phase

- TrHy – THE HYDROGEN PROVING AREA
- ZaKI.D – Centre for Applied Artificial Intelligence Duisburg

## 5.2 Student numbers

The wide range of degree programmes and subjects in the four universities attracts a large number of students to the city. In total, there are currently over 17,000 people studying at Duisburg, who are distributed among the universities as follows:

The University of Duisburg-Essen offers 58 courses at the Duisburg campus and in 2022 recorded 13,102 students.<sup>70</sup>

	Duisburg University	Folkwang University Duisburg	HSPV Duisburg	FOM Duisburg	Total
Total students	13.102	133	3.500	330	17.065
of which international students	4.230	111	0	* 71	4.341
Courses offered	58	4	5	11	78

Table 4: Students and courses at Duisburg universities and colleges

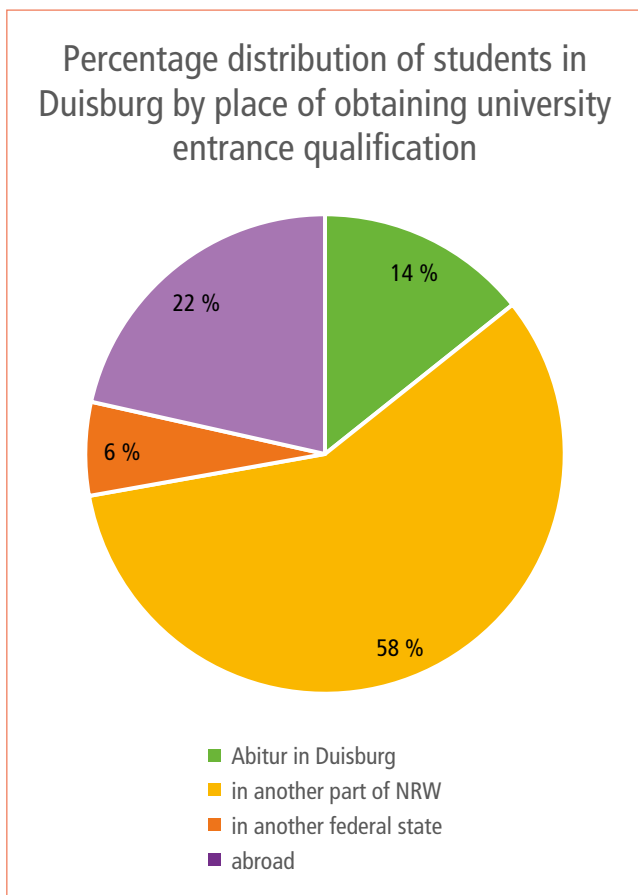


Figure 55: Percentage distribution of students by place of obtaining university entrance qualification <sup>75</sup>

In the summer semester 2023, there were a total of 133 students studying on four degree programmes at the campus of the Folkwang University of the Arts in Duisburg.<sup>72</sup>

The University of Applied Sciences for Police and Public Administration is decentrally organised and distributed over 9 academic centres in the state.<sup>73</sup> The Duisburg academic centre offers a selection of five bachelor's degree programmes for the 3,500 students currently enrolled.

The university centre in Duisburg Neudorf is one of a total of 19 academic centres of the FOM in North Rhine-Westphalia. The university currently has 330 students at the Duisburg campus and offers a choice of 11 bachelor's degree programmes.<sup>74</sup>

In addition to German students, there are also international students preparing for an academic qualification. At the University of Duisburg-Essen there are 4,230 international students who make up about a third of the total. At the Duisburg campus of the Folkwang University of the Arts there were 111 international registered students, amounting to over 80% of the total.

70 Source: University of Duisburg-Essen, status: 05.2023

71 No survey

72 Source: Folkwang University of the Arts, status: 05.2023

73 Source: University of Applied Sciences for Police and Public Administration NRW, Stand: 05.2023

74 Source: FOM University of Applied Sciences, status: 05.2023

75 Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 03.2023

More than half (58%) of the students in Duisburg obtained their university entrance qualification (Abitur) in another district within North Rhine-Westphalia. Twenty-two per cent of students have a foreign university entrance qualification. After obtaining their university entrance qualification, many former Duisburg school pupils decide to study in the city. Fourteen per cent of the students have obtained their university entrance qualification at a Duisburg school. Six per cent of students have obtained their university entrance qualification in another German federal state.

### 5.3 Numbers of graduates

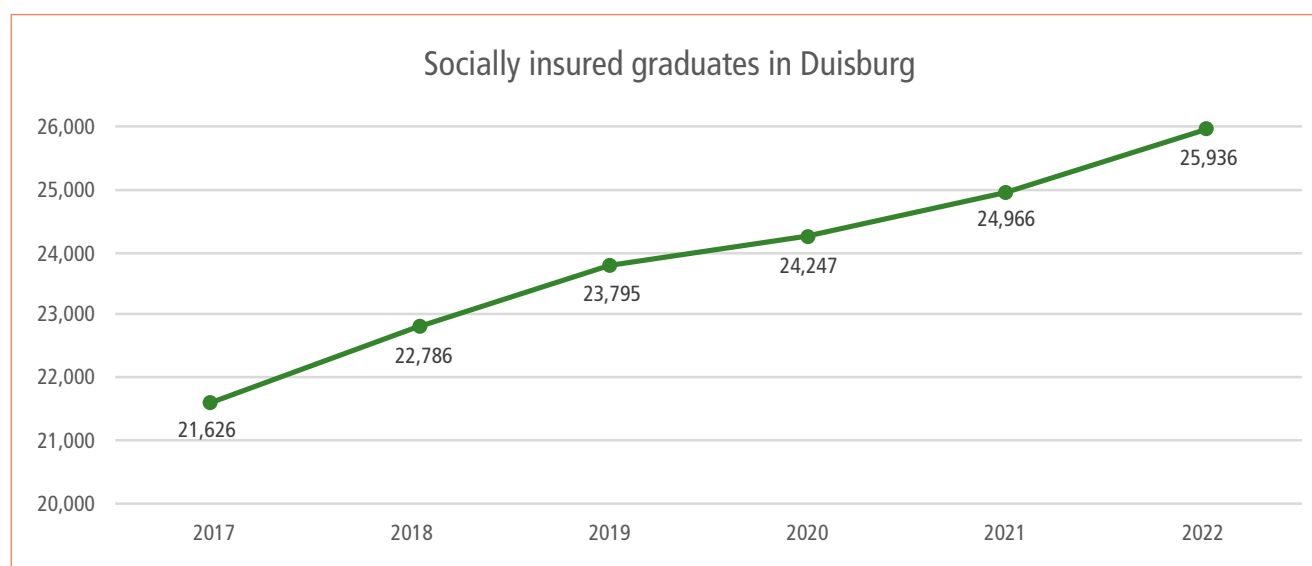


Figure 56: Number of socially insured graduates <sup>76</sup>

In the period from 2017 to 2022, the number of socially insured employees in Duisburg with a degree has risen continuously. In 2022 there were 25,936 graduate socially insured employees (14.52%), in 2017 there were 21,626 (12.64%).

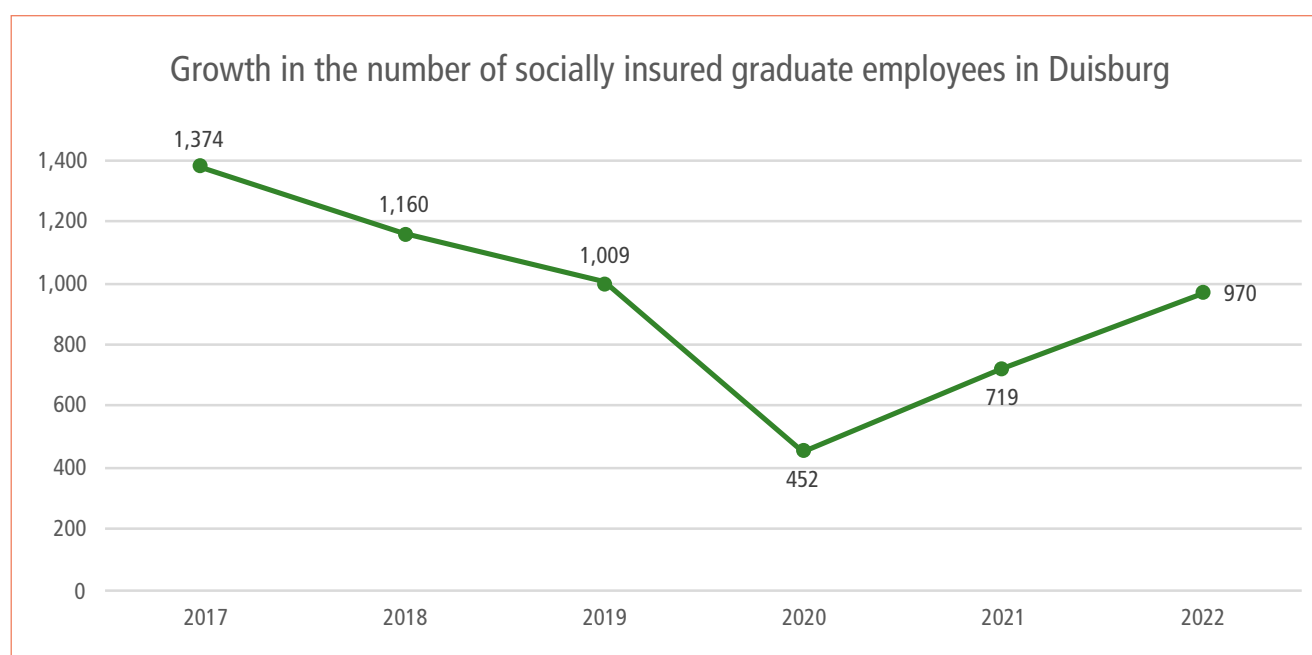


Figure 57: Absolute growth in the number of socially insured graduate employees<sup>77</sup>

<sup>76</sup> Source: Germany regional database, status: 05.2023

<sup>77</sup> Source: Germany regional database, status: 05.2023

While the number of socially insured employees in Duisburg with a degree has continuously risen between 2017 to 2022, each year the rate of growth has decreased. In 2017 the growth of socially insured employees was 1,374 (+6.78%), while in 2020, it was 452 (1.90%). Consequently, the rate of growth over this period has decreased 'by around 5 percentage points. The rate of growth increased again from 2021 reaching a figure of 970 (+3.89%) socially insured employees.

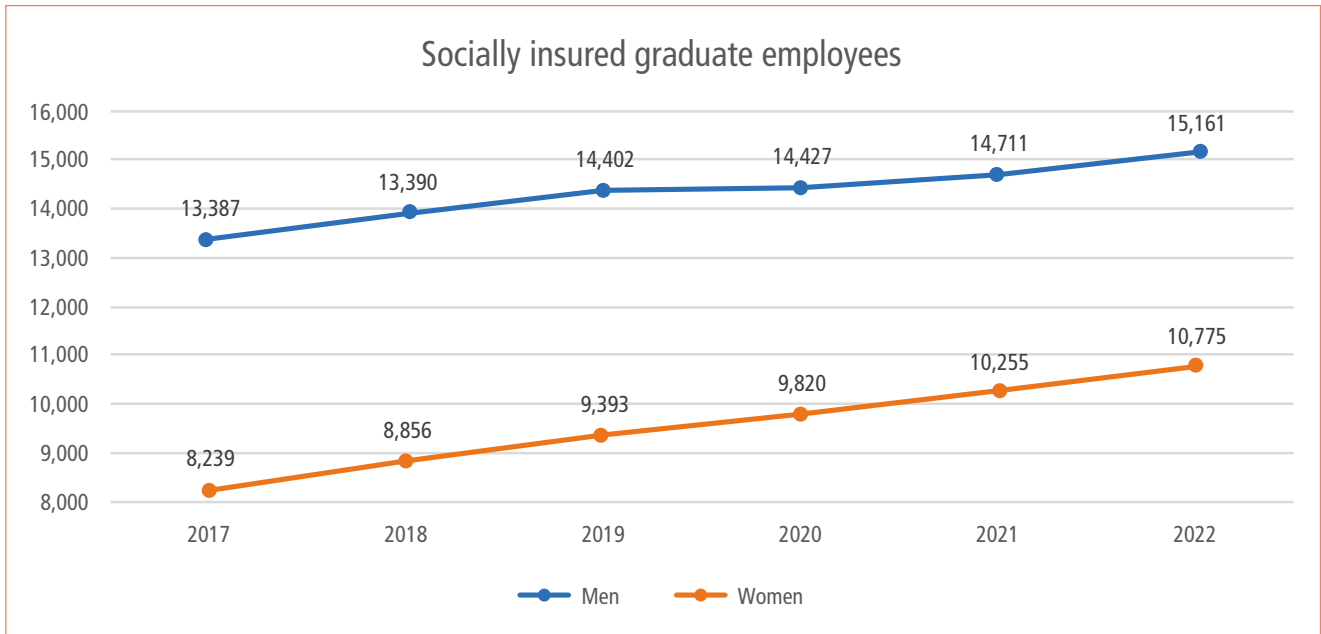


Figure 58: Socially insured graduate employees by gender <sup>78</sup>

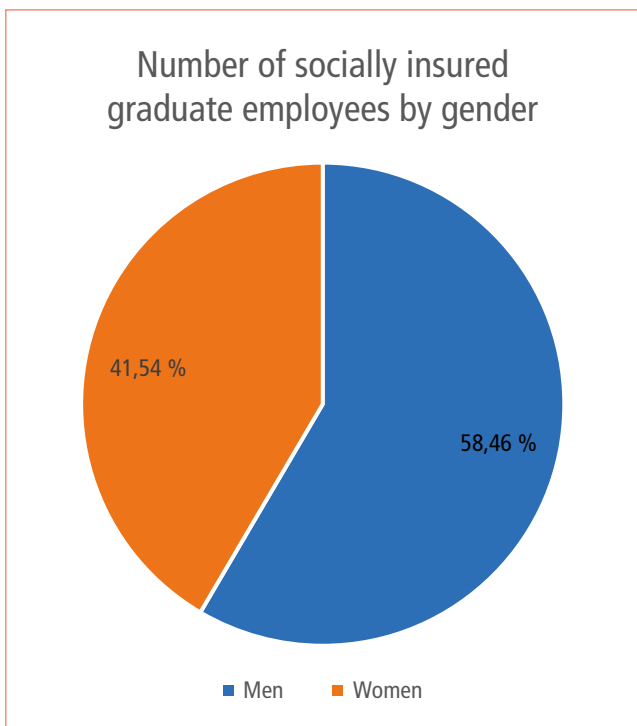


Figure 59: Socially insured graduate employees by gender <sup>79</sup>

The number of socially insured employees with academic qualifications has risen continuously since 2017 for both men and women. In 2017 13,387 men and 8,239 women with an academic qualification were in socially insured employment, in 2022 there were 15,161 men and 10,775 women. In 2022 the proportion of male socially insured employees was 58.46%, that of women was 41.54%. For women, this represented an increase of about 3 percentage points compared to 2017 (38.10%)

78 Source: Germany regional database, status: 05.2023

79 Source: Germany regional database, status: 05.2023

## 5.4 Development of patents

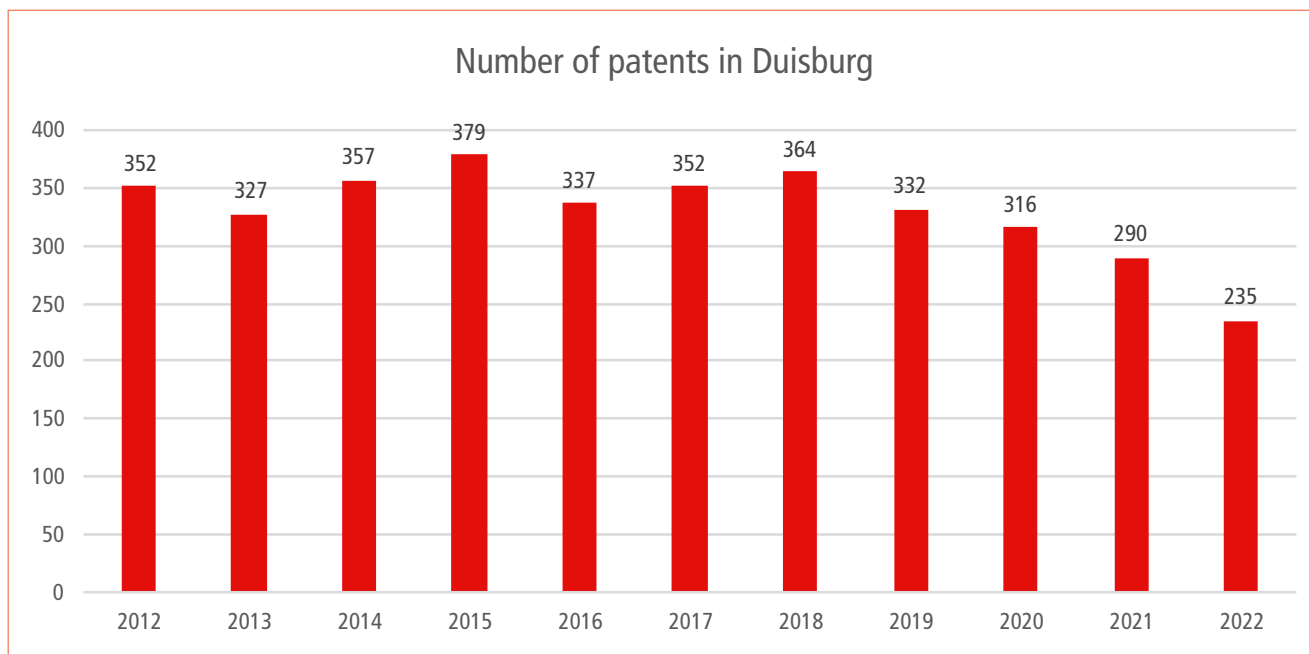


Figure 60: Number of patents registered in Duisburg <sup>80</sup>

Most of the patents registered in the period 2012 to 2022 were registered in 2015. A total of 379 new registrations were recorded in that year. In the following year, the number fell to 337 patents. After slight year-on-year increases in 2017 and 2018, since 2019 the number of patent registrations has been declining, with 235 registrations in 2022.

