Result 2.1

Report on results of analyses of the economy, demography, education and labour markets in all countries of the Baltic Sea Region

“The creation of these resources has been (partially) funded by the ERASMUS+ grant program of the European Union under grant no. 2022-1-DE01-KA220-HED-000085523.

Neither the European Commission nor the project's national funding agency DAAD are responsible for the content or liable for any losses or damage resulting of the use of these resources."

Partner

Hanse-Parlament (Lead Partner), Germany

Satakunta University, Finland, Finland

Tallinn University of Technology, Estonia

Politechnika Gdanska, Poland

Estonian Chamber of Commerce and Industry, Estonia

Pomeranian Chamber of Handicrafts for SMEs, Poland

Berufliche Hochschule Hamburg, Germany

Language

English

Content

1. Introduction

The word *region* is defined as "an area, especially part of a country or the world having definable characteristics but not always fixed boundaries"[1]. The Baltic Sea region (BSR) is particularly unique. While the Baltic Sea is the pivotal point defining much of the region's characteristics and challenges, the countries are also extremely different. Geographically, they are divided between Northern, Western and Central/Eastern Europe, historically, they have been shaped by the East-West divide after the second world war. Nevertheless, given their proximity to the Baltic Sea, they have much in common.

The EU has acknowledged this by issuing the very first macro-regional strategy, the EU Baltic Sea Region Strategy in 2009 followed by a further plan after the first strategy expired. As most countries boarding the Baltic Sea were by then EU member states, it can well be considered the EU's inland sea. The challenges, such as saving the sea, i.e. ensuring clear water, rich and healthy wildlife as well as clean and safe shipping, and the opportunities for a prosperous region through cooperation measures to increase innovation, deepen the single market by improving transportation systems, connecting energy markets and fighting trans-border crime together, make the region very distinct from other parts of the world. Therefore, "BSR integration is best understood as the way that European integration has been translated into this region, further deepening and leveraging access to the rest of Europe and the markets that the EU provides"[2]

Over the past 25 years, this region has become a densely integrated, e.g. in the areas of trade, investment, labor mobility, transport and energy infrastructure as well as research collaboration. Furthermore, it demonstrates a broad landscape of robust cross-border organizations and collaborative efforts. Nevertheless, "companies do not look at the Baltic Sea Region as one integrated market in terms of their strategies. For most of them, the region remains a group of individually small markets within the EU, each with its different dynamics, rivals, and often even regulatory rules'"[3].

Keeping this in mind, the lack of comprehensive regional data collection is surprising. Therefore, as part of the Erasmus+ funded project "Promoting permeability through dual bachelor's programs with integrated initial and further vocational training" (BA&VET), an analysis of the region's demography, economy, and labour as well as education market has been conducted. The majority of the data is taken from the Eurostat database of the European Union. When needed additional sources, such as the OECD database have been consulted as well.

1.1 Project summary

Objectives: What do you want to achieve by implementing the project?

- Increasing permeability between vocational and higher education
- Recruiting universities for tasks of further education in climate and environ-mental protection
- Providing excellently qualified entrepreneurs, managers and skilled workers and reducing the shortage of skilled workers to meet the challenges in climate and environmental protection
- Strengthening the productivity of SMEs through innovation support and R&D projects
- Promoting cooperation between SMEs and colleges/universities

Implementation: What activities are you going to implement?

- Analyses economy, education and labour markets and qualification needs
- Creation of solution models for 4 project countries
- Development and implementation of Train the Trainer program
- Development and implementation of 2 dual three-stage Bachelor's degree programs and 2 further trainings in climate and environmental protection
- Implementation of R&D projects in SMEs

[1] Oxford Dictionary
[2] Skilling, David (2018). *The Baltic Sea Economies: Progress and Priorities*. Copenhagen: Baltic Development Forum, p.10.
[3] Ibid., p.11

- Quality assurance for training measures and project implementation
- Dissemination, transfer of results and implementation consultation

Results: What project results and other outcomes do you expect your project to have?

- Result report of the analyses of the economy, education and labour markets and qualification needs
- Solution models for four project countries
- Complete train-the-trainer program
- Module manuals with all documentation for two dual three-stage Bachelor's programs in climate and environmental protection
- Two further education programs in climate and environmental protection
- R&D projects implemented in SMEs
- Quality manual and results reports
- Manual, result videos and broad regional transfer of results

1.2 Objectives, results and target groups

The main objectives of the project are as follows:

a) Increasing the permeability between vocational education and training and higher education and thus promoting the attractiveness of vocational education and training

b) Strengthening the recruitment of colleges/universities for the important tasks of continuing education in climate and environmental protection

c) Providing highly qualified entrepreneurs, managers and skilled workers who, in addition to good theoretical knowledge, also have practical competences, skills and professional experience in climate and environmental protection and reducing the shortage of skilled workers to cope with the very large tasks in the energy, climate and environmental sector.

d) Attracting entrepreneurs and executives who have all the skills to successfully run a company and perform high-quality tasks in climate and environmental protection

e) Strengthening the productivity and competitiveness of enterprises through knowledge and technology transfer, promotion of innovation and implementation of manageable R&D projects

f) promoting cooperation between SMEs and colleges/universities, strengthening colleges/universities to implement dual courses of study on climate and environmental protection, and promoting entrepreneurship in higher education.

In pursuit of these objectives, the following results will be achieved:

1. Analysis results on the economy, demography, education and labour markets as well as qualification needs in climate and environmental protection

2. Curriculum. Teaching materials, implementation report and evaluation concept and report for teacher training

Module handbook with integrated continuing education, teaching materials, examination regulations, implementation reports as well as evaluation concept and reports for a three-stage dual Bachelor's degree program

3. "Business Administration & Sustainable Management of SMEs"

4. "Management of renewable building energy technology"

5. Concept for promoting innovation by SMEs and evaluation concept and report

6. R&D projects carried out for SMEs

7. Concepts and report for the evaluation and quality assurance of qualifications and R&D subsidies as well as project implementation, transfer of results, implementations and implementation consultations

The primary target groups of the project are:

a) school leavers who wish to combine vocational education and training with a bachelor's degree and thus receive excellent employment and professional career opportunities.

b) students who are qualified in higher education and university and at the same time in a company and who are highly welcome in SMEs as managers and professionals or as independent entrepreneurs.

c) owners, managers and specialists of SMEs who are qualified in continuing vocational training, acquire tailor-made competences and skills for high-quality activities in climate and environmental protection and achieve a recognized continuing vocational qualification.

d) SMEs that attract suitably qualified young entrepreneurs, managers and specialists, receive innovation funding and carry out R&D projects together with colleges/universities.

The project addresses the following secondary target groups (beneficiaries):

a) colleges and universities which, in order to expand their educational opportunities in climate and environmental protection, receive all the documents and materials for two new dual bachelor's degree programs in order to meet the labour market needs and the conditions of SMEs in particular.

b) chambers and other vocational training institutions which attract strong young people to vocational training, receive curricula for continuing vocational training modules for the qualification of SMEs and their staff, and cooperate intensively with col-leges/universities in teaching and innovation promotion.

c) teachers, advisers and lecturers from chambers, other VET providers and colleges/universities who are qualified in Train the Trainer programs to provide high-quality further training, to carry out dual study courses in cooperation with companies as well as innovation promotion and R&D projects for SMEs at a high-quality level.

1.3 About the analysis

The analyses refer primarily to the countries of the Baltic Sea Region. The Baltic Sea Region comprises eleven countries, eight of which belong to the EU: Denmark, Sweden, Finland, Estonia, Lithuania, Latvia, Poland and Germany. Three neighbouring European countries border the region - Belarus, Norway and Russia. For reasons of availability, comparability and need for statistical data, Russia and Belarus are not included in this study.