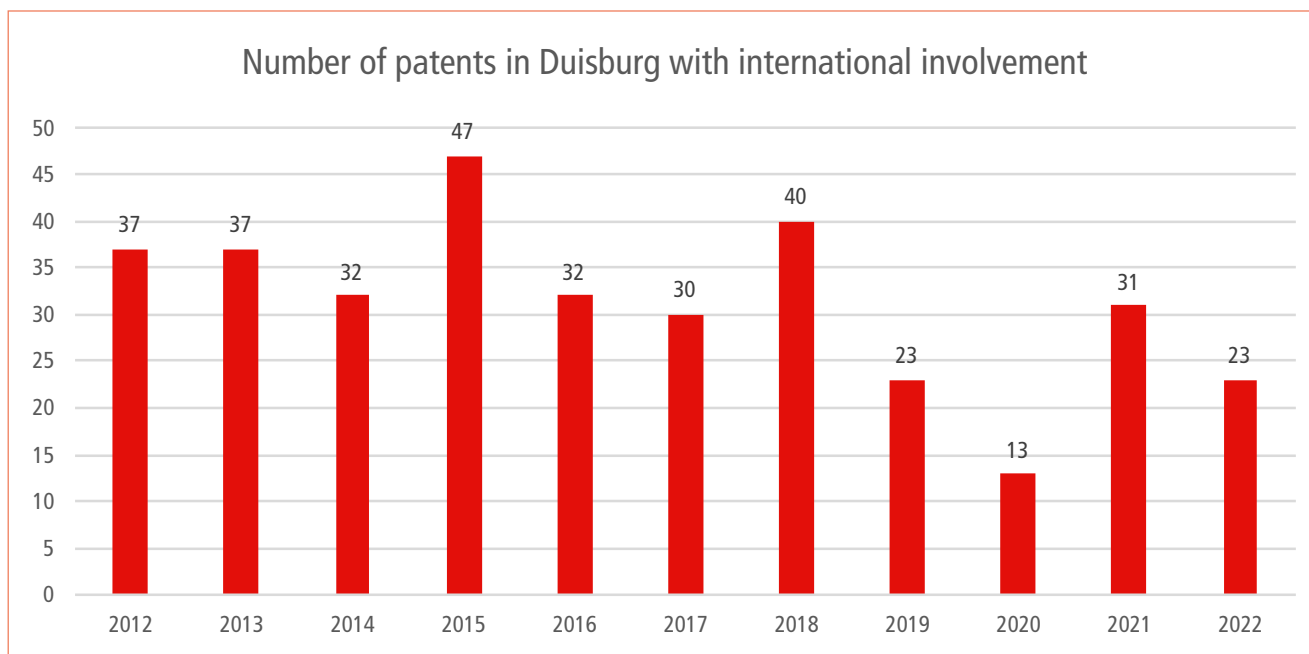


Figure 61: Patent registrations with international involvement <sup>81</sup>

<sup>80</sup> Source: German Patent and Trade Mark Office, status: 01.2023

<sup>81</sup> Source: German Patent and Trade Mark Office, status: 01.2023

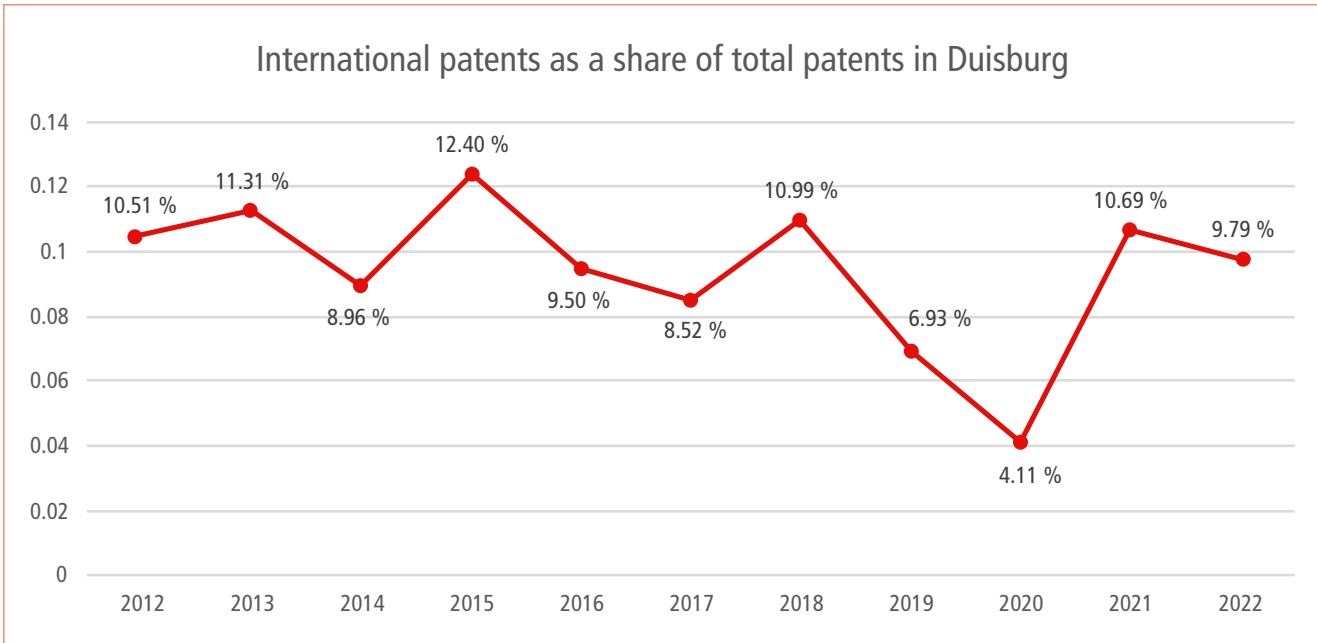


Figure 62: Percentage share of patent registrations with international involvement <sup>82</sup>

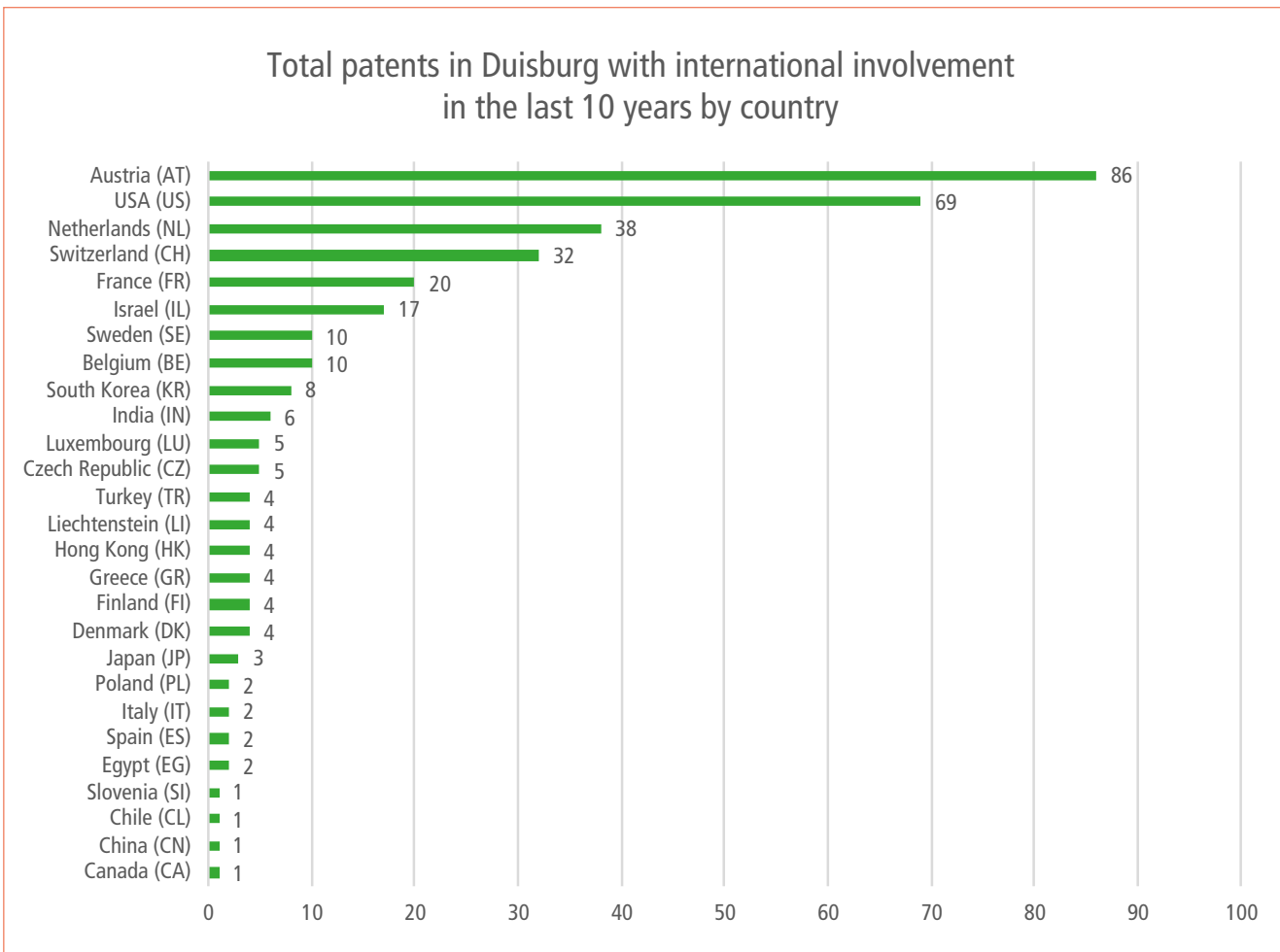


Figure 63: Patent registrations with international involvement in the last 10 years by origin of the cooperation partners <sup>83</sup>

<sup>82</sup> Source: German Patent and Trade Mark Office, status: 08.2023

<sup>83</sup> Source: German Patent and Trade Mark Office, status: 08.2023

Duisburg is also internationally positioned in terms of patent applications. Between 2012 and 2018, the proportion of patent registrations with a foreign co-inventors or co-owner has remained constant at around 10%. The highest number was in 2015, when 12.4% (47 patents) of patent registrations involved international cooperation. In 2019 and 2020 the number of patent registrations with international involvement collapsed. This was because cross-border research by various companies and research institutions could only take place digitally. Joint laboratory work and a practical exchange were only possible with difficulties. In 2021 some of the COVID-19 protective measures were lifted and people adapted to the new conditions by the more effective use of online services, for example. Consequently, the number of patent registrations with international cooperation recovered from 2021, and rose again to over 10%.

Most of the cooperation partners of Duisburg companies and research facilities in the last ten years came from neighbouring Austria. A total of 86 patents with Austrian involvement were registered in Duisburg. Cooperation partners from the USA also played an important role. They participated in a total of 69 patent registrations. There was also intensive collaboration with partners in the Netherlands (38 patent registrations) and in Switzerland (32 patent registrations).

When the German Patent and Trade Mark Office grants a patent, it is usually protected for a maximum of 20 years from the date of registration. After the third year, an annual fee must be paid for maintaining patent protection. Failure to pay leads to automatic termination of the patent. Under certain conditions, the protection period can be extended in the case of medicinal products and plant protection products subject to authorisation.<sup>84</sup>

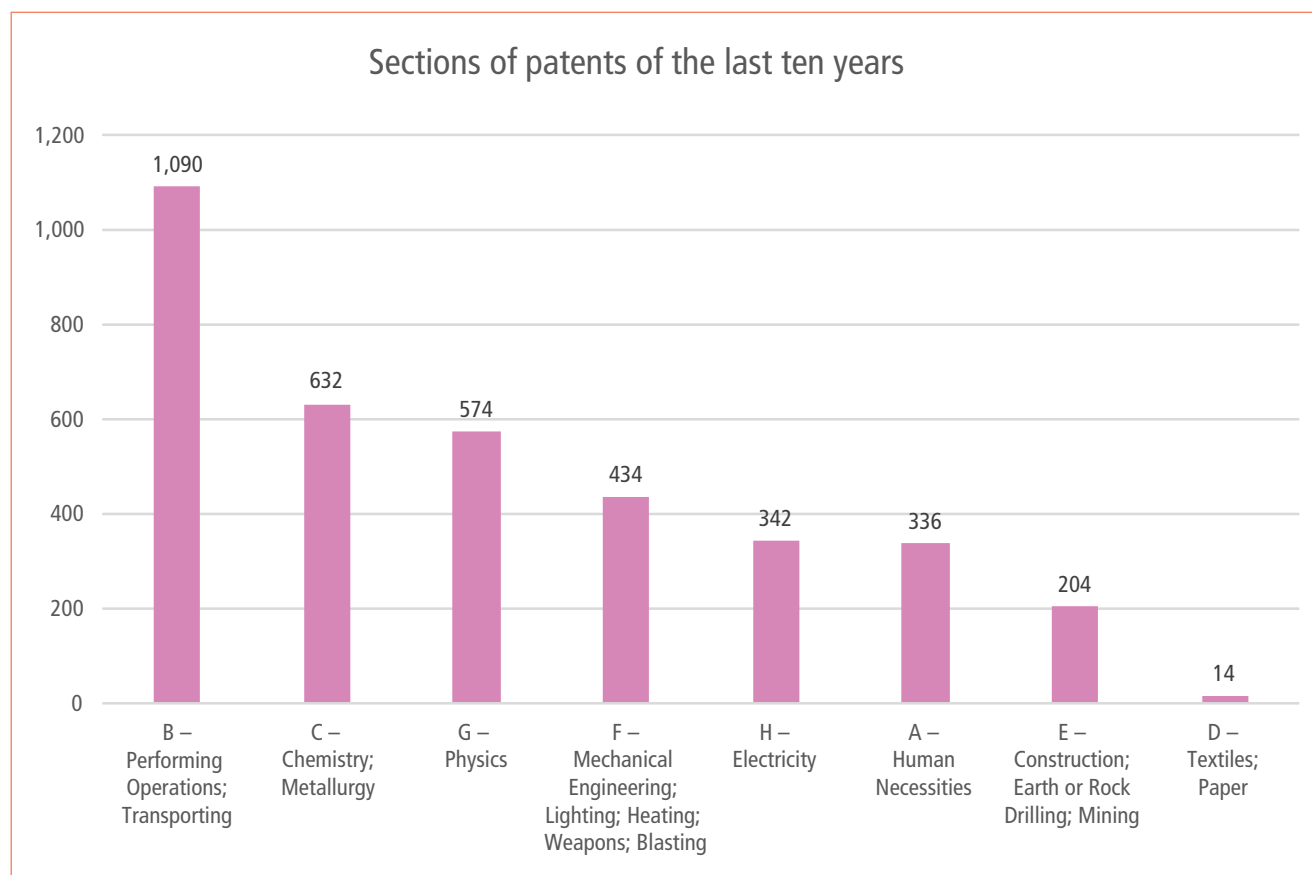


Figure 64: Sections of patents of the last ten years <sup>85</sup>

<sup>84</sup> Source: German Patent and Trade Mark Office: <https://dpma.de/patente/patentschutz/index.html>, status: 08:2023

<sup>85</sup> Source: German Patent and Trade Mark Office, status: 08.2023

The International Patent Classification (IPC) divides technical knowledge of inventions into various levels. The highest subdivision is in the Sections A–H.<sup>86</sup>

In line with Duisburg's core competence in logistics, in the last ten years the most inventions (1,090 patents) were registered in Section B – Performing Operations, Transporting. As the most important steel location in Europe, in the last ten years Duisburg companies have registered 632 patents in Section C – Chemistry; Metallurgy. A similar portion (574 registrations) came from patent registrations under Section G – Physics and under Section F – Mechanical Engineering; Lighting; Heating; Weapons; Blasting with a total of 434 registrations.

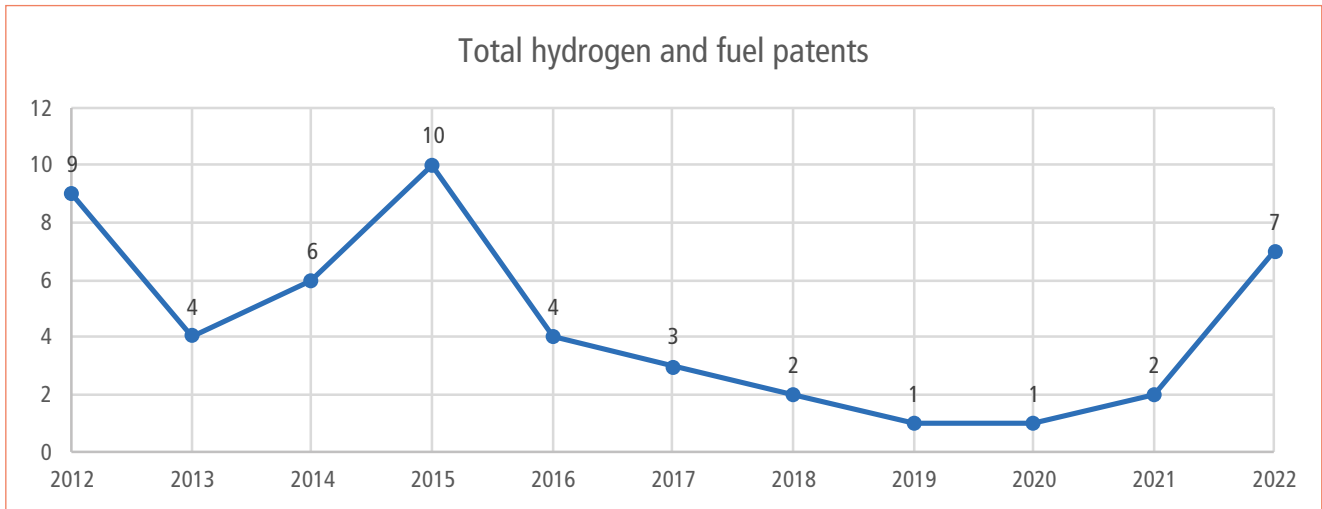


Figure 65: Total hydrogen and fuel patents <sup>87</sup>

The first hydrogen projects in Duisburg to target the hydrogen transition have already been implemented, others are being planned. Further details about future and existing hydrogen projects can be found in Chapter 6.2.



<sup>86</sup> Source: German Patent and Trade Mark Office:

<https://dpma.de/recherche/klassifikationen/patenteundgebrauchsmuster/internationalepatentklassifikation/index.html>, status: 07.2023

<sup>87</sup> Source: German Patent and Trade Mark Office, status: 08.2023



## 6. Land use

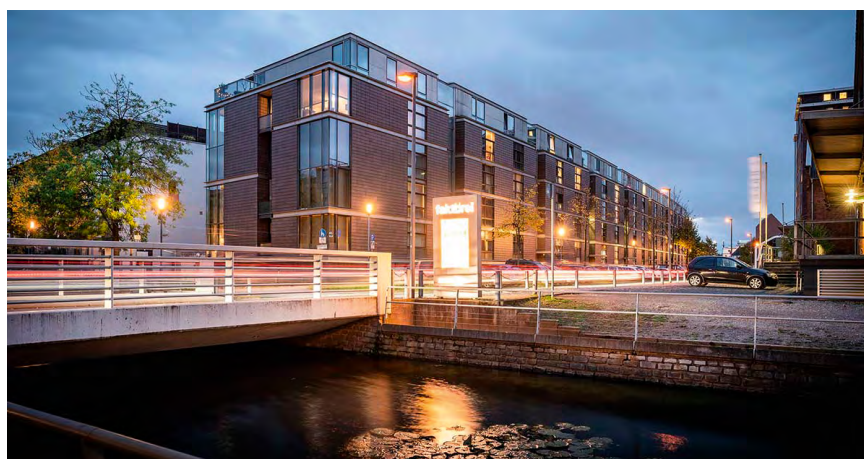
With a total area of 233 square kilometres, Duisburg is the second largest city of the Ruhr region after Dortmund. Even the largest city area has its limits. That makes the planning, design, and development of existing areas even more important.

The systematic and resource-efficient development of urban areas is a central task for the city. Promising commercial and industrial locations, sites for large-scale projects, and potential areas for new residential developments are being identified in the context of sustainable urban development concepts.

Apart from areas for new development, it is primarily the areas of heavy industry, which, due to the structural change in the Ruhr region, are finding new uses and are of most interest for land development.

The Duisburg urban area also has a lot to offer in terms of recreation. In addition to 22 bathing lakes and large areas of forest such as the Six Lakes District and the Duisburg Municipal Forest, the new 2027 Land Development Plan envisages increased use of green space.

While new commercial and industrial zones create new jobs, new residential areas and green spaces increase the attraction of Duisburg as a residential location. This attraction ensures that new manpower moves to Duisburg and that in turn human capital increases, which is of interest for the economy.



### 6.1 Current land use

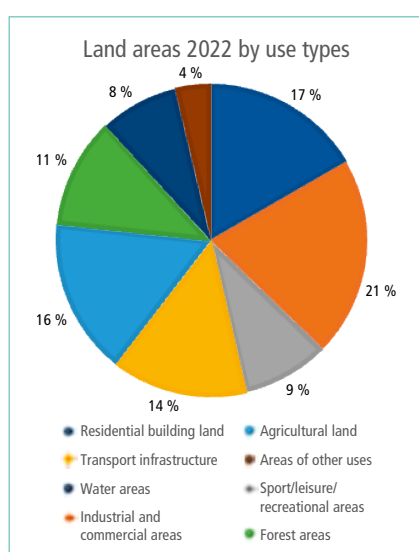


Figure 66: Percentage land use <sup>88</sup>

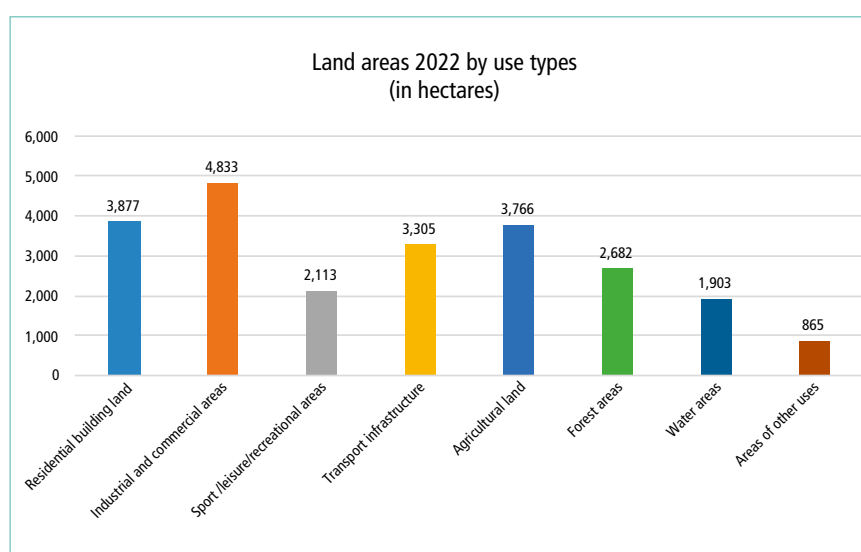


Figure 67: Land use 2022 by type of use in ha <sup>89</sup>

<sup>88</sup> Source: City of Duisburg, status: 03.2023

<sup>89</sup> Source: City of Duisburg, status: 03.2023

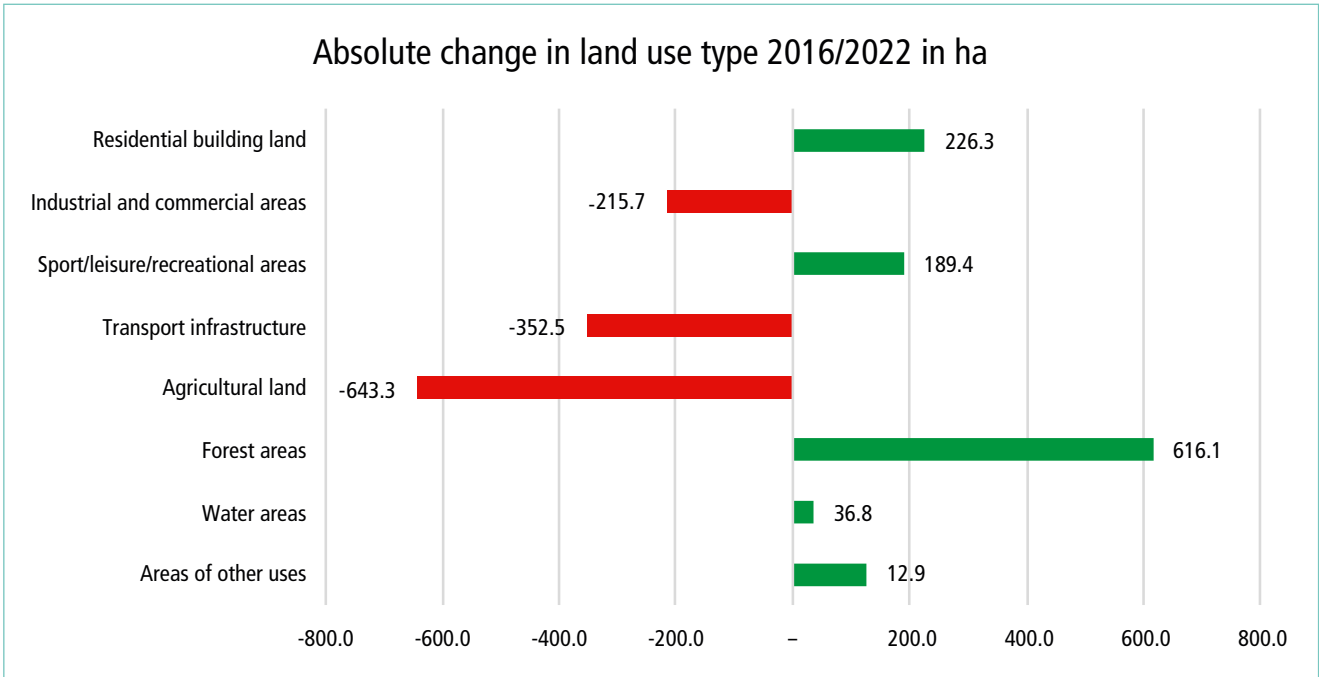


Figure 68: Absolute change in land use type <sup>90</sup>

Land use in the Duisburg urban area is very varied. In 2022, the urban area comprised a total of 23,344 hectares – this corresponds to the size of over 32,000 football pitches. The largest share of the total area of Duisburg is occupied by industrial and commercial areas, amounting to 4,833 hectares (21%). The Duisburg inland port comprises about 1,550 hectares or almost a third of industrial and commercial areas. Since 2016 the share of industrial and commercial areas has fallen by 215.7 hectares (-4,27%). There are a total of 3,877 hectares of residential area available for the more than 500,000 residents of Duisburg. With a share of 17%, this use type is the second largest in Duisburg. Because the population in Duisburg has grown since 2016, the residential area has also increased by 226.3 hectares (+6.2%). In 2022 agricultural land in the City of Duisburg comprised 3,766 hectares (16%). Compared to 2016, this represents a decline of 643.3 hectares (-14.59%) and is thus the sharpest decreasing land use type.



<sup>90</sup> Source: City of Duisburg, status: 03.2023

Duisburg is located on a transport interchange. Important motorways such as the A3, A40 and A42 run through the city. This means that transport areas accounted for 3,305 hectares (14%) of the city's area. Compared to 2016, in 2022 this land use type had decreased by 352.5 hectares (-9.64%). Since 2016, the city of Duisburg has created forest areas in the interests of the sustainability and local recreation of citizens. Over the period 2016 to 2022, the area of forests has increased by 616.1 hectares (+29.82%) to 2,682 hectares.

This is the largest increase in area of all use types during this period. The sport /leisure/recreational areas have increased by 2,113 hectares (9%). Here, an increase of 189.4 hectares (+9.84%) has also been recorded since 2016. Situated on the rivers Rhine and Ruhr, in 2022 there were 1,903 hectares (8%) of water area in the Duisburg urban area. This includes the Six Lakes District in the south of Duisburg (150 hectares), the inland port (89 hectares) and the 37.5 km-long course of the River Rhine.

## 6.2 Future and existing commercial and industrial locations

### Wedau Technology Park

By linking urban development, science and business in the form of the technology Park and technology Centre on the site of the former repair plant in Duisburg-Wedau, a new living space will be created which will radiate into the region: smart, sustainable, resilient. In future the approximately 30 hectare Technology Park will become one of the leading incubators and innovation spaces in Germany, in which new paths will be forged in structural, social, technological, scientific and economic terms. Parts of the University of Duisburg-Essen research institutions and technology-oriented companies will move into the Technology Park.

The Technology Centre thus forms the bridge to the Technology Park and will be its motor. The Technology Centre is the temporary technology forge for new start-ups as well as for tomorrow's world of work in Duisburg and the entire region. Promising changes will have an impact here through new products and processes, modern services and good work. In doing so, the Technology Centre functions as a supporter and driver of new ideas and provides support through consultancy and its spatial offers.





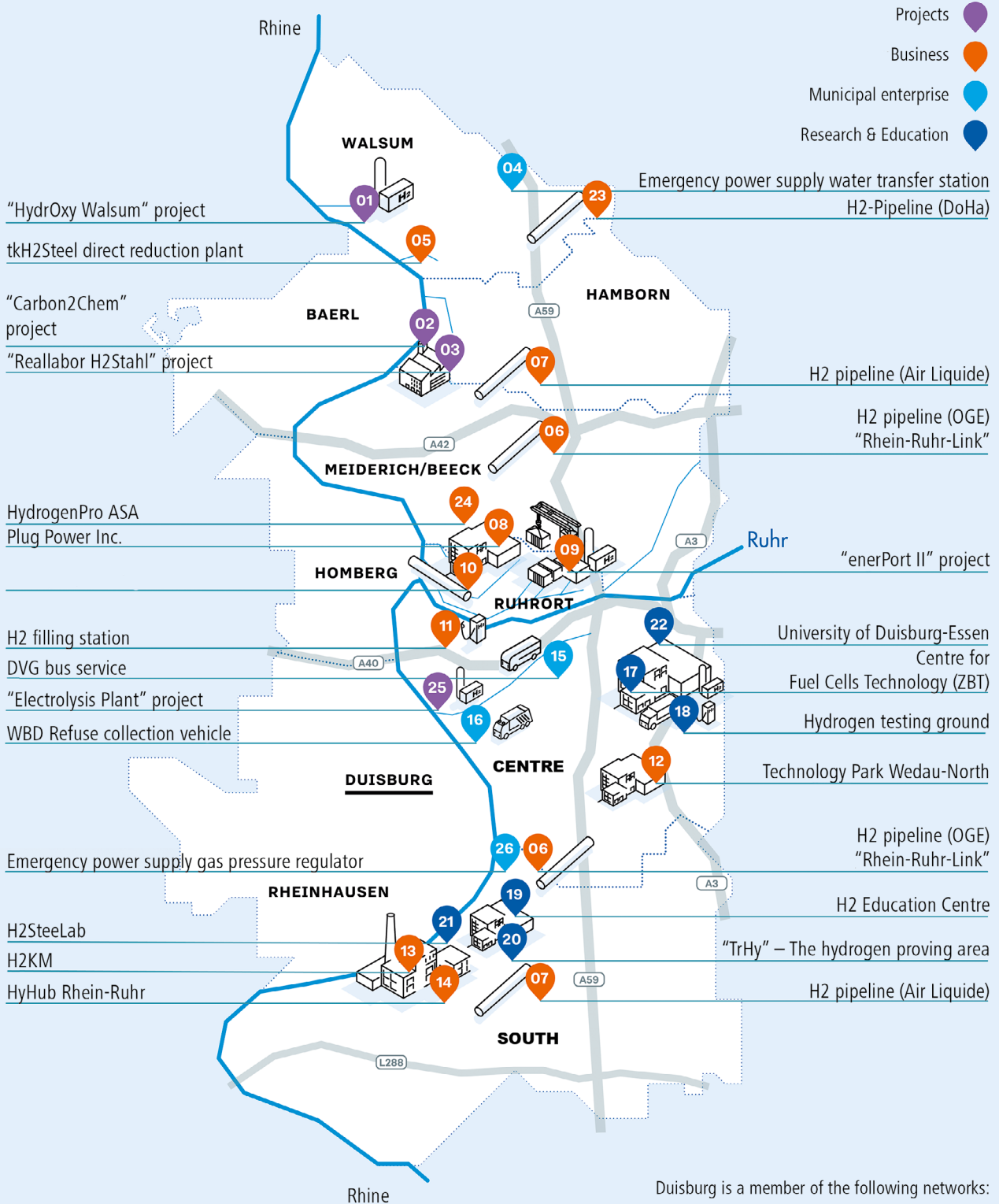
The subsequent technology technological areas of the Technology Centre will be oriented towards the strengths of Duisburg as a business location, in order to enable a knowledge transfer from science to the Duisburg economy. Entrepreneurs and start-ups particularly from the fields of smart engineering and green Industry will therefore be supported and located in the Technology Centre to help drive forward the digital and carbon-neutral transformation of Duisburg's economy. To that end, in 2023 the City Council decided to found a project company: Technologiezentrum Wedau mbH. Other shareholders of the project company are the University of Duisburg-Essen, the Duisburg Business & Innovation GmbH (DBI) and the construction company, GEBAG Duisburger Baugesellschaft mbH.