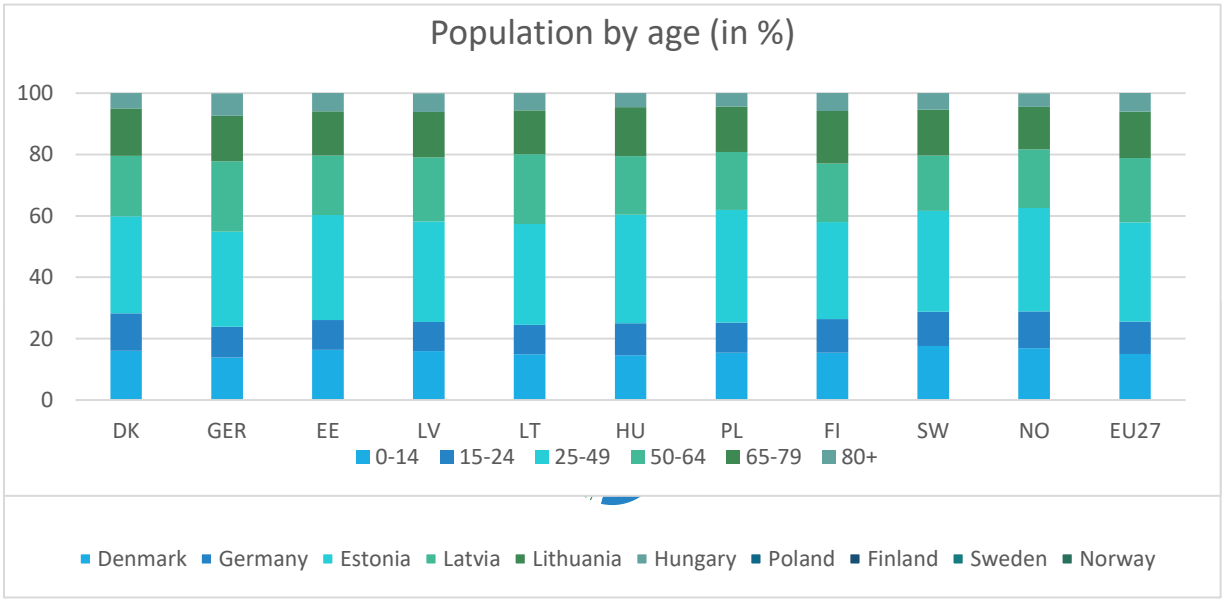
The current socio-economic situation in the Baltic Sea region is analysed, taking into account demographic and economic aspects. A comprehensive overview of the education markets and national education systems is also provided.

Included in the analyses are:

1. All partner countries in the project, so that
   - uniform basic data are created for all development work of the BA&VT project.
   - the national and legal conditions and needs that have to be taken into account for the development and implementation of the project's education measures are recorded.
2. The countries of the 70 associated partners involved in the project implementation as transfer recipients and implementation partners. In this way, the development of the economy, demography and labour market as well as the legal and national conditions are already included in the development work of the project for these countries as well, and thus the later transfer and implementations of the project results are significantly promoted. Hungary is also included as the only country that does not belong to the Baltic Sea Region, since Hungary, as a long-standing member of the Hanse-Parlament, is an important transfer recipient and implementation partner.

2. Mapping the Baltic Sea Region

2.1 Demography



Graph 1 [source: Eurostat (2023) "Population by age group", (retrieved: 10.01.2024)]

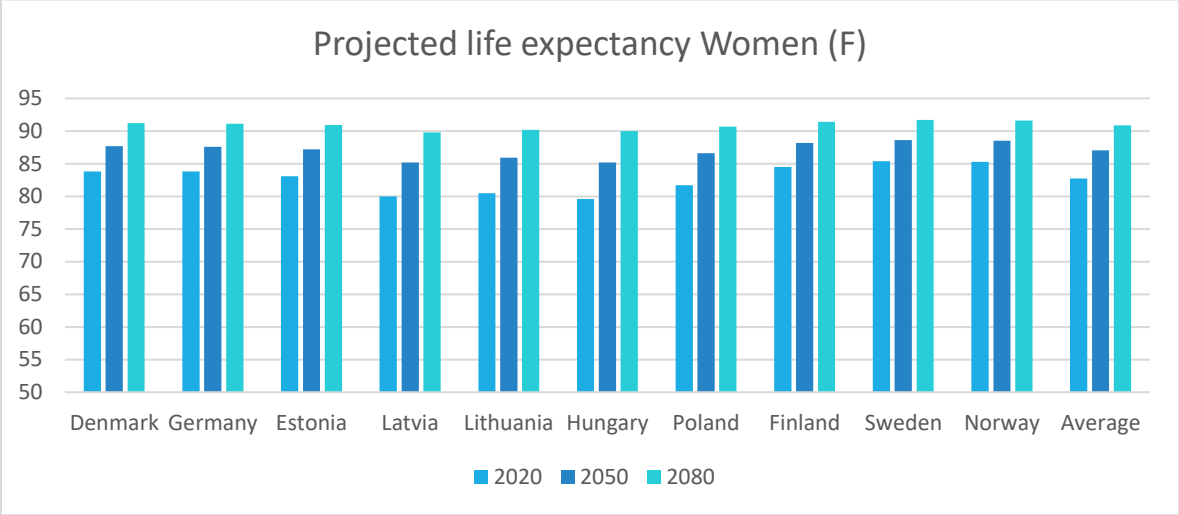
In 2022, there were approximately 163.9 million people living in the entire BSR (including Germany as a whole). If Germany is counted as a whole, it is by far the largest country in the region.

If however, only the northern German *Bundesländer* are included the picture looks much different, Poland being the largest country with almost 38 million inhabitants, followed by Germany with only 12 million and Sweden close with just over 10 million. The projections made by Eurostat for 2030 indicate a slight decrease in all BSR country, with the exception of the Nordic countries, Finland, Sweden, Norway and Denmark, which results in a slight increase in the overall population of the region by 3 million.

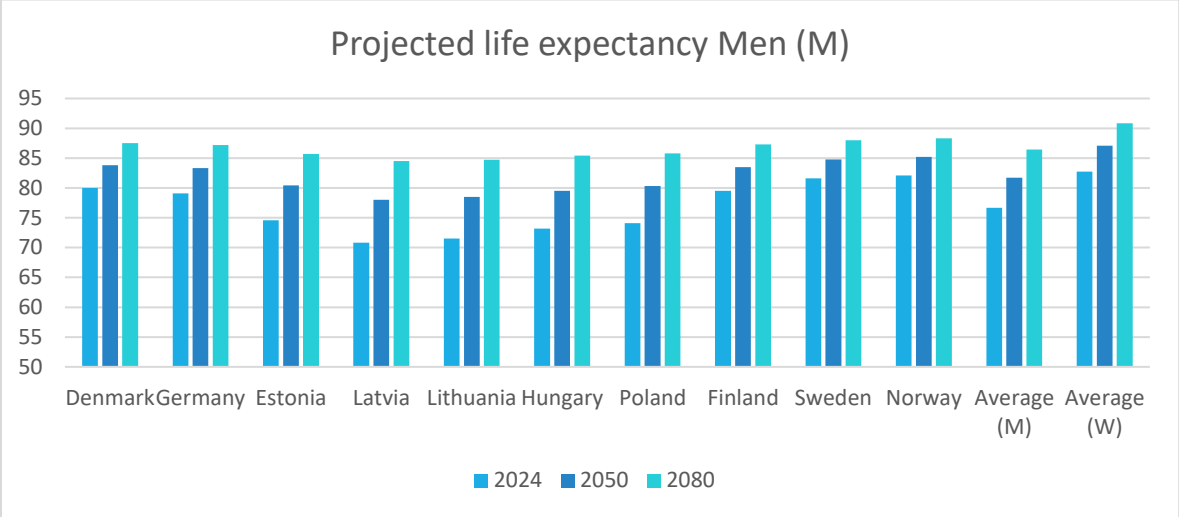
The graph is showing the different BSR countries age structure in 2022. The relatively large two portions of the population aged 25 to 49 and 50 to 64, already foreshadows what is forecasted by the many statistical offices in the EU. Like in the rest of the EU, the population of the Baltic Sea region is aging significantly. Increased life expectancy is caused by multiple reasons for example through improved socioeconomic and environmental conditions, changes in working conditions, jobs, lifestyles, or simply better medical treatment and care. Especially, in Poland the increase in median age is drastic, increasing from 40.5 years to 51.6 years in just 65 years (see graph 4). The lowest increase is most likely to occur in Germany, where the median age only in increases by 4,8 years, from 44,9 years in 2020 to 49,7 years in 2080. According to this forecast, Germany will then also be the youngest country in the region, followed by Denmark.