The project company will define the products and services of the subsequent Technology Centre and is establishing the initial networking contacts. Following the successful move of the University of Duisburg-Essen and the founding of the Technology Centre, an innovative and future-oriented Technology Park is being created. The visual centrepiece of the Park will be the Technology Centre, which will be simultaneously connected by a cable car to the Six Lakes in the south and in the north to the SchauinsLand-Reisen-Arena (football stadium), the Duisburg Dunes, as well as Duisburg Central Station and the city centre.

### Hydrogen projects in Duisburg

The first hydrogen projects in Duisburg to target the hydrogen transition have already been implemented in concrete terms, others are in the planning stage. An overview of the hydrogen projects in Duisburg are listed in the outline map "Hydrogen Activities in Duisburg" (see Figure 71). The individual activities are colour coded into four categories – Projects, Business, Municipal Enterprise, Research and Education. The latest version of the outline map can be downloaded from the City of Duisburg website.

# HYDROGEN ACTIVITIES DUISBURG



Status: 26.02.24

Duisburg is a member of the following networks:



Figure 69: Hydrogen activities in Duisburg <sup>91</sup>

91 Source: City of Duisburg, 02.2024

### Individual hydrogen activities are described in more detail below:

With the ground-breaking council decision (11/2022), the Duisburger Verkehrsgesellschaft AG (DVG) has decided to purchase 100 hydrogen-powered fuel cell buses. Currently 25 of these buses are in the procurement process, the first of which are to be delivered at the end of 2024. The DVG plans to successively continue this procurement until the end of 2030. At the same time, a hydrogen infrastructure is being built up at the DVG company depot, in order to be able to refuel the FC buses.

Furthermore, six hydrogen-powered refuse collection vehicles are coming into service at Duisburg Business Enterprises (WBD). Six buses are already in operation and one bus has yet to be delivered.

With the project "HydrOxy Walsum", iqony GmbH, formerly STEAG GmbH, is planning to construct a plant to generate green hydrogen of up to 520 MW at the traditional power plant location Duisburg-Walsum, as well as a supplementary large-scale battery system for better market and grid integration of green electricity. The hydrogen generated will be offered on the market and will enable thyssenkrupp Steel Europe AG (tkSE) and other customers from industry and the mobility sector to decarbonise their processes.

In the project "tkH2Steel", thyssenkrupp Steel Europe AG is planning the start-up of the first direct reduction plant (DR) with two downstream smelters in the iron sector. A contract to build the DR plant was awarded to the SMS-Group at the end of February 2023. The project is receiving around €2 billion funding from the state and federal government. The Düsseldorf District government has granted advance planning permission for the plant. A final approval is expected in 2024. Start of production is scheduled for the end of 2026.

At the same time, the Open Grid Europe (OGE) is working with Thyssengas in the plans to press ahead with the "DoHa" hydrogen pipeline (between Dorsten and Duisburg-Hamborn). The pipeline is intended to transport green hydrogen initially from Lingen –and subsequently from the German seaports – to the tkSE steel works, but also beyond. The planning approval process is expected to be completed by the end of 2025. The construction of the pipeline is planned for 2026. When it comes on stream at the end of 2026, it will make a crucial contribution not only to the hydrogen supply of the tkSE steel site, but also to the region, and will further strengthen Duisburg's position as the capital of hydrogen. The project is also part of the H2 core grid, which is currently still in the modelling phase.

Another pioneering project is "enerPort H" in the Port of Duisburg. This will not only be the largest container terminal in the European hinterland, but also the first fully carbon-neutral terminal, supplied by means of hydrogen, photovoltaics and battery storage. It should also be possible to supply the surrounding neighbourhoods with sustainable energy. Completion is already scheduled for the middle of 2024. Furthermore, with its Centre for Fuel Cell Technology (ZBT), Duisburg has a renowned application-oriented research institute in the field of hydrogen and fuel cell research. As one of the world's leading R&D centres, ZBT plays an important role in the promotion and development of hydrogen technologies.

Another step on the path to hydrogen innovation is the project: "TrHy-The hydrogen proving area". As one of four hydrogen innovation centres in Germany, this project is devoted to developing norms and standards for hydrogen solutions in the mobility sector, particularly in the heavy-duty segment. As an independent testing centre for hydrogen, it is supported by eight further satellites.

The construction of an H2 Education Centre is being planned with strong regional partners. This centre is being developed as part of the 5-Locations programme and is expected to make an important contribution to professional development in the field and first and foremost, train employees in the companies that are still generating electricity from coal in the new technology.

### 6.3 Property market

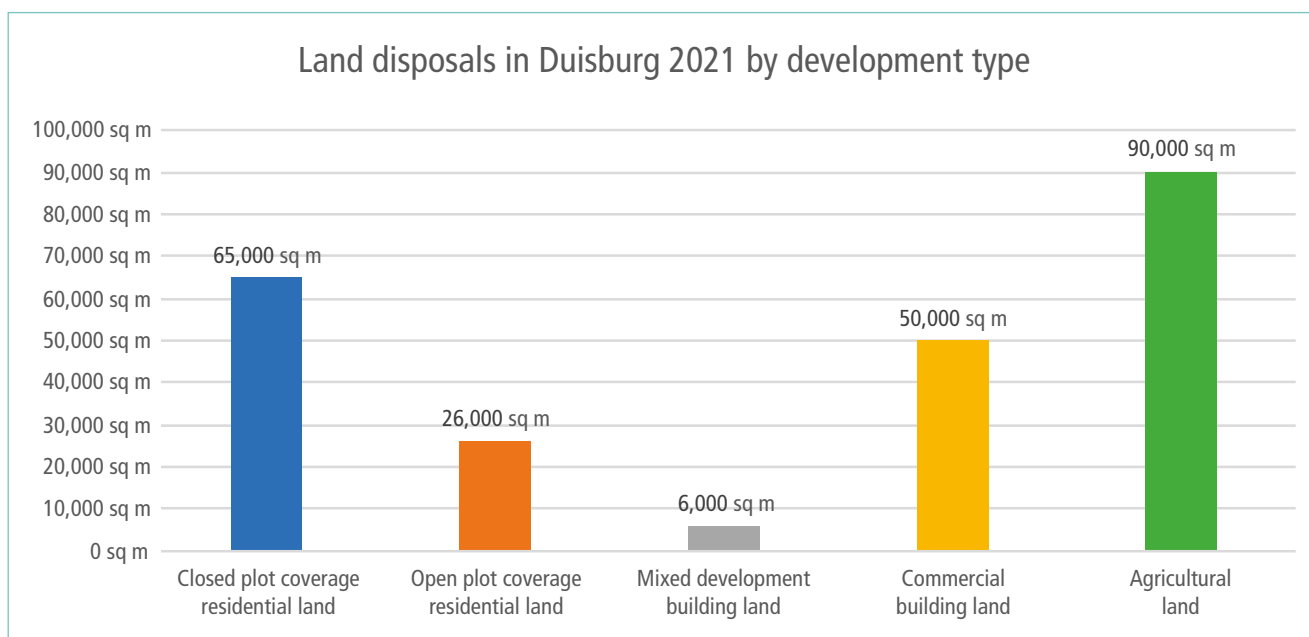


Figure 70: Land disposals by development type <sup>92</sup>

In 2021, land with a total area of around 237,00 square metres was sold in Duisburg. Agricultural land accounted for the largest share of this at around 90,000 square metres (38 %). Over a quarter (27%) of the plots were residential building land with closed plot coverage.

These include, for example, perimeter block developments without lateral clearance to other buildings. About 50,000 square metres (21%) of the commercial building land in Duisburg was sold in 2021. About 26,000 square metres (11%) of the land disposals were residential land with open plot coverage, i.e. development with lateral boundary clearance.

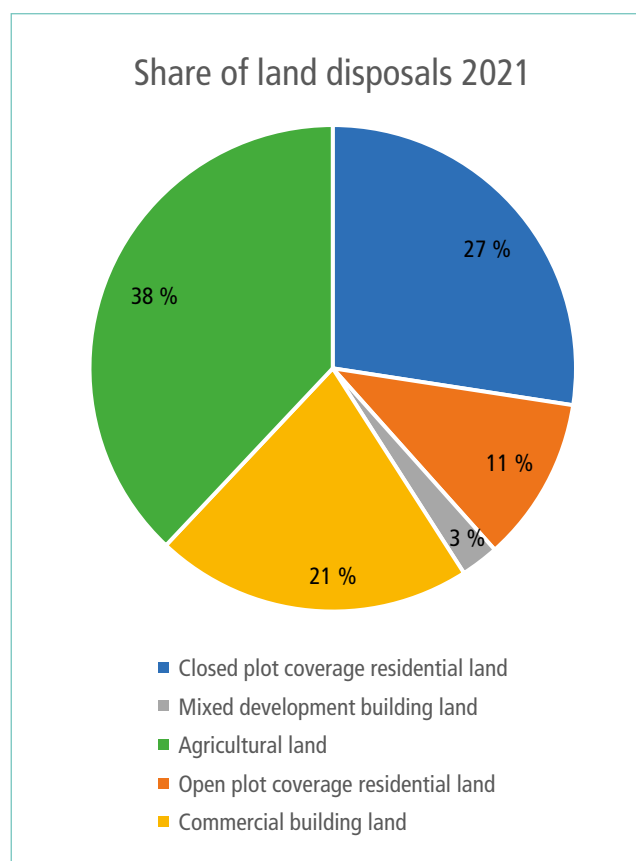


Figure 71: Percentage distribution of land disposals by development type <sup>93</sup>

92 Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 03.2023

93 Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 03.2023

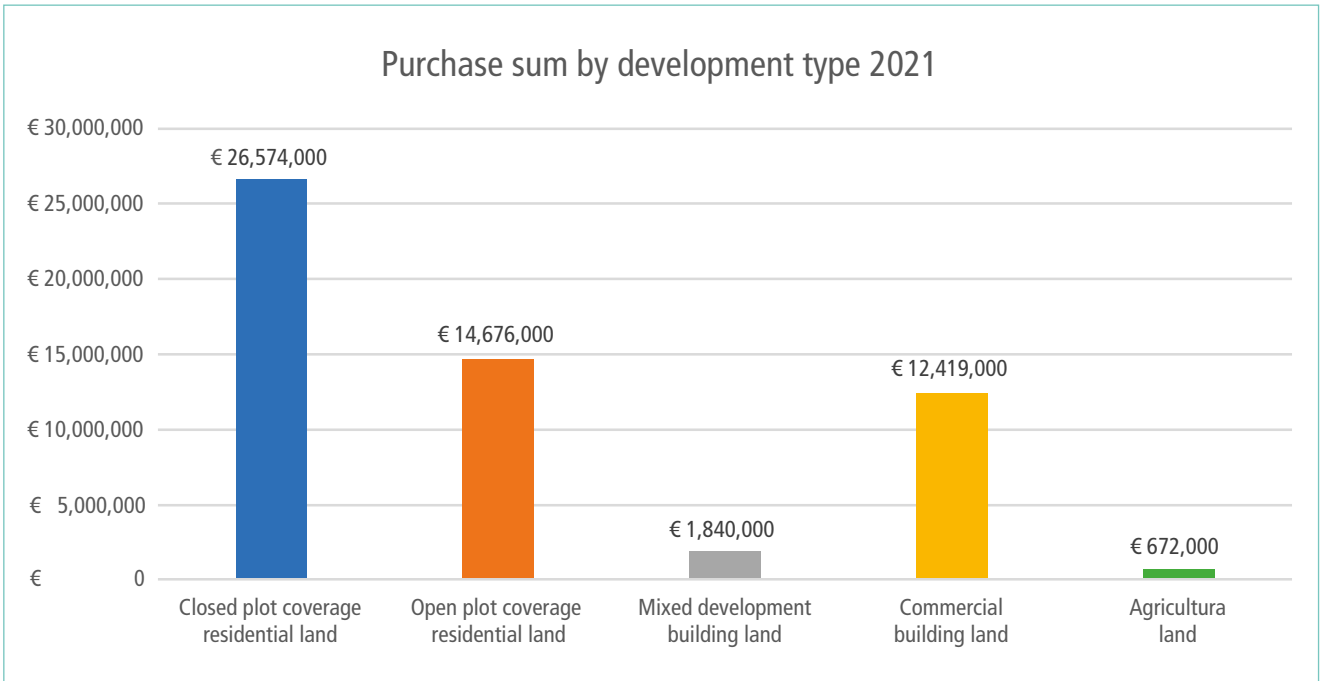


Figure 72: Purchase sum by development type <sup>94</sup>

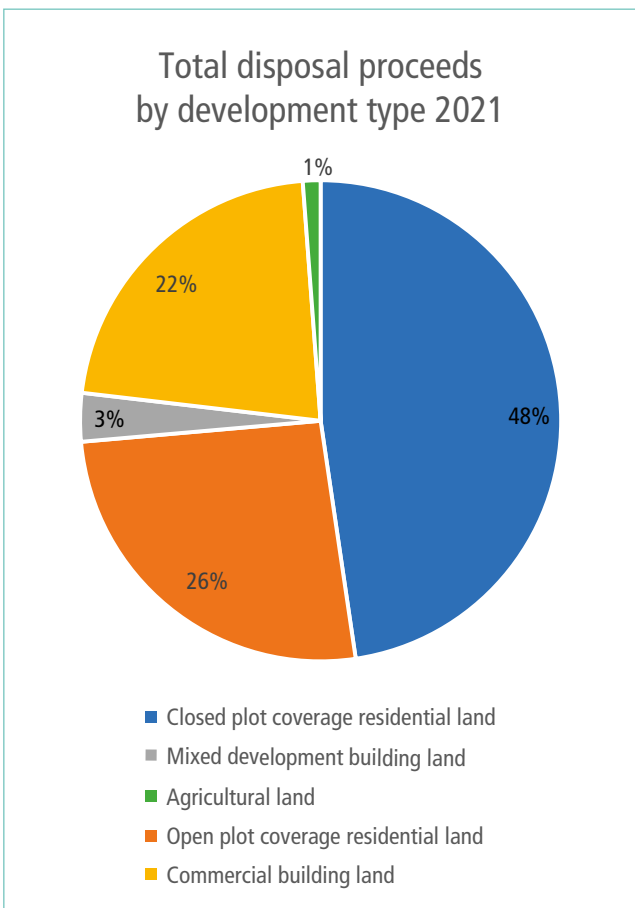


Figure 73: Percentage distribution of purchase sums by development type <sup>95</sup>

Land disposals in Duisburg in 2021 had a total value of about €56,181,000.