Overall life expectancy in the BSR (79,7 years) is slightly under the EU average of 80,8 years. This also applies to the average life expectancy of men and women, where the EU average is 78,3 years and 83,2 years respectively for the EU, and 76,7 years and 82,7 years respectively for the BSR. Overall, women have a higher life expectancy than men in all BSR countries, ranging from approximately 3,3 years to 9,9 years difference (Graph 3 and 4). Considering that the reasons for prolonged life expectancy mostly have to do with a country's wealth, this data comes to no surprise. The smallest differences occurring in the Nordic and Western countries, while the Baltic States have the largest differences of almost 10 years in life. As

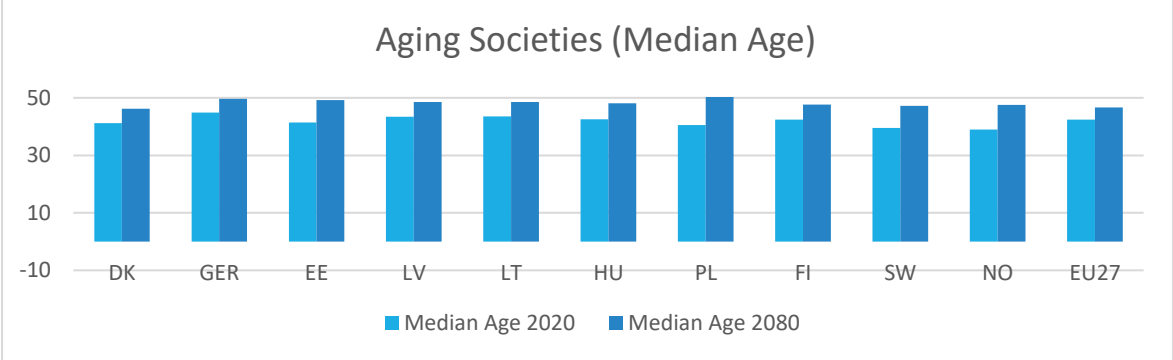
result of the higher life expectancy, there are more women in all BSR countries than there are men. In line with the diverging rate, this phenomenon is more pronounced in the Baltic States and Poland.



Graph 2 [source: Eurostat (2023) "Projected life expectancy by age (in completed years), sex and type of projection", (retrieved: 11.01.2024)]



Graph 3 [source: Eurostat (2023) "Projected life expectancy by age (in completed years), sex and type of projection", (retrieved: 11.01.2024)]



Graph 4 [source: Statista (2023) "*Median age of population from 1950 to 2100*", (retrieved: 10.01.2024)]

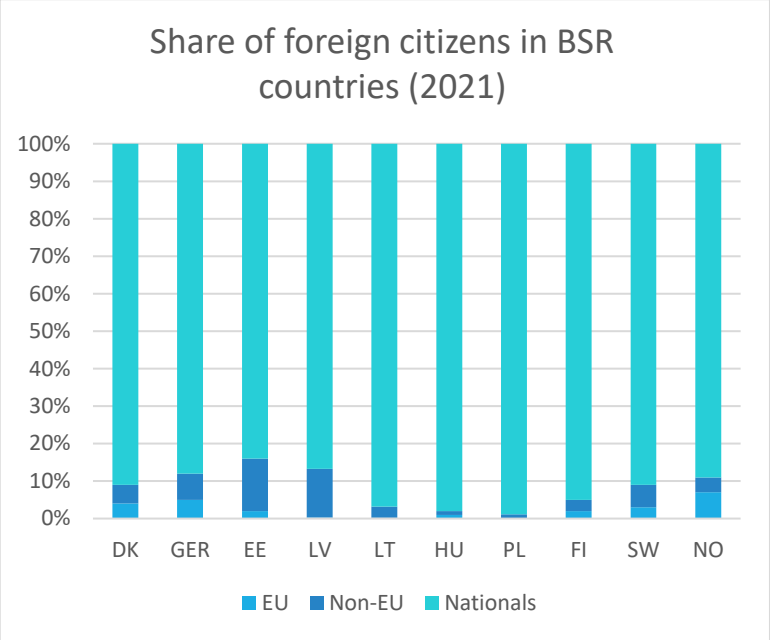
2.2 Migration

Impact of an ageing society on the labor market and the pension system

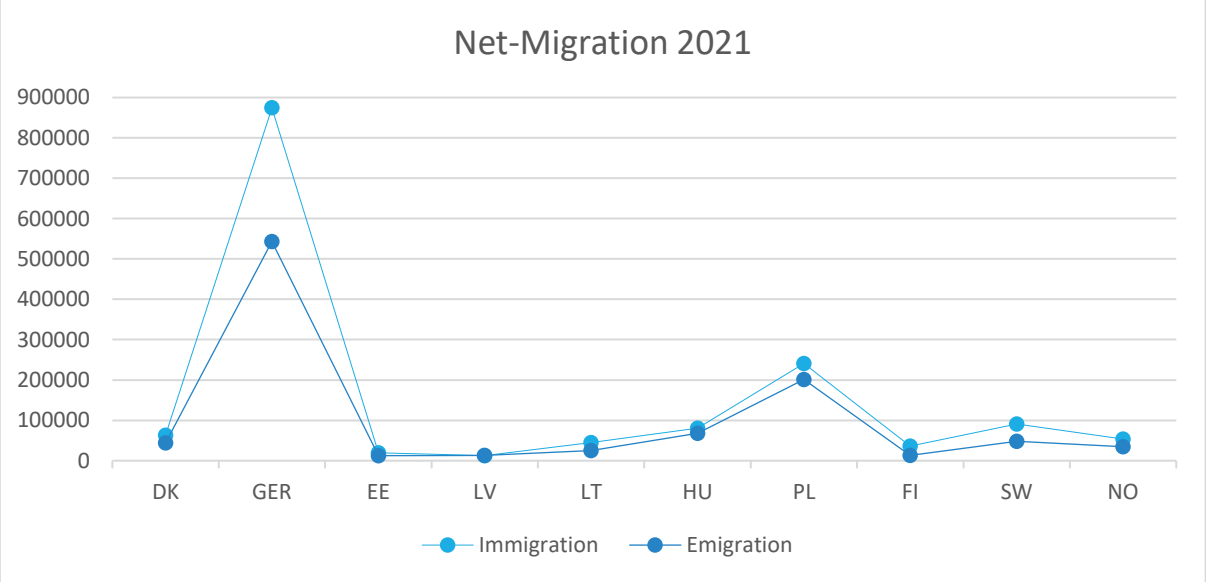
Considering the effect aging societies have on the labor market, i.e. increase scarcity of skilled workforce, and the pension system, i.e. disequilibrium of people paying into the pension fund and people living off the it, all countries increasingly depend on migration. With the exception of Latvia, all BSR countries have positive net-migration, i.e. more immigration than emigration, the front-runners being Germany (surplus of 331.205 people) and Sweden (surplus of 42.347 people) in 2021.

Proportion of foreign nationals compared to the total population

However, as net-migration is working with absolute numbers, it is not a reliable indicator for the number of foreigners in a country. Even though, Germany has by far the largest number of immigrants, taking into account the total size of the population, Estonia and Latvia have a significantly higher share of foreign citizens, with approximately 16% and 13,3% respectively. The country with the lowest share of foreign citizen being Poland (1,1%). In all BSR countries, except for Norway, and Hungary, the share of citizens of other EU countries is below the share of non-EU country citizens.



Graph 6 [source: Statista (2021) "*Immigration by age and sex*", "*Emigration by age and sex*" (retrieved: 12.01.2024)]



Immigration of EU citizens in the Baltic Sea region

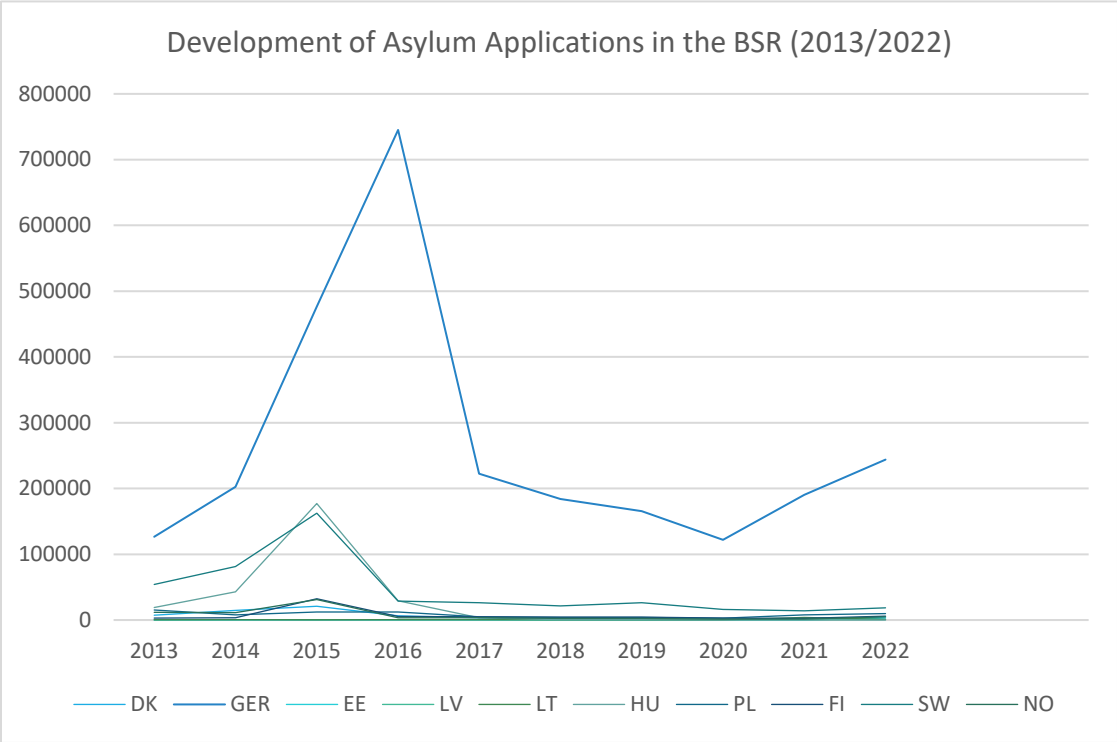
The country of origin that is present the most is Poland, followed by Syria, Russia and Ukraine, and third in line being Romania, Germany and Recognized non-citizens (former USSR citizens now living in Estonia, Latvia and Lithuania without taking on the respective national citizenship).

Immigration of non-EU citizens in the Baltic Sea region1

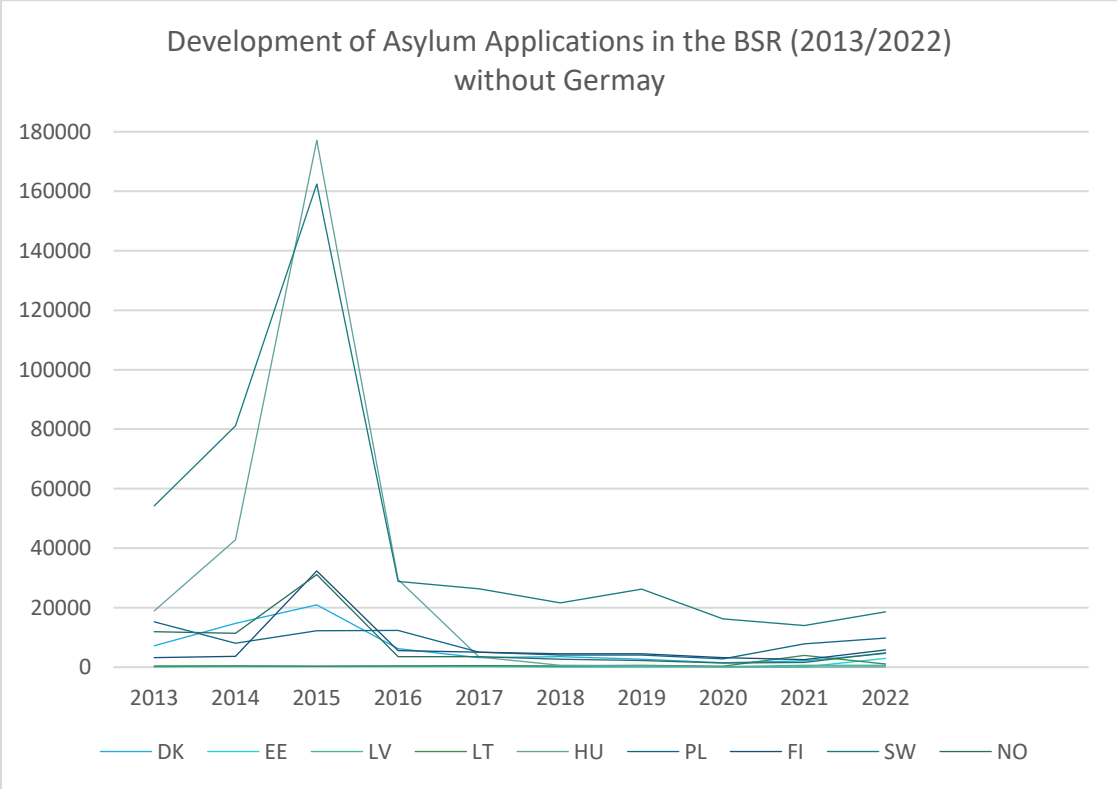
With regards to EU-nationals living in other EU countries (in the Baltic Sea region) the Polish migrant community is the largest, followed by Romania and Italy. The largest Groups of non-EU foreign nationals residing in the BSR are Turkey, Syria, and Russia.

Decline in asylum applications following the influx of refugees in 2015 and increase due to the Russia-Ukraine conflict

Lastly, the number of asylum applicants has also declined dramatically after the large influx of refugees coming to Europe in summer of 2015 (Graph 7 and Graph 8). The total number of asylum applicants has dropped to its 2013 level or below in all BSR countries, with the exception of Germany (increase of approx. 52.000 applications compared to 2013) and Lithuania (increase of 135 applications to 2013). The increases in the years 2014 – 2016 have been tremendous, almost doubling each year in the Northern and Western BSR countries as well as Hungary. The largest communities of asylum applicants come from Syria, Iraq, Iran and Turkey, all with more than 10.000 applicants in 2018. Russia follows on rank five, however with merely approximately 2000 applications. The Russian-Ukrainian conflict has led to a further increase, which will pick up from 2020.