Almost half (48%) of these were residential plots in closed coverage, which realised a total purchase price of around €26,574,000. Residential plots with open plot coverage realised about €14,676,000 or 26%. A total of €12,419,00 (22%) was realised for commercial building land. Although agricultural land accounted for the largest share of land disposals in 2021, with a total purchase price of about €672,000 they only realised 1% of the total disposal proceeds

94 Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 03.2023

95 Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 03.2023



## Durchschnittliche Quadratmeterpreise nach Bebauungsart Duisburg und NRW 2021

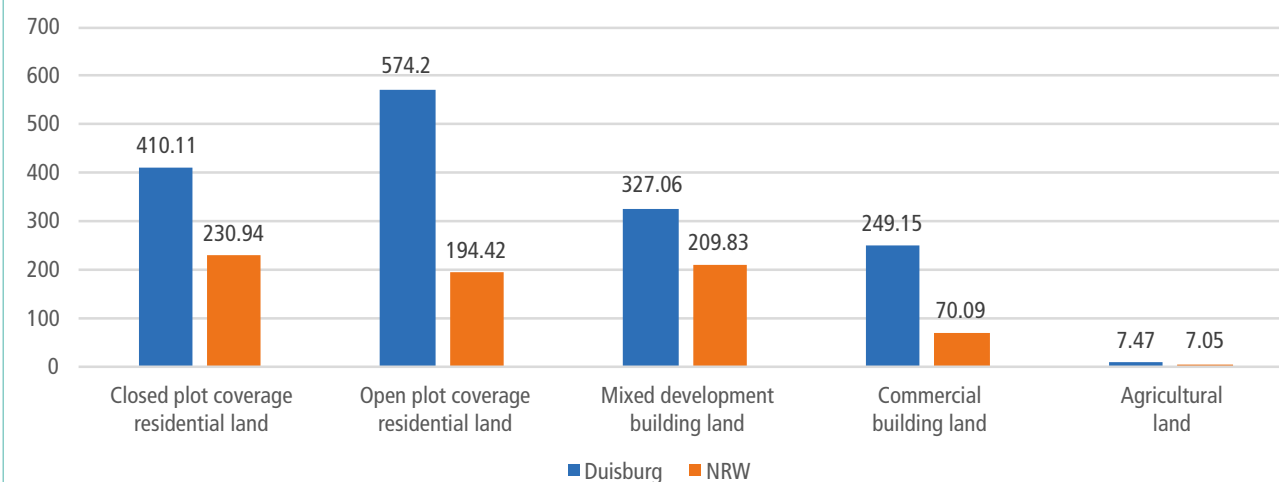


Figure 74: Average square metre prices by development type Duisburg und NRW <sup>96</sup>

The average square metre prices in Duisburg were above the NRW average for all development types under consideration. The most expensive development type in Duisburg were residential plots with open plot coverage. The average purchase price for these was €574.20 per square metre. The average price in NRW was €194.42. Residential building land in Duisburg with open plot coverage cost on average €410.11 per square metre. In NRW this development type was the most expensive at €230.94 per square metre. The average square metre price for commercial building land in Duisburg was €249.15, while in NRW it was €70.09.



<sup>96</sup> Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 03.2023

## 7. Transport infrastructure

Transport infrastructure is one of the most important location prerequisites for a successful economy. Due to its maritime and continental transport infrastructure, Duisburg ranks as a trimodal logistics hub for national and international freight traffic. It is not only the road and railway network that is critical here, but also particularly the Duisburg inland port.

Apart from the economic aspects, climate protection and sustainability are at the forefront. The Port of Duisburg already transships large quantities of goods from road to rail and water, thus making an important contribution to sustainable structural change. This enables Duisburg to also assert itself as a business location in the field of climate protection and sustainability.

### 7.1 Motorway network

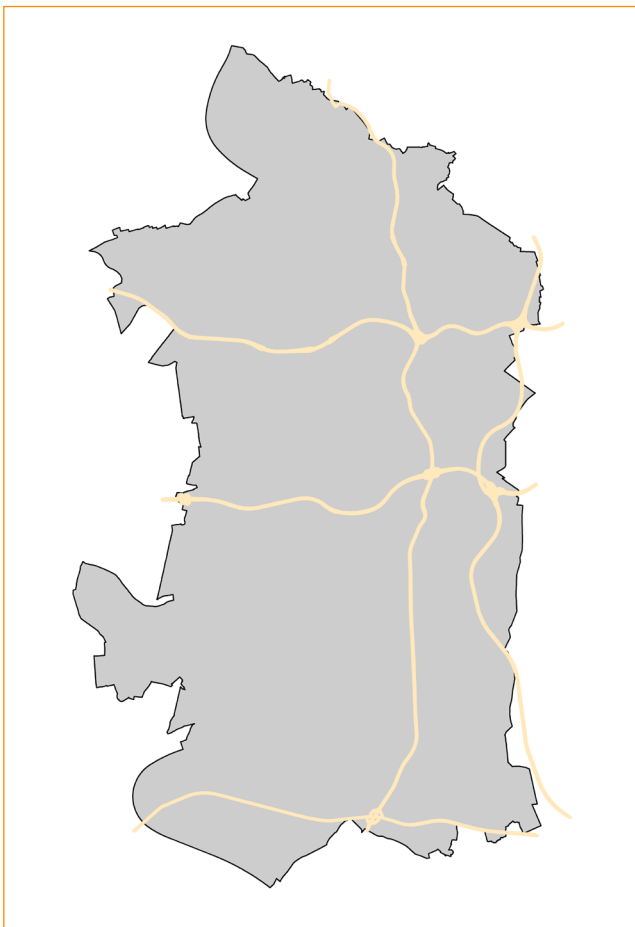


Figure 75: Motorway network <sup>97</sup>

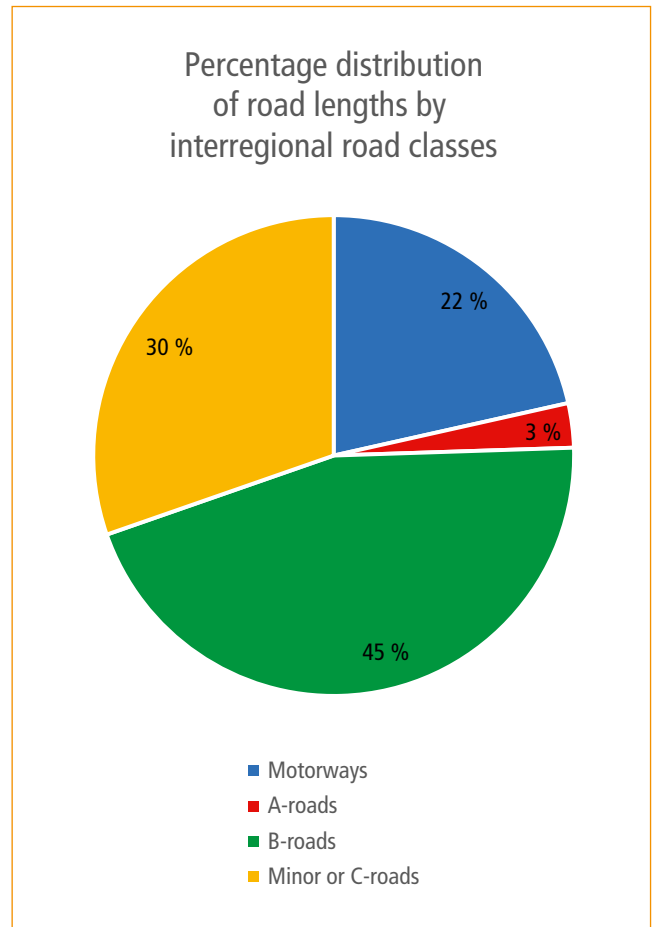


Figure 76: Percentage distribution of road length <sup>98</sup>

An important component of the Duisburg transport infrastructure are the five motorways a total length of 62.5 kilometres that run through the Duisburg urban area.

Crossing the city from east to west are the A42, A40 and A524 motorways. The A41, also known as the Emscher expressway, is the most northerly of the motorways and connects Duisburg with the cities of Kamp-Lintfort, Essen and Dortmund, among others. The A40 is one of the busiest roads in the Ruhr region. It runs through the Ruhr cities of Essen, Bochum and Dortmund and is also an important link to the Dutch border. The A524 is located right in the very south of the city. It goes from the Duisburg district of Huckingen to the Breitscheid motorway junction, where it connects with the A3 and A52.

<sup>97</sup> Source: City of Duisburg, status: 05.2023

<sup>98</sup> Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 03.2023



Duisburg's two north–south connections are the A59 and the A3. In the north, the A59 starts in the Walsum district and ends at the Duisburg South motorway intersection. From there, there is a direct connection to the neighbouring Düsseldorf metropolis via the B9 (A-road). From the Dutch border in the west, the A3 connects Duisburg with many other regions of Germany such as Cologne, the Rhine-Main region, Franconia and Eastern Bavaria.

Almost a half (45%) of the interregional roads in the Duisburg urban area are A-roads. They run through the city with a total length of 131.4 kilometres. The minor or C-roads, have a total length of 88.2 kilometres (30%). The motorway sections in the Duisburg urban area have a length of 62.5 kilometres and make up 22% of the interregional road length. With a length of 7.2 kilometres, A-roads only have a 3% share of the Duisburg interregional road network. In addition, the municipal road network in Duisburg comprises 1,250 kilometres of municipal roads.

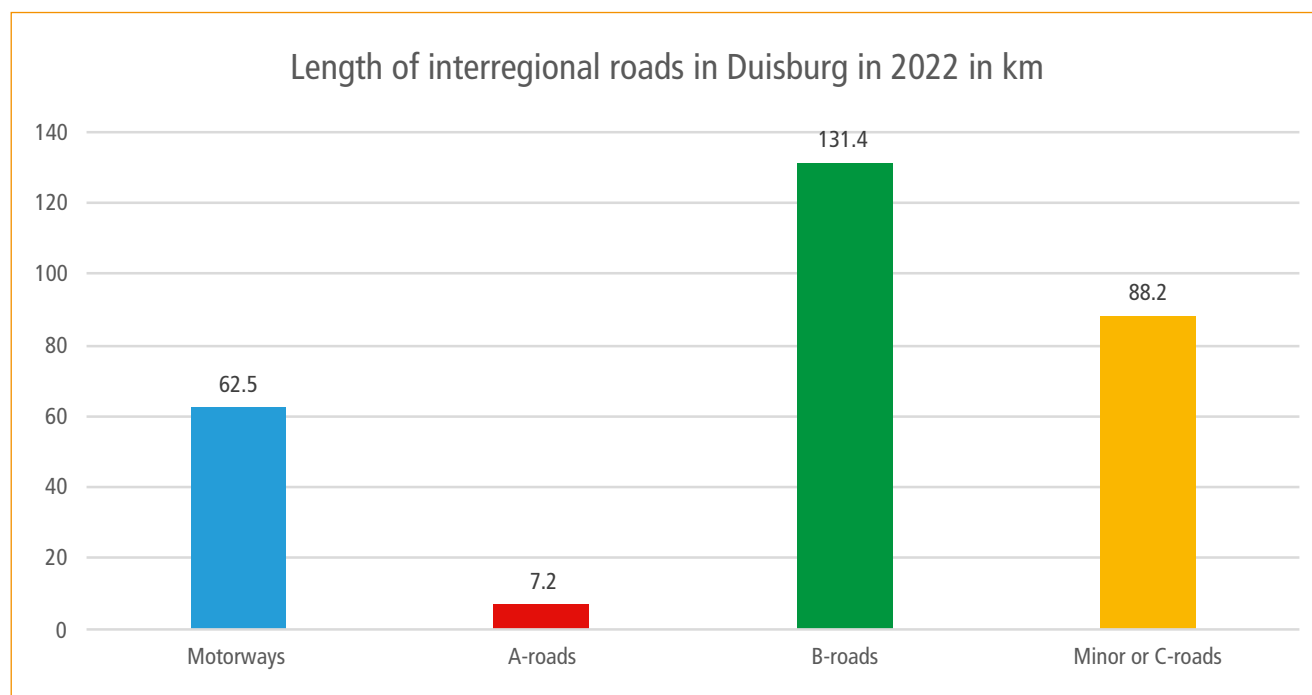


Figure 77: Length of interregional roads in Duisburg <sup>99</sup>

<sup>99</sup> Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 03.2023

## 7.2 Railway network

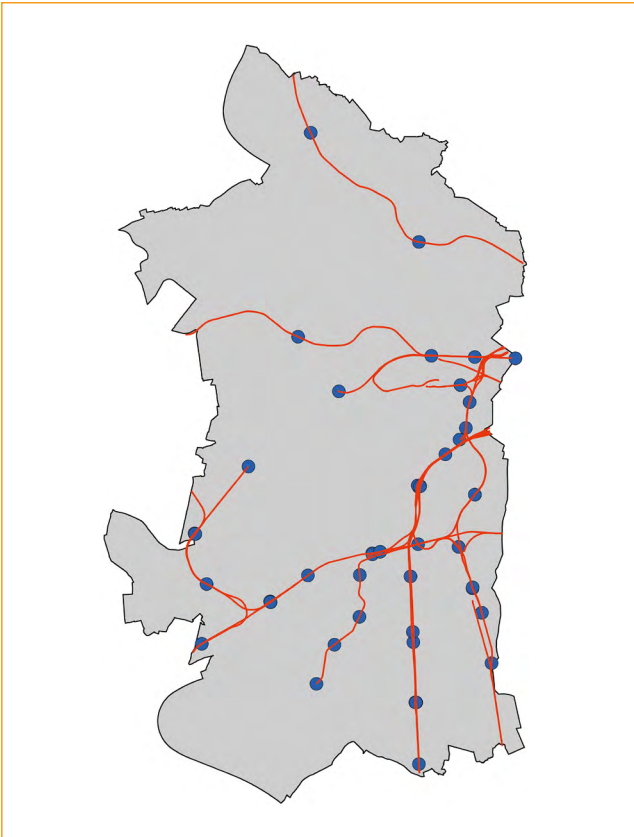


Figure 78: Railway network <sup>100</sup>

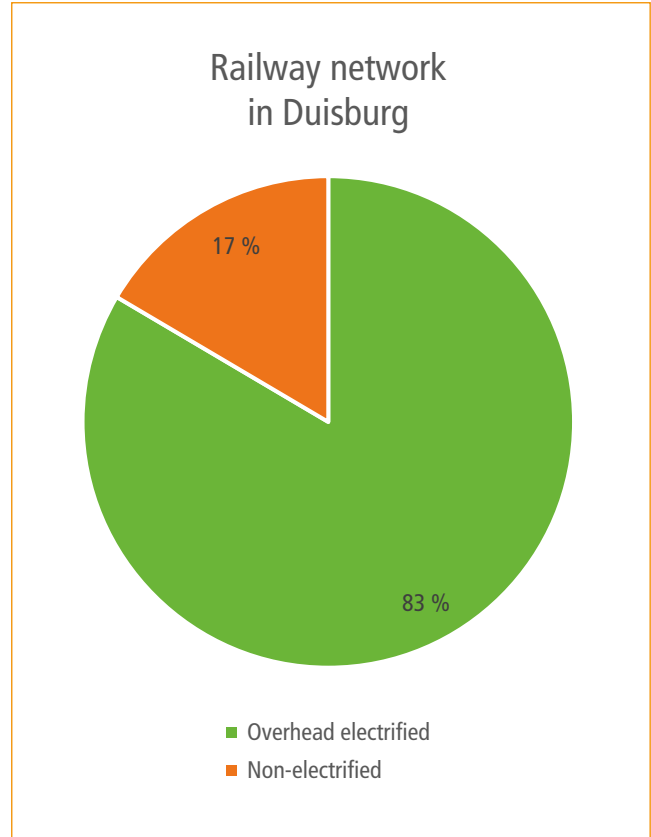


Figure 79: Electrification of the railway network <sup>101</sup>

The railway network in Duisburg has a total length of 211.7 kilometres and thus is of significant importance to the Duisburg economy.

In the very north of the city a line runs through the urban districts of Walsum, Aldenrade, Röttgersbach and Neu-mühl. The node of Duisburg’s railway network is the main station in the city centre. From there, two main lines lead south in the direction of Düsseldorf. The north-east is also connected to the southern urban district of Hüttenheim via rail. There is an east-west connection between Oberhausen and Moers running parallel with the A42. A line runs over the Hochfeld railway bridge to Rheinhausen and Friemersheim, which then provides a direct connection to the neighbouring city of Krefeld.

The approximate 40 operational centres in the Duisburg urban area are marked in blue in Figure 80. These include passenger stations, freight and service depots. Most of these are located along the eastern and southern sections of lines.

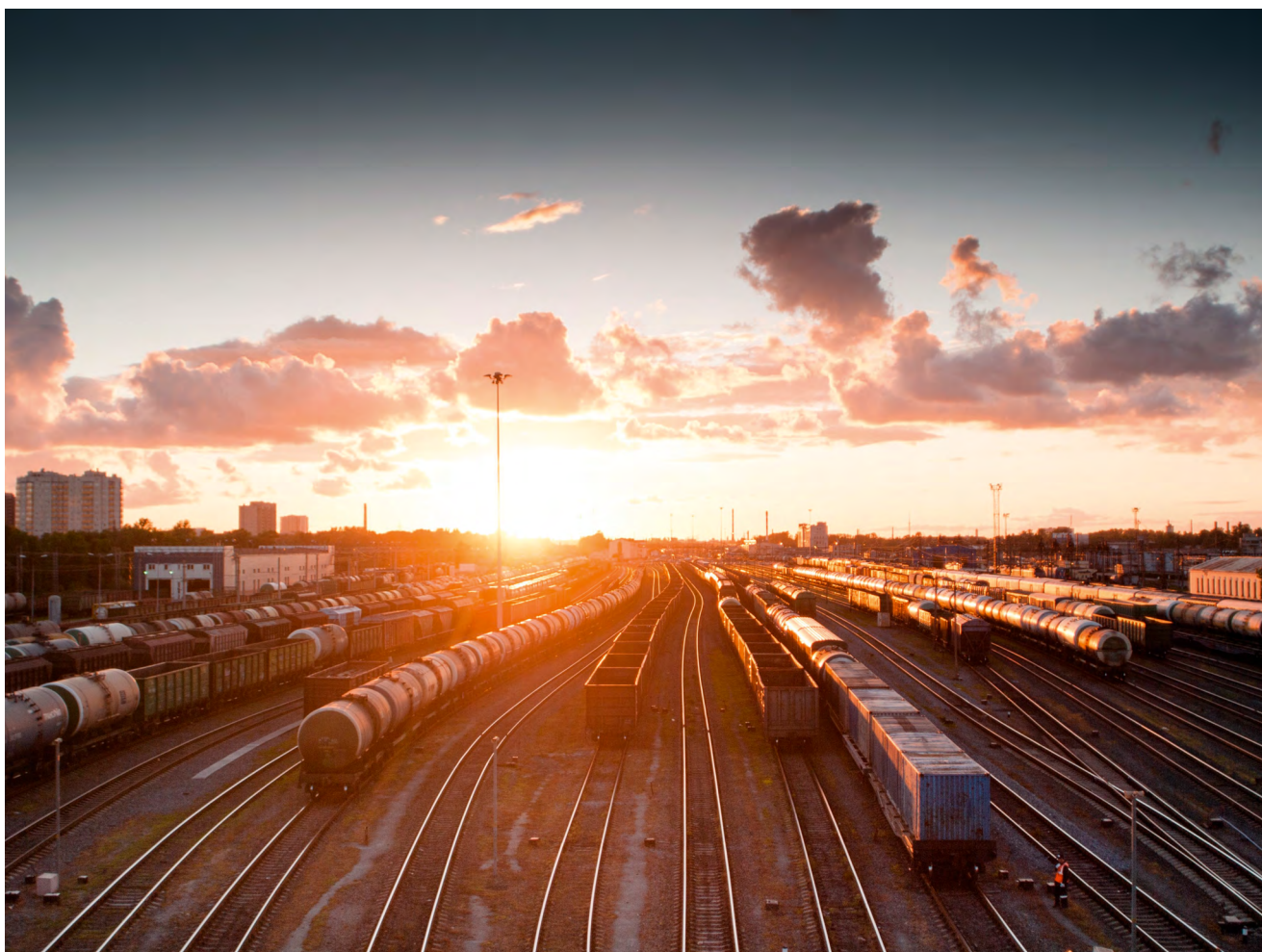
Duisburg Central Station has direct connections to many German and European cities. In terms of local services, destinations that can be reached without changing include: Cologne, Koblenz, Münster, Osnabrück, Aachen, Dortmund, Bochum, Essen and Arnheim in the Netherlands. Intercity trains run from Duisburg to Berlin, Hamburg, Basel, Frankfurt, Amsterdam, Munich and Vienna, among others.

In the Duisburg city area 83% of the railway network is electrified by overhead lines. This contributes to the sustainability of railway traffic. The remaining 17% of the network is not electrified.

Since 2009, Duisburg Central Station has been modernised in stages and made more attractive. The renovation of the arrival hall had already been completed in 2011. The renovation of the station platform hall began in August 2022, which will include a new roof and platforms. Completion is scheduled for 2028.

<sup>100</sup> Source: City of Duisburg, status: 05.2023

<sup>101</sup> Source: City of Duisburg, status: 05.2023



### 7.3 Inland port

Situated on the rivers Rhine and Ruhr with an area of around 1,550 hectares, the Port of Duisburg is the world's largest inland port. It was founded over 300 years ago in 1716, in what is now the district of Ruhrort. Since then, the port has been continuously expanded and developed. Today, the Port of Duisburg has a harbour length of 40 kilometres and 21 dock basins. Each year, the site handles 25,000 trains and 20,000 ships with a total transshipment volume of 104.9 million tonnes. Goods from Duisburg are not only transported to the European hinterland, but with up to 60 trains per week, also to various Chinese destinations. The Port of Duisburg thus makes a significant contribution to the economic strength of Duisburg's location. Over 50,000 people are directly or indirectly employed in about 300 transport and logistics companies dependent on the port.<sup>102</sup>

As Europe's leading logistics hub, the inland port plays a pioneering role in the field of sustainable logistics. In the Port of Duisburg, Europe's first carbon-neutral hinterland terminal is currently being developed over an area of 235,000 square metres. When completed, the terminal will be operated entirely with hydrogen and also supply the neighbouring districts with energy.<sup>103</sup>

<sup>102</sup> Source: duisport: <https://www.duisport.de/hafeninformation/>, status : 09.2023

<sup>103</sup> Source: duisport: <https://www.duisport.de/energiewende-im-duisburger-hafen-entsteht-das-erste-klimaneutrale-containerterminal-europas-auf-basis-von-wasserstofftechnologie/>, status: 09.2023#

## 7.4 Waterways

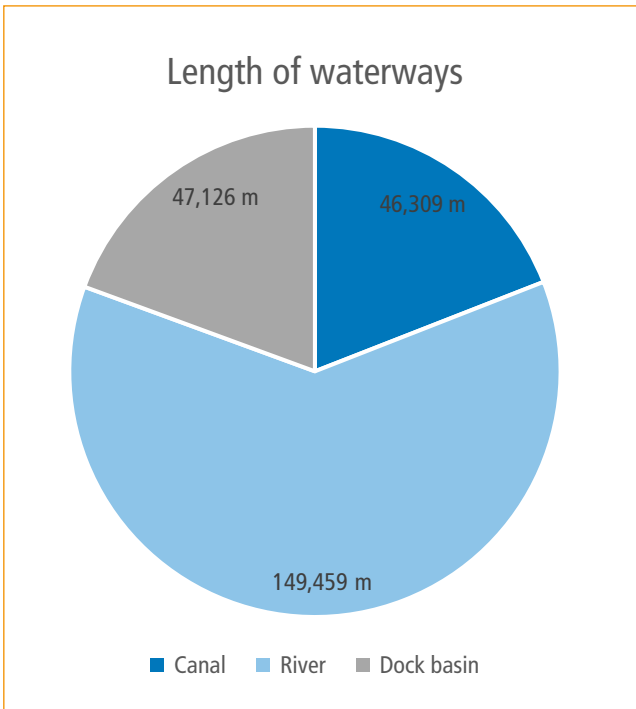


Figure 80: Length of waterways <sup>104</sup>

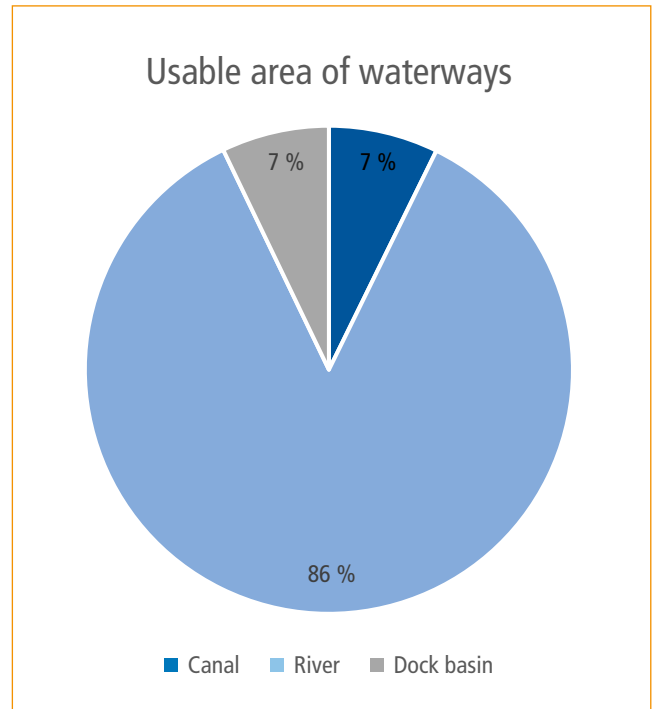


Figure 81: Usable area of waterways <sup>105</sup>



Figure 82: Waterways in Duisburg <sup>106</sup>

Obermeiderich and Duissern to Duisburg. From there it flows in a westerly direction, before finally entering the Rhine at Homberg, Ruhrort and Kaßlerfeld. The district of Ruhrort is also the location of the Port of Duisburg with its 21 dock basins.

The canals, the rivers Rhine and Ruhr, together with the dock basins make Duisburg a city abundant in waterways. The usable area of the bodies of water in Duisburg total 21.61 square kilometres. With a total length of 242.89 kilometres, the waterways provide important transport facilities and serve the citizens as recreational areas.

The canals and dock basins in the urban area, each comprise around 7% of the total usable area. Canals are artificial waterways created for the purpose of transporting goods. In Duisburg they have a length of 46.31 kilometres. The dock basins comprise a length on plan of 47.13 kilometres. The rivers Rhine and Ruhr represent largest share of usable water areas (86%), with a length on plan of 149.46 kilometres, whereby the course of the Rhine through Duisburg plays an overriding role. The start of the Rhine's course through Duisburg is in the south of the city, on the border with Düsseldorf, skirting the district of Mündelheim, and continuing northwards up to the border of Rheiberg and Dinslaken. The Ruhr flows from the east of the neighbouring city of Mülheim between the districts of

104 Source: City of Duisburg, status: 02.2023

105 Source: City of Duisburg, status: 02.2023

106 Source: City of Duisburg, status: 02.2023

## 7.5 Airport



Duisburg is not only well served by road and rail, but also by several international airports.

For example, Düsseldorf International is only 20 minutes' drive from Duisburg. Airport Weeze, Cologne Bonn Airport and Dortmund Airport are all less than one hour's drive of Duisburg. Its air transport links make Duisburg an attractive location for both private and business travel, as well as for the dispatch of goods.

## 7.6 Broadband expansion

As part of the Smart City Initiative, the City of Duisburg is aiming to supply the entire urban area with glass fibre by 2030, and is already very active in the broadband roll-out. This target is intended to be implemented both by the independent expansion by the network operators themselves, as well as by the subsidised roll-out in "digital deserts". "Digital deserts" are areas where there is currently no NGA (Next Generation Access) supply and also none planned in the next three years. For this reason, the City of Duisburg has applied to the federal and state funding organisations for grants for broadband expansion, which were approved in the amount of €16,201,242 in each case.

The planned implementation period for the subsidised broadband expansion is set to run until November 2024. The previous progress is demonstrated, among other things, by the market research data from 2020 and 2022.

Speed	Transmission	Percentage share 2020	Percentage share 2022	Percentage share 2025
Bandwidths <1000 Mbps	Copper	10,89%	10,00%	7,18%
Bandwidths between 100 and 250 Mbps	Copper	31,43%	25,25%	24,40%
Bandwidths <1000 Mbps <sup>107</sup>	Coaxial cable	50,89%	1,18%	1,18%
Gigabit-capable connections	Fibre and coaxial cable	1,89%	57,39%	61,07%
Address points		89.897	95.908	95.908

Table 5: Broadband expansion 2020-2025 <sup>108</sup>

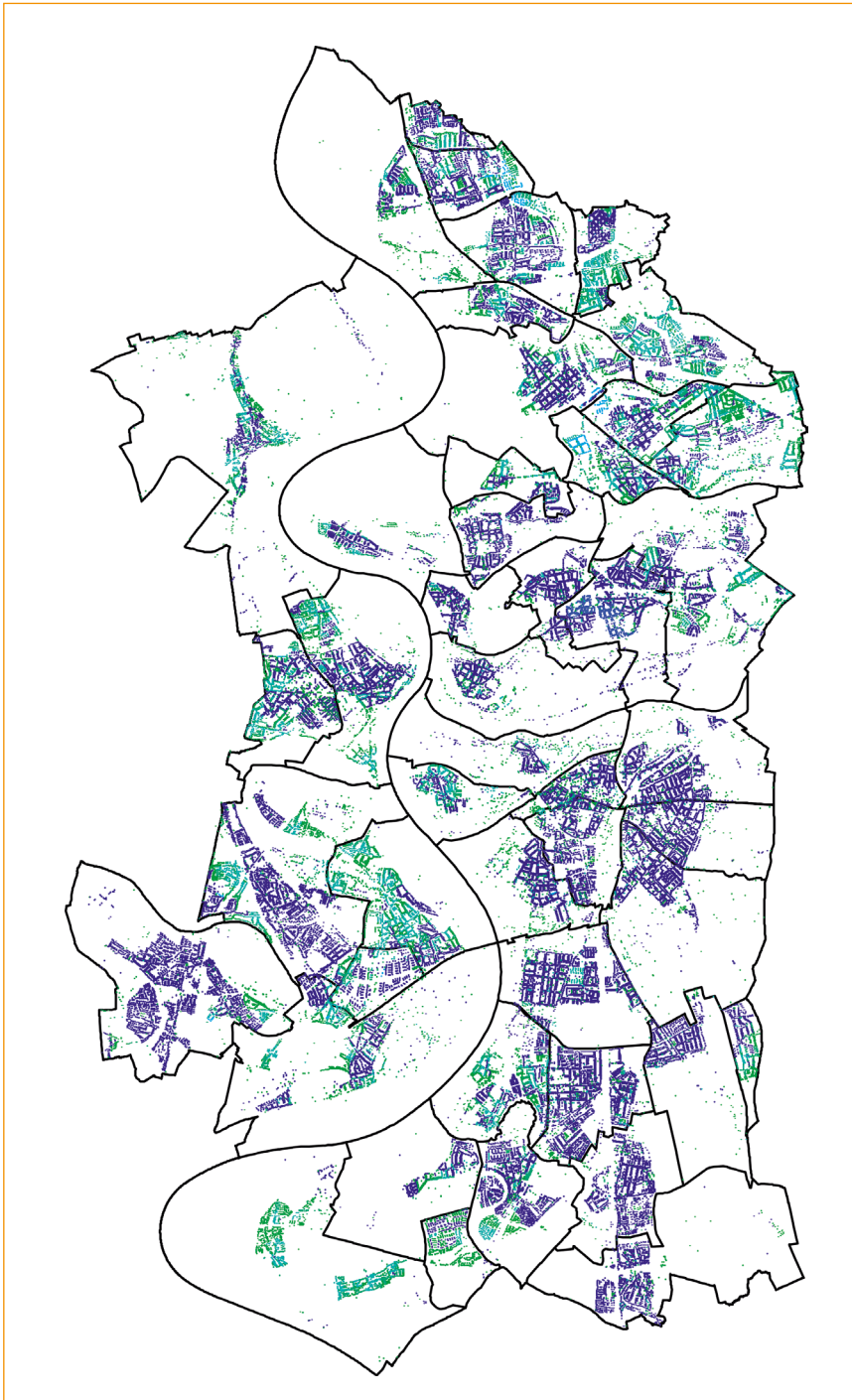
In 2020, around 11% of bandwidths could reach a transmission speed of <100 Mbps, about 31.5% a speed between 100 and 250 Mbps and about 51% reached speeds below 1,000 Mbps. Only 1.89% of cables were equipped with optical fibre. By 2022, the percentage of bandwidths below 1,000 Mbps had fallen by almost 50% to 1.18%. The percentage of bandwidths between 100 and 250 Mbps also declined by about 6%. In the last two

<sup>107</sup> Non-gigabit-capable connections

<sup>108</sup> Source: City of Duisburg, 2022

years these connections have been upgraded, so that the percentage of gigabit-capable connections in 2022 was 57.39% By 2025, the bandwidths with a speeds under 1,000 Mbps will be replaced and the proportion of gigabit-capable connections will increase to 61.07%.