Graph 7 [source: Eurostat (2023) "*Asylum and first-time asylum applicants / annual aggregated data* "(retrieved: 12.01.2024)]



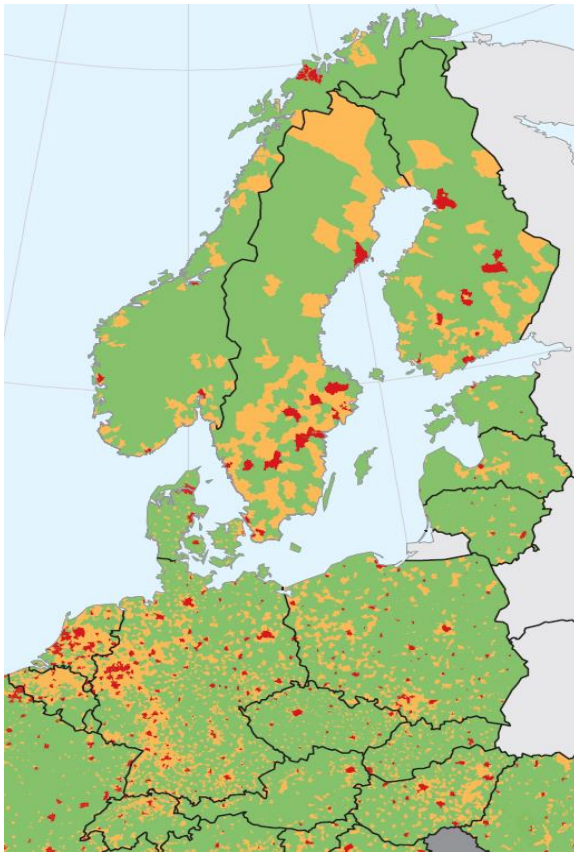
Graph 8 [source: Eurostat (2023) "*Asylum and first-time asylum applicants / annual aggregated data* "(retrieved: 12.01.2024)]

2.3 Urbanisation

In comparison to Western Europe (e.g. Benelux countries or South-Western Europe), the Baltic Sea region is relatively sparsely populated, with an average of 77,8 inhabitants per km².

However, considering the range of 223 from the lowest density in Norway (15) to the highest density in Germany (238), the median of 77,9 paints a much more accurate picture of the overall density of the region. According to the World Bank World Development Indicators urban population growth in the BSR is between -1.2% in Lithuania and 1.7% in Sweden.

As can already be seen in the graph presented below, the number of metropolitan areas differs greatly between the regions. The EU defines a metropolitan area as an area "where at least 50 % of the population lives inside a functional urban area (FUA) that is composed of at least 250 000 inhabitants". Whereas Estonia and Latvia only have their capital cities, Tallinn and Riga, as metropolitan areas, Poland can account for a total of 19 cities.



Cities (Densely populated areas: at least 50% of the urban population lives in urban centres)

Towns and suburbs (Intermediate density areas: less than 50% of the population lives in rural grid cells and less than 50% of the population lives in urban centres)

Rural areas (Thinly populated areas: more than 50% of the population lives in rural grid cells)

Source: Eurostat

It is interesting to see that, for example, Poland has the highest number of metropolitan areas but also some of the densest, whereas Latvia has only one metropolitan area and it is by far the densest of the entire region. In contrast, Estonia, having only one metropolitan area as well, which is more on the lower side of the density spectrum. Therefore, for the density of metropolitan areas no correlation can be seen with regards to location, i.e. north or south of the Baltic Sea, or number of such areas in the country.

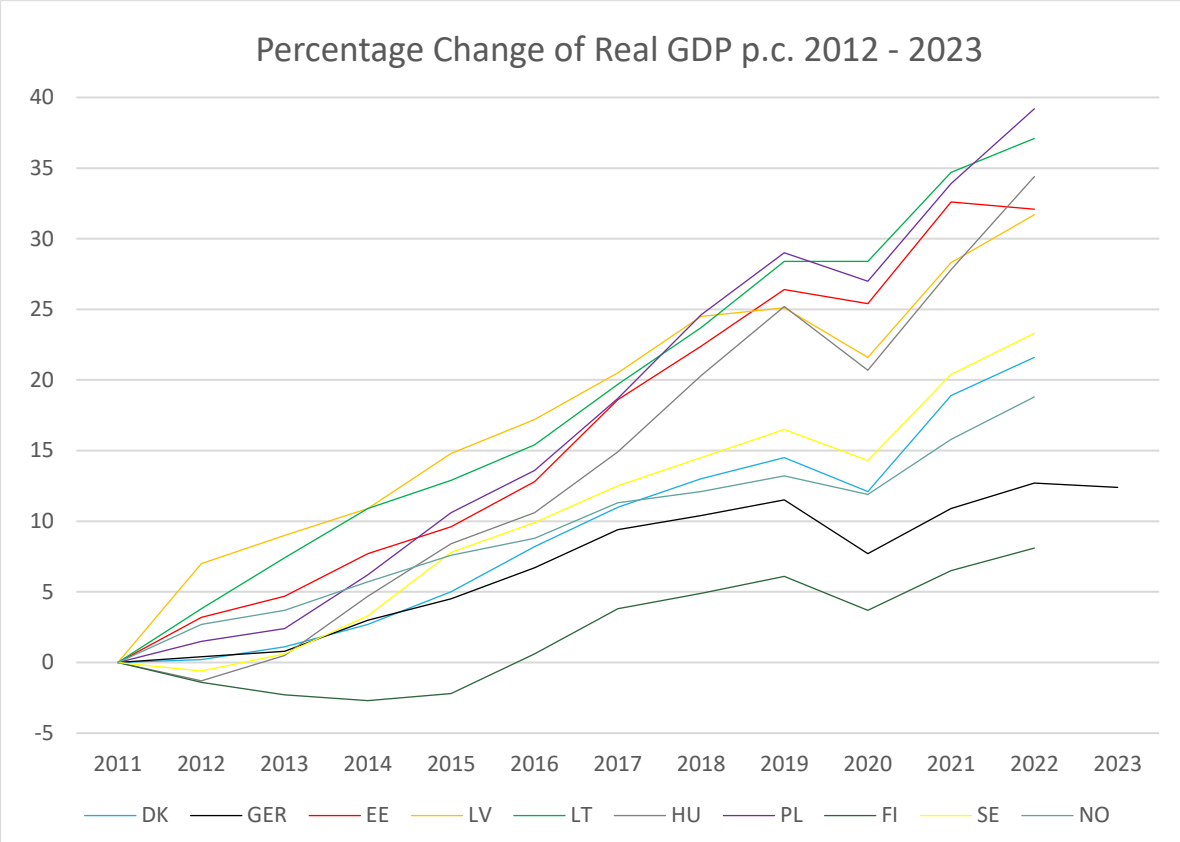
3. Macroeconomic Conditions and Trade

The average real Gross domestics Product (GDP) in the BSR in 2022 ranged from 3.869,9 billion Euro in Germany to 36,18 billion Euro in Estonia, averaging at 659,08 billion Euro. The Baltic countries, Estonia, Latvia, and Lithuania clearly at the lower end of the scale, Hungary, Denmark, and Finland in the lower mid-section, followed by Poland, Sweden, and Norway in the upper mid-section and Germany by far the country with the highest GDP. GDP, as the best know and central measure of national accounts, summarises a country's the economic position. However, for better comparison, it should be divided by the total population of a country. By doing that, it also serves as a proxy measure for analysing living standards across countries. With an average real GDP p.c. of 31.787 Euro, the BSR is slightly above the EU27 real GDP p.c. of 28.950 Euro (Graph 9). Comparing the BSR countries a clear divide between the Eastern and Western countries of the region can be made, where the Western countries are all above the region's and the EU-wide average, and the Eastern countries below it. A similar picture is drawn, when looking at the Gross National Income (GNI) per capita. Overall, the BSR is only slightly below the EU27 (2022) average. However, the clear divide between Eastern and Western BSR countries with regards to the real GDP p.c. is also apparent regarding the GNI p.c.