In the next two years, four districts are to be expanded with fibre optic cables by the private sector, and further districts are in the planning stage.



The adjacent graphic illustrates broadband expansion to date in the Duisburg urban area. Apart from the previously mentioned “digital deserts”, where no adequate bandwidths are available, the rest of the urban area has already largely been supplied with cables which support transmission speeds from 600 to 1,000 Mbps (dark blue). The bandwidths with speeds <250 Mbps (green) and 251 – 399 Mbps (light blue) are mainly in the north-west and south of the city area. Die mit Bandbreiten von <250 Mbit/s (grün) und 251-399 Mbit/s (hellblau) versorgten Gebiete liegen vor allem im Nordwesten sowie im Süden.

**Bandwidths**

■	0
■	1 – 105
■	106 – 250
■	251 – 399
■	400 – 599
■	600 – 999
■	1000

Figure 83: Broadband supply <sup>109</sup>

109 Source: City of Duisburg, 2022



## 8. Location marketing: geography and location analysis

### 8.1 Membership of three regions (Lower Rhine, Ruhr, Rhineland)

Located in the west of North Rhine-Westphalia on the rivers Rhine and Ruhr, Duisburg simultaneously belongs to three regions: Rhineland, Lower Rhine and Ruhr. Each of these regions has its own special features and characteristics. With a total area of 232.79 km<sup>2</sup> and more than half a million inhabitants, Duisburg is an import member of them.

The largest and most populous of the three regions is the Rhineland metropolitan region, with a total area of 12,279.90 km<sup>2</sup> and a population of 8,711,712. The Ruhr is Germany's largest conurbation and one of the largest in Europe. A total of 5,094, 817 people live there along the River Ruhr in an area of 4,438.69 km<sup>2</sup>. The unitary City of Duisburg and the Districts of Wesel and Kleve a part of the Lower Rhine region. In the west, the region borders the Netherlands, with which Duisburg has cross-border links. In total, the Lower Rhine region has an area of 2,508.58 km<sup>2</sup> and is home to 1,270,261 residents.



Figure 84: Area (Lower Rhine, Rhineland, Ruhr) <sup>110</sup>

<sup>110</sup> Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 04.20223

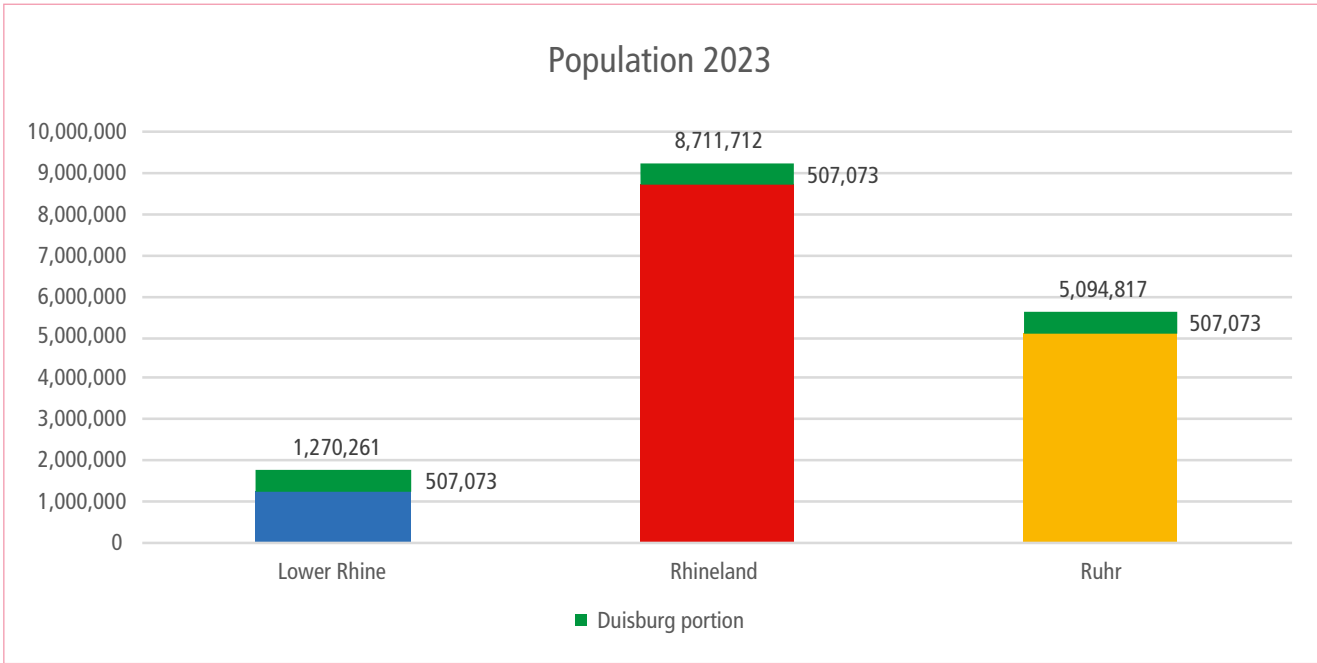


Figure 85: Population (Lower Rhine, Rhineland, Ruhr) <sup>111</sup>

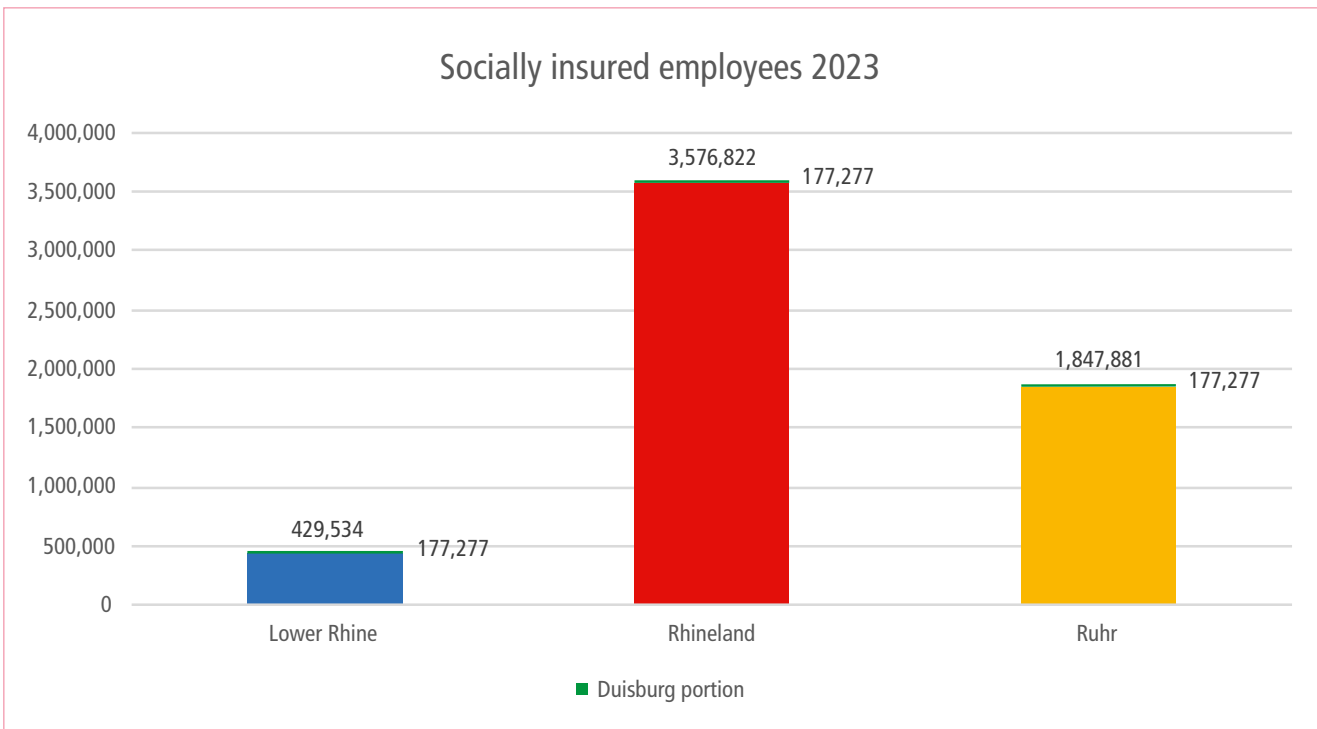


Figure 86: Socially insured employees (Lower Rhine, Rhineland, Ruhr) <sup>112</sup>

With over 3.5 million socially insured employees in June 2022, the Rhineland metropolitan region is an important economic location. The most important economic sectors in the region are the chemical industry, mechanical engineering and process and electrical engineering. In June 2022, there were over 1.8 million socially insured people employed in the Ruhr. The region is characterised, among others, by its highly qualified workforce, a high job density, close-knit transport network and a well-developed university landscape. In the past, the Ruhr was primarily characterised by the coal and steel industry. Today, in addition to energy generation, mechanical engineering and the chemical industry, it is particularly knowledge-intensive services and high-tech companies that form the identity of

<sup>111</sup> Source: NRW State Database© IT.NRW, Düsseldorf, 2023, status: 04.20223

<sup>112</sup> NRW State Database © IT.NRW, Düsseldorf, 2023, status: 04.2023; figures relate to 2022

the Ruhr. In June 2022, there were just under 430,000 socially insured people employed in the Lower Rhine region. The GDP per employee in 2022 was €34,769. The economy of this region is characterised by mechanical engineering, the chemical industry, energy and logistics, as well as agriculture.

## 8.2 Cross-border cooperation with the Netherlands – the Rhine-Waal Euroregion

The Rhine-Waal Euroregion is a public-law special-purpose association, to which around 55 municipalities and regional authorities, including the City of Duisburg, are affiliated. Its declared aim is the improvement and intensification of cross-border collaboration in business and society.

The area of operation has grown considerably over the years and today covers an area of 8,663 km<sup>2</sup>, in which around 4.2 million people live. On the German side, the area of operation comprises the cities of Duisburg and Düsseldorf and the Districts of Wesel and Kleve. On the Dutch side, the Euroregion includes the majority of the Province of Gelderland with parts of Arnhem-Nijmegen, West-Veluwe, South-West Gelderland, parts of North-East Brabant and the northern part of the Province of Limburg (Figure 89)



Figure 87: Area of the Rhine-Waal Euroregion <sup>113</sup>

<sup>113</sup> Source: Euregio Rhein-Waal, <https://www.euregio.org/page/20/arbeitsgebiet/>

### 8.3 Duisburg in the Rhineland metropolitan region

In networked regions, cities and rural areas are increasingly gaining in quality of life. The Rhineland is at the centre of this change. In the Rhineland Metropolitan Region Association brings together the common interests of actors from districts, unitary cities, chambers of industry, commerce and skilled trades, the urban region of Aachen and the Rhineland Landscape Association.<sup>114</sup>

The population in the Rhineland is approximately 8,712,000, while the economy is characterised by 3,576,000 socially insured employees and 530,000 companies. The university landscape in the Rhineland metropolitan region consists of 64 university locations and 10 centres of excellence and creates optimal conditions for the successful exchange of knowledge in various economic sectors.<sup>115</sup>

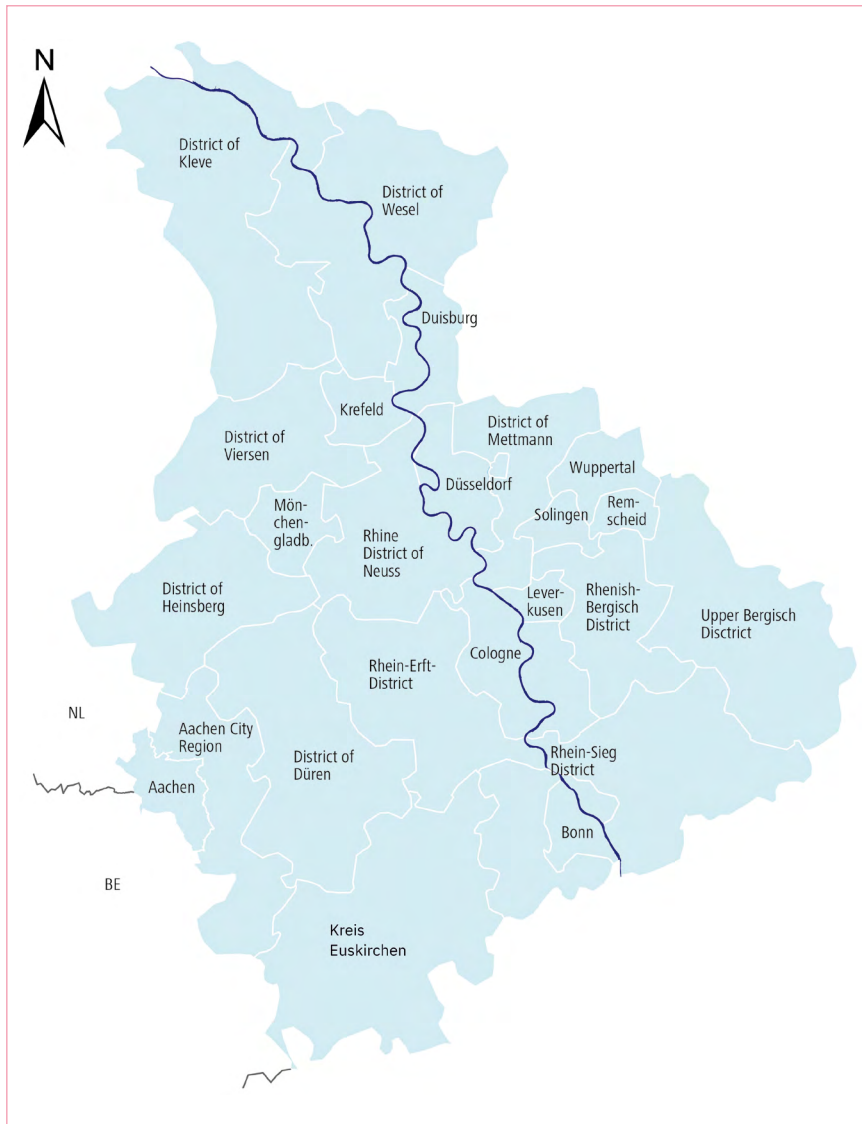


Figure 88: Map of the Rhineland metropolitan region <sup>117</sup>

The City of Duisburg in the network Metropolregion Rheinland e.V. (MRR) pursues structural policy lobbying with the aim of positioning its actors with needs and competences both nationally and at a European level and the ability to access public and private investment and funding. The municipalities are thus to be enabled to compete nationally and internationally, in order to master the challenges of the digital and climate-neutral transformation of the economy and society.