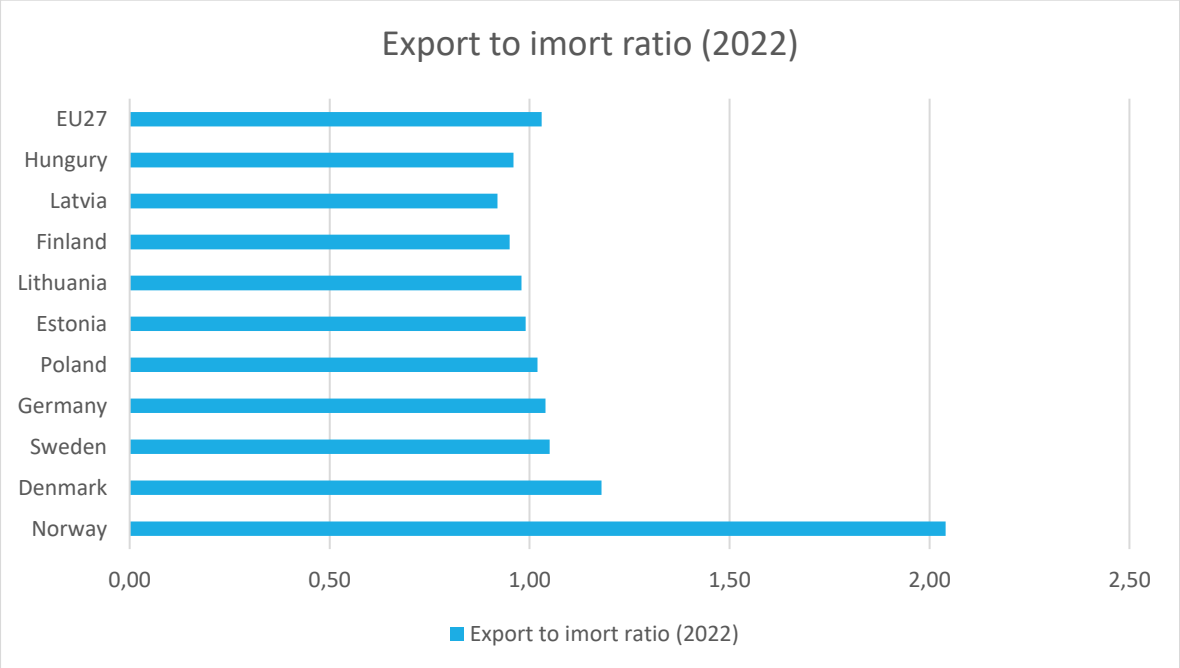
Country	**Real GDP p.c.** (2022; current prices, purchasing power standard per capita)	**GNI p.c.** (2022; current prices, purchasing power standard per capita)
EU27	28.950	35.505
BSR	31.787	35.054
Denmark	51.660	50.226
Germany	36.010	43.043
Estonia	16.250	29.454
Latvia	13.280	25.412
Lithuania	15.100	30.573
Hungary	14.350	26.201
Poland	14.620	27.167
Finland	37.670	39.398
Sweden	46.280	44.014
Norway	72.650	:

Graph 9 [source: Eurostat (2024) "*Real GDP per capita*" (retrieved: 12.01.2024), Eurostat (2023) "*GNI (gross national income) per capita in PPS*" (retrieved: 17.01.2024)]

In a long-term comparison, catch-up processes are particularly clear, especially in the three Baltic countries, with an increase in GDP per capita of almost 70% between 2000 and 2005. However, these countries were also hit much harder by the 2008/2009 economic crisis, with a decline of more than 50 percentage points in Estonia and Latvia and 41 points in Lithuania. On average, these countries were able to increase their gross national income per capita by 18% between 2019 and 2022. Nevertheless, a slight increase was recorded during the coronavirus pandemic. The convergence of GDP per capita is mainly driven by growth based on labour productivity due to a variety of factors. There is continuous investment in innovation from the countries north of the Baltic Sea to the countries south of the Baltic Sea, especially between Finland and Estonia. The entire Baltic Sea region was able to increase its real GDP from 2012 to 2023. In 2020, all countries recorded a decline in economic growth. The reason for this is the coronavirus, as the measures cost a lot of money. After this period, all countries were able to recover and record a steady increase (Graph 10).



Graph 10 [source: Eurostat (2024) "*Real GDP growth rate - volume* "(retrieved: 17.01.2024)]



Graph 11 [source: Eurostat (2023) "*Export to import ratio* "(retrieved: 18.01.2024)]

Explanation (Graph 11): An export-import ratio of 1 or more indicates that the country exports more than it import. A ratio of exactly 1 would mean that exports and imports are in balance. If the ratio is above 1,

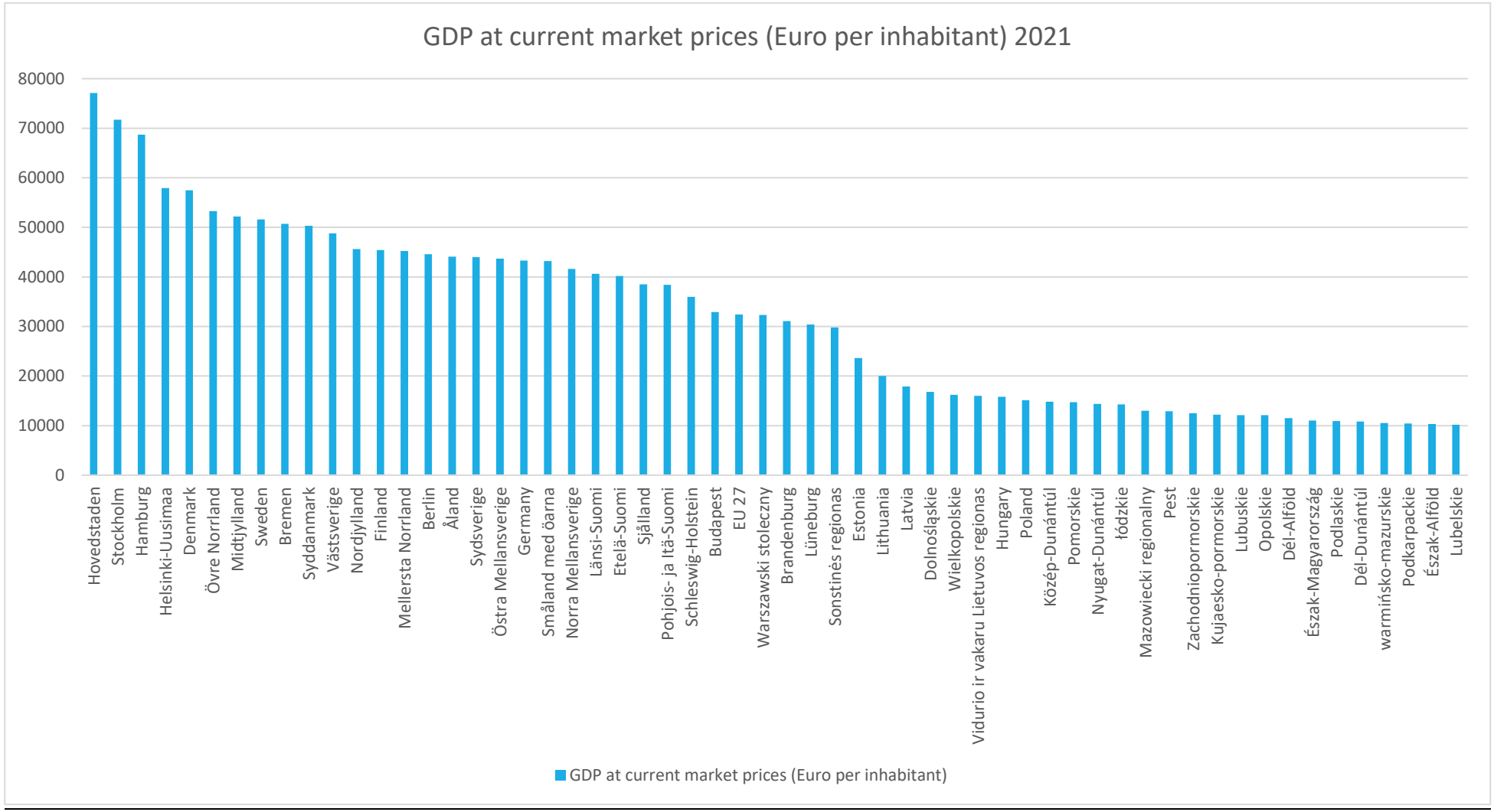
the country is exporting more than it is importing, while a ratio below 1 indicates that the country is importing more goods and services than it is exporting.

Nevertheless, all BSR countries are export nations, i.e. exporting more goods and services than they are importing. Norway and Denmark are the frontrunners with an export-import ratio of 2.04 and 1.18 respectively in 2022. Latvia, Finland, Lithuania, Hungary, and Estonia are the outliers with slightly more imports (Graph 11). In recent years, there has been a greater decline in those countries that have shown slight fluctuations. These countries are now importing more, and the reasons can be varied and often depend on various economic, political, and global factors.

Aa example the EU Commission Winter 2019 forecast, this is caused by two opposing factors. While in Latvia export growth is slowed due to weaker external demand and declining road transport and financial services, Finland records a boost in import demand as a result of a fast-growing economy which in turn leads to improved labor market conditions and increased disposable incomes for household, strengthening domestic demand.

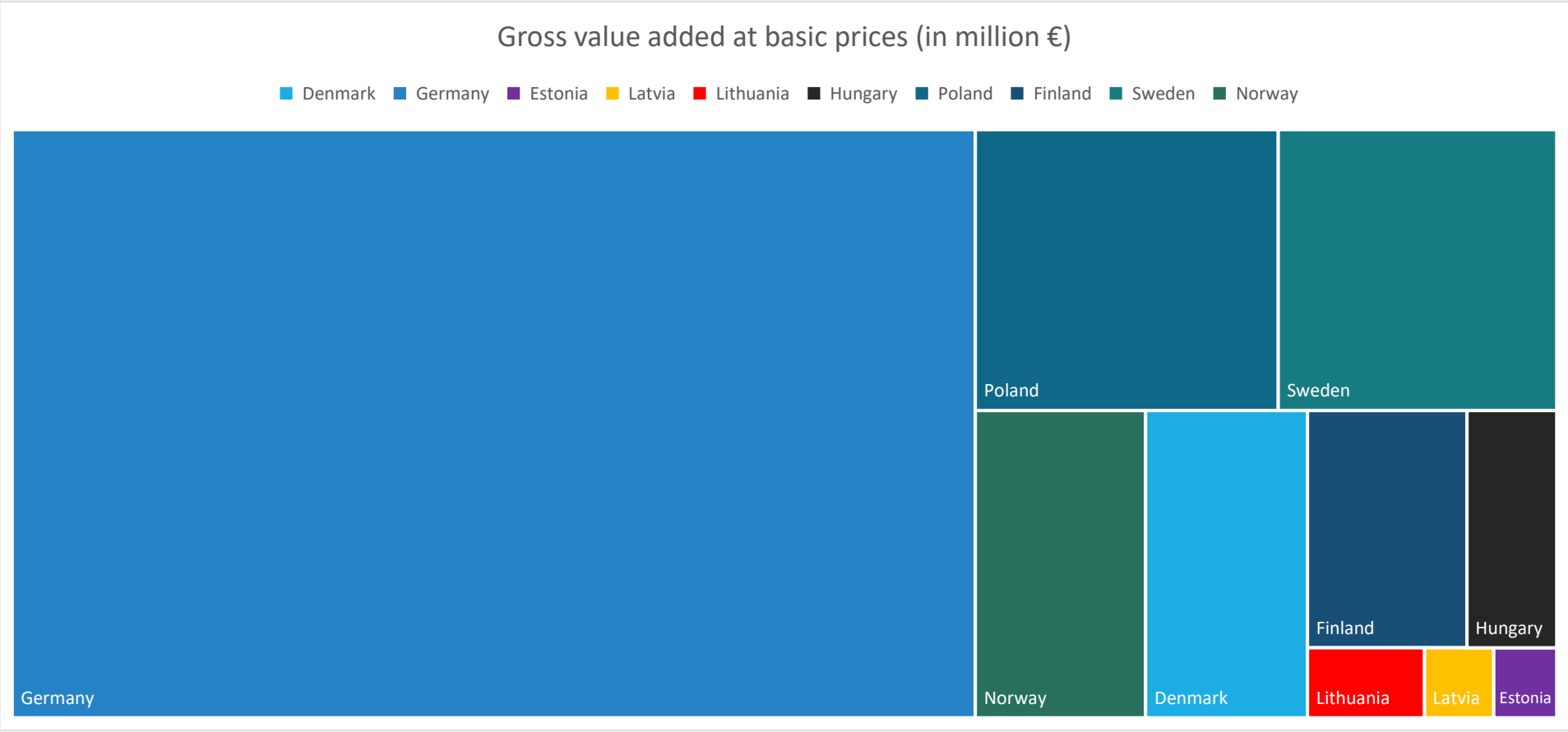
GDP per capita in euros in 2021 is relatively evenly distributed. NUTS level 2 regions are more or less in line with the country's overall GDP - larger cities and/or capital cities generally have a higher GDP per inhabitant than rural regions. However, the gap between the eastern and western BSR countries can also be seen here, with the exception of Estonia, which has a similar level of GDP per inhabitant as Germany, Finland or parts of Norway and Sweden. Unfortunately, data is missing for Lithuania and parts of Poland.

The richest REGION is Hovedstaden in Denmark with €77,100 per person, while the poorest region is Lubelskie in south-east Poland with a fraction of the income (€10,200 per person). In general, the different regions in the individual countries are not too far apart, except in Poland. In Poland, Warsaw, the region with the highest disposable income per household, is in the centre of the upper half of the spectrum, while the rest of Poland and the other Eastern BR countries are all in the lower half of the spectrum. The range in Poland is €38,800 (Warsaw: 48,000 - Lubelskie: 9,200) (Graph 12).