Inter-municipal cooperation focuses in particular on strategies in the following areas:

- Energy and transformation
- Traffic and infrastructure
- Profiling and identification

The aim is to identify requirements for action and challenges for networked, cooperative collaboration from “metatopics” and to make them usable for innovative urban development in Duisburg.<sup>116</sup>

114 Source <https://www.duisburg.de/MicrositesNrmhaft/projekte-thernen/Metropolregion-Rheinland.php>

115 Source: <https://rnetropolregion-rheinland.de/mission-statement/>

116 Source <https://www.duisburg.de/rnicrositesWirtschaft/projek-thernen/Metropolregion-Rheinland.php>

117 Source: Metropolregion-Rheinland, [htglmetropolregion-rheinland.de](http://metropolregion-rheinland.de), 2024

## 9. Tourism, leisure and culture

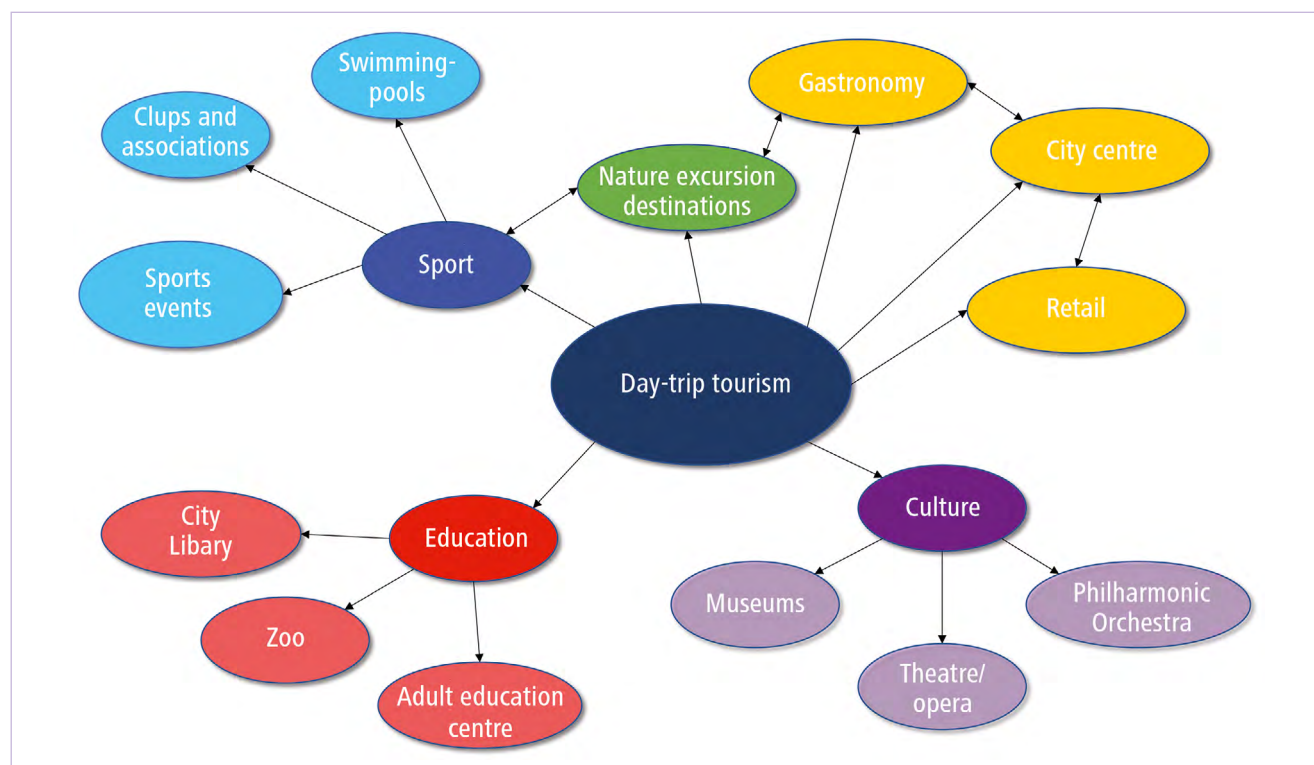


Figure 89: Tourism in Duisburg <sup>118</sup>

The City of Duisburg is an attractive travel destination, both for people from the region as well as international tourists. The city offers a wide range of cultural and leisure activities. One popular excursion destination is the Duisburg Zoo with its varied inventory of almost 5,000 animals of 369 different species (status: 12/2022).<sup>119</sup>

Many of these are species threatened with extinction, such as the fossa from Madagascar, Australian koalas and South American giant otter. With 700,000 visitors a year, the zoo has major economic importance for the entire city and also has a positive effect on other sectors. It increases demand for local goods and services which the zoo itself consumes. In addition, it increases secondary downstream demand from zoo visitors in other sectors.

Another important leisure and tourism location in Duisburg is the Duisburg Sports Park. In addition to an extensive forest and lake landscape, the 200-hectare site also includes the regatta course and the Schauinsland-Reisen Arena. All kinds of sports events take place in the Duisburg Sports Park. In 2023 it was the venue for the International Rowing Regatta, IRONMAN 70.3 Duisburg and the Muddy Angel Run. The Schauinsland-Reisen Arena is also the venue for the home games of MSV Duisburg and the Düsseldorf-based Rhein Fire American Football Club. In the 2022 season more than 9,000 football fans consistently attended the home games of MSV Duisburg men's team, while over 7,000 Rhein Fire fans regularly make the trip to the Schauinsland-Reisen Arena. Another highlight of the 2023 sporting year was the final of European League of (American) Football, which was held in Duisburg. This event had a supra-regional and even international resonance, from which the hospitality sector benefited.<sup>120</sup>

Duisburg city centre has one of the longest pedestrian zones in the Ruhr. It stretches from the Central Station to the Schwanentor Bridge near the Duisburg Town Hall. With a total retail space of over 650,000 square metres, visitors can stroll through small boutiques or the shops of well-known retailers. About 4,000 pedestrians per hour stroll through Duisburg's stores of well-known retail brands. About 4,000 pedestrians per hour frequent the Duisburg city

<sup>118</sup> Source: Branchenreport Tourismus Stadt Duisburg 2023, status: 09.2023

<sup>119</sup> Source: Zoo Duisburg: <https://zoo-duisburg.de/>, Stand: 09.2023; Branchenreport Tourismus Stadt Duisburg 2023, status: 09.2023

<sup>120</sup> The Duisburg 2023 Tourism Industry Report sheds light on the economic power of the tourism industry and shows the quality of life in the Duisburg urban area. It can be downloaded from the following link:

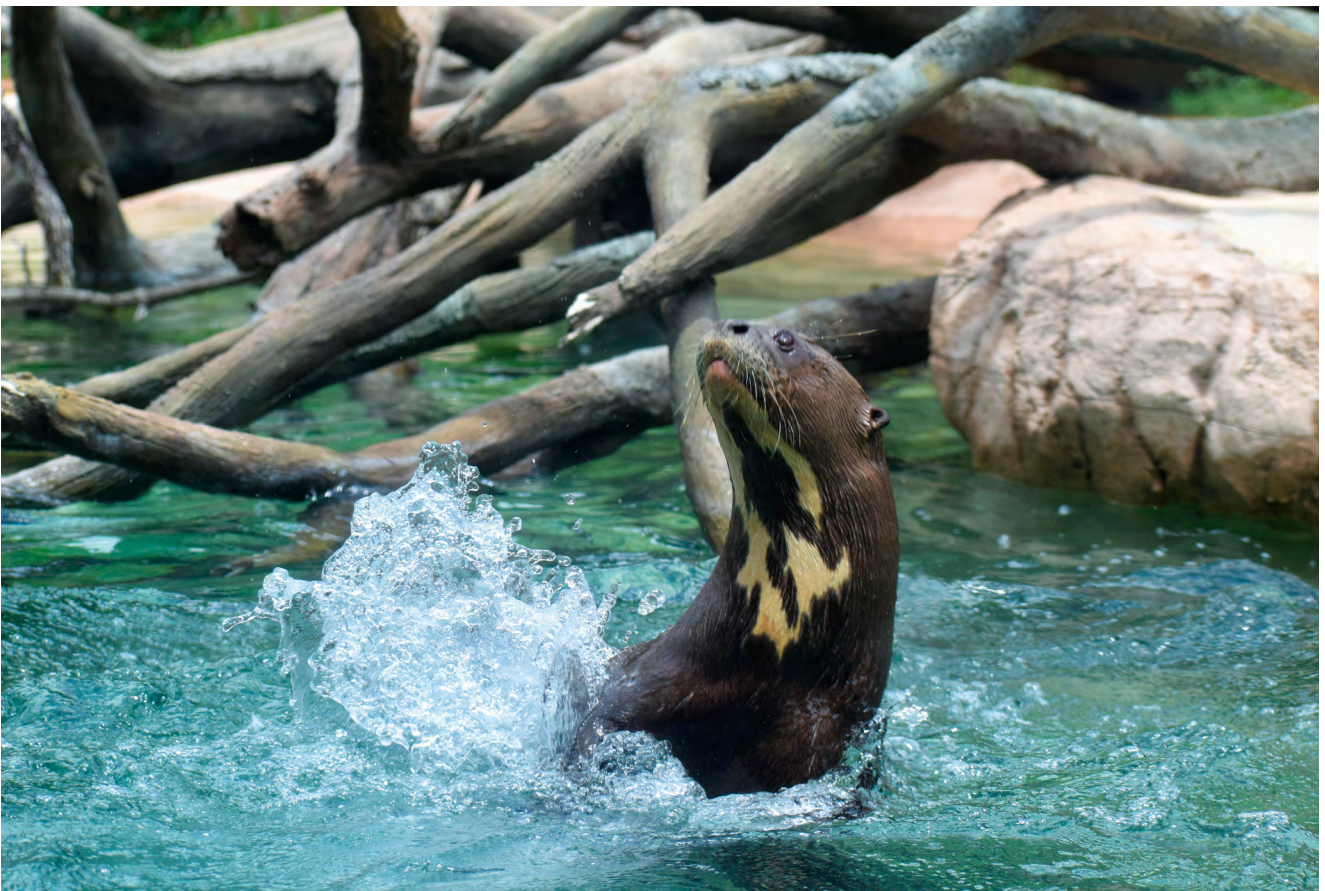
<https://www.duisburg.de/microsites/wirtschaft/projekte-themen/branchenreports-und-marktanalysen.php>

centre, in 2023, the demand volume was €2.9 billion.<sup>121</sup> The Forum shopping centre in the pedestrian zone, which opened in 2008, also contributes to this. The city centre also has plenty to offer lovers of culture. The City Theatre, the German Opera on the Rhine and the Philharmonic Orchestra are located here. The events on offer are diverse and range from classical plays and operas to musicals, ballet and contemporary performances.

Not far from the Duisburg city centre, the cultural offer continues at the Port of Duisburg. There, in the Museum of Culture and City History, visitors can travel back in time to medieval Duisburg. Only a few hundred metres from there is the Küppersmühle Museum of Modern Art. In the current year, you can see over 300 artworks by 65 artists. The Duisburg inland port, with its well-preserved historic industrial monuments is also part of the Industrial Heritage Route. All kinds of festivals and events take place throughout the year, such as the annual three-day inland port festival with the world's biggest dragon boat fun regatta. From May to October, the monthly Marina Market attracts many people to the colourful stands, in June the Extra Shift Night of Industrial Heritage puts on numerous spectacular events. In the former granaries, there are now many restaurants a wide variety of culinary specialities.

One of the best-known attractions of the European Route of Industrial Heritage is in Duisburg-Meiderich: The Duisburg North Landscape Park. Up until 1985, the former ironworks was producing pig iron. Today, the site is open to the public and visitors can marvel at the interplay of disused industrial heritage and relaxing natural areas. Over a million visitors a year make use of the recreational opportunities on the 180-hectare site, which among other things, includes a diving pool and a climbing facility. Various cultural and sporting events are organised in the Duisburg North Landscape Park throughout the year, such as the Dreamtime music festival with about 1,000 visitors, the summer open-air cinema and the Christmas lights market.

Detailed information about the economic strength of the Duisburg tourism sector can be found in City of Duisburg Tourism Report 2023.<sup>122</sup>



<sup>121</sup> Duisburger Immobilienmarkt, Halbjahresbericht 2023, <https://www.duisburg-business.de>

<sup>122</sup> Source: Branchenreport Tourismus 2023, Stadt Duisburg, <https://www.duisburg.de/microsites/wirtschaft/projekte-themen/branchenreports-und-marktanalysen.php>

Figure 1: Population trend.....	10
Figure 2: Absolute rate of change in population compared to the previous year (2022 to 2021) .....	10
Figure 3: Percentage change in population compared to the previous year (2022 to 2021) .....	11
Figure 4: Absolute age structure of the population .....	11
Figure 5: Percentage age structure of the population .....	12
Figure 6: Birth rate in Duisburg .....	12
Figure 7: Internationality in Duisburg .....	13
Figure 8: Unemployment rate .....	14
Figure 9: Socially insured employees .....	14
Figure 10: Socially insured employees by sector .....	15
Figure 11: Absolute change in socially insured employees compared to the previous year .....	16
Figure 12: Percentage change in socially insured employment compared to the previous year .....	16
Figure 13: Socially insured employees by economic sectors .....	17
Figure 14: Sectors with over 10,000 socially insured employees .....	18
Figures 15: Sectors with 5,000 to 10,000 socially insured employees .....	19
Figures 16: Sectors with up to 5,000 socially insured employees .....	19
Figure 17: Gender employment rate .....	20
Figure 18: Percentage distribution of socially insured employees by occupational segments .....	20
Figure 19: Absolute commuter numbers .....	21
Figure 20: Number of registered vocational training places .....	22
Figure 21: Number of trainees by sectors.....	23
Figure 22: Year-on-year absolute change in trainees by sector .....	23
Figure 23: Percentage change in trainees by sector compared to the previous year .....	24
Figure 24: Gross domestic product of the city of Duisburg .....	25
Figure 25: Gross domestic product per employee .....	25
Figure 26: Gross value added chart .....	26
Figure 27: GDP by economic sectors 2021 .....	26
Figure 28: Disposable income of private households .....	27
Figure 29: Per capita disposable income .....	27
Figure 30: Rate of change of per capita disposable income .....	28
Figure 31: Business registrations and deregistrations .....	30
Figure 32: Balance of business registrations .....	30
Figure 33: Business registrations and deregistrations by sector 2022 .....	31
Figure 34: Registration and deregistration owners with a migrant background .....	32
Figure 35: Balance of registration and deregistration owners with a migrant background .....	32
Figure 36: Socially insured employees with a migrant background .....	33
Figure 37: Year-on-year % change in socially insured employees with a migrant background .....	33
Figure 38: Total capital investment City of Duisburg .....	37

Figure 39: Change in capital investment City of Duisburg .....	38
Figure 40: Per capita investment in Duisburg und NRW .....	38
Figure 41: Change in per capita investment .....	39
Figure 42: Business tax development plan .....	40
Figure 43: Housing vacancy rate .....	42
Figure 44: Achievable prime rent by type of use .....	42
Figure 45: Prime rents for commercial space .....	43
Figure 46: Net initial yields .....	43
Figure 47: Secondary schools in Duisburg .....	44
Figure 48: Absolute number of secondary school pupils in Duisburg 2022/2023 .....	45
Figure 50: School-leavers by qualifications .....	46
Figure 51: Number of school-leavers in Duisburg by leaving qualifications .....	46
Figure 52: Number of daycare places .....	47
Figure 53: Number of daycare facilities in Duisburg .....	47
Figure 54: Municipal family centres .....	48
Figure 55: Percentage distribution of students by place of obtaining university entrance qualification .....	50
Figure 56: Number of socially insured graduates .....	51
Figure 57: Absolute growth in the number of socially insured graduate employees .....	51
Figure 58: Socially insured graduate employees by gender .....	52
Figure 59: Socially insured graduate employees by gender .....	52
Figure 60: Number of patents registered in Duisburg .....	53
Figure 61: Patent registrations with international involvement .....	53
Figure 62: Percentage share of patent registrations with international involvement .....	54
Figure 63: Patent registrations with international involvement in the last 10 years by origin of the cooperation partners .....	54
Figure 64: Sections of patents of the last ten years .....	55
Figure 65: Total hydrogen and fuel patents .....	56
Figure 66: Percentage land use .....	57
Figure 67: Land use 2022 by type of use in ha .....	57
Figure 68: Absolute change in land use type .....	58
Figure 69: Hydrogen activities in Duisburg .....	61
Figure 70: Land disposals by development type .....	63
Figure 71: Percentage distribution of land disposals by development type .....	63
Figure 72: Purchase sum by development type .....	64
Figure 73: Percentage distribution of purchase sums by development type .....	64
Figure 74: Average square metre prices by development type Duisburg und NRW .....	65
Figure 75: Motorway network .....	66
Figure 76: Percentage distribution of road length .....	66



Figure 77: Length of interregional roads in Duisburg ..... 67

Figure 78: Railway network ..... 58

Figure 79: Electrification of the railway network ..... 68

Figure 80: Length of waterways ..... 70

Figure 81: Usable area of waterways ..... 70

Figure 82: Waterways in Duisburg ..... 70

Figure 83: Broadband supply ..... 72

Figure 84: Area (Lower Rhine, Rhineland, Ruhr) ..... 73

Figure 85: Population (Lower Rhine, Rhineland, Ruhr) ..... 74

Figure 86: Socially insured employees (Lower Rhine, Rhineland, Ruhr) ..... 74

Figure 87: Area of the Rhine-Waal Euroregion ..... 75

Figure 88: Map of the Rhineland metropolitan region ..... 76

Figure 89: Tourism in Duisburg ..... 77

## List of Tables

Table 1: Projects supporting integration in Duisburg ..... 36

Table 2: Assessment rates of the neighbouring cities ..... 41

Table 3: Assessment rates of the Ruhr region ..... 41

Table 4: Students and courses at Duisburg universities and colleges..... 50

Table 5: Broadband expansion 2020-2025 ..... 71