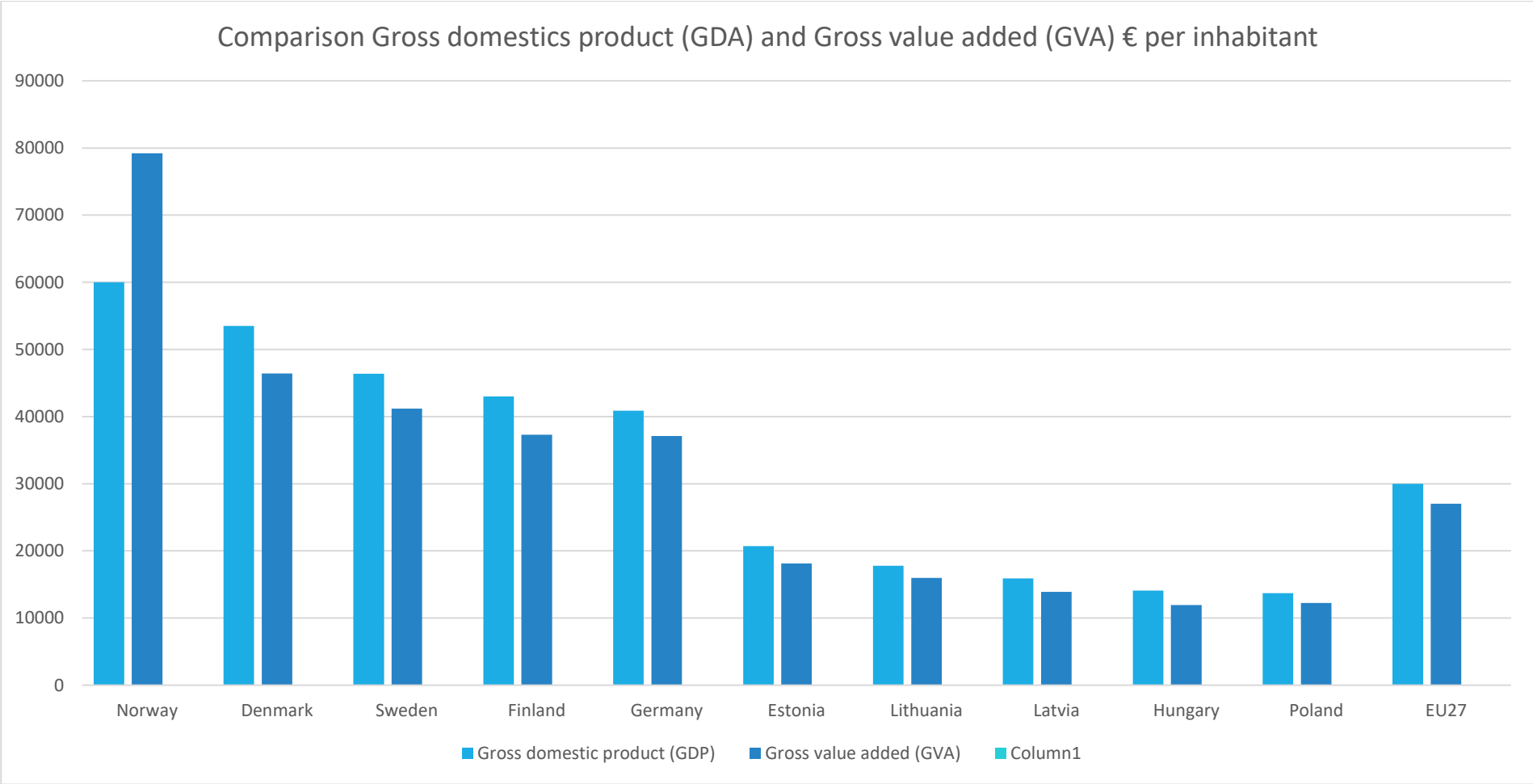


Graph 12 [source: Eurostat (2023) "*Gross domestic product (GDP) at current market prices by NUTS 2 regions*"(retrieved: 18.01.2024)]

3.1 Gross Value Added



Graph 13 [source: Eurostat (2023) "*Gross value added at basic prices by NUTS 3 regions* ", (retrieved: 02.02.2024)]



Graph 14 [source: Eurostat (2023) "*Gross domestic product (GDP) at current market prices by NUTS 2 regions*"(retrieved: 09.02.2024)],

[source: Eurostat (2023) "*Gross value added at basic prices by NUTS 3 regions* ", (retrieved: 09.02.2024)]

Gross value added at basic prices in 2020 (latest complete data set), expressed in millions of euros (Graph 13), provides a revealing insight into the economic performance of different geographical regions. Here is some key information on the BSR-countries:

- **Denmark:** 270 851.47 million €
- **Germany:** 3 087 963 million €
- **Estonia:** 24 115.7 million €
- **Latvia:** 26 436.59 million €
- **Lithuania:** 44 662.03 million €
- **Hungary:** 116 328.85 million €
- **Poland:** 463 438.22 million €
- **Finland:** 206 164 million €
- **Sweden:** 426 559 million €
- **Norway:** 426 559.88 million €
- **EU27:** 12 095 492.8 million € (total)
- **EU27:** 447 981.22 million € (Average)

The value at basic prices does not take into account taxes on products or subsidies, but focuses on the actual value added within the region.

Gross value added provides an insight into the economic performance of a region by measuring the region's financial contribution to the overall economy. This figure is calculated as the difference between the production values (turnover or revenue) and the costs of intermediate inputs (such as materials and services used in the production process).

Another way of looking at this is to divide the gross value added by the number of people living in the region. (Graph 14)

In 2020, Norway was a notable exception as its GVA was higher than its GDA. This is in contrast to the usual trend, where GVA is usually lower than GDA.

The Norwegian economy is characterized in particular by its strong presence in the oil and gas industry. Norway is one of the world's largest exporters of oil and gas. This industry contributes significantly to the country's gross value added (GVA).

In 2020, despite the challenges posed by the COVID-19 pandemic and the decline in global demand for energy, the Norwegian oil and gas industry remained robust and contributed significantly to the country's value creation. The high revenues from the export of oil and gas flowed directly into the Norwegian economy and therefore increased GVA.

It is important to note that GVA measures total gross domestic product, including taxes on products and net of subsidies. As Norway collects a considerable amount of taxes on the sale of oil and gas, these revenues can explain the difference between GVA and GDA. Taxes on oil and gas products flow directly into the national budget and therefore do not contribute to gross value added as measured in GVA, but to gross domestic product (GDA).

Overall, the case of Norway illustrates how specific industries and economic sectors, especially those with high value-added potential such as the oil and gas industry, can influence the differences between GVA and GDA.

As with most economic indicators, it is advisable to put them into relation to the number of inhabitants of the geographic area in question, since it is only natural that a country with the size of Estonia has a significantly lower gross value added than a country with the size of Germany. GVA divided by the number of people employed in a country reflects the country's labour productivity. However, this does not differentiate between full-time and part-time positions. Therefore, it is more appropriate to relate the GVA to the number of hours worked. High levels of labour productivity can be linked to an efficient use of labour or can be caused by a mix of activities of the domestic economy, since all sectors have a different need for labour input, i.e. the business sector and financial services need relatively little labour input in comparison to the agriculture sector.

The following graph (Graph 15) shows the nominal labour productivity per hour worked in 2020 in the BSR countries and the EU27. Once again, a clear divide between the Eastern and Western BSR countries can be seen. The key resource of the European economy is its human capital, i.e. knowledge, skills, and motivation of staff. In order to strengthen the regions innovation capacity and productivity to remain competitive in the long run, this resource has to be nurtured. The eastern countries of the Baltic Sea region in particular need to place more emphasis on strategic human resource management and workplace innovation. This can help close the productivity gap with their western neighbours and ensure the long-term competitiveness of the region as a whole.

Graph 15 [source: Eurostat (2023) "*Nominal Labour productivity by NUTS 2 regions* ", source: Eurostat (2023) "*Nominal Labour productivity by NUTS 3 regions* " (retrieved: 19.01.2024)]

3.2 Economic Sectors

In order to get a better overview of the economic structure of the different BSR countries, a closer look is paid to the gross value added of the individual economic sectors. An economy can be divided into four sectors: primary, secondary, tertiary and quaternary. The primary sector includes any economic activity involving the extraction and collection of raw material, i.e. agriculture, mining, forestry etc. The secondary sector is comprised of activities producing tangible goods, whereas activities in the tertiary sector provide intangible goods, i.e. services. The quaternary sector is relatively new to economic theory and is basically a sub-section of the tertiary sector. Activities in this sector are all part of the so-called knowledge economy, i.e. knowledge- and information-based services such as consultation, IT, communication etc.

The EU's own classification system (NACE) is very detailed. For clarity reasons, the main categories were therefore grouped together in the four economic sectors plus public administration as follows:

Primary Sector	Secondary Sector	Tertiary Sector	Quaternary Sector
Agriculture, forestry, fishing	Electricity, gas, steam and air conditioning supply	Repair of computers and personal and household goods	Information and communication
Mining and quarrying	Water supply; sewerage, waste management and remediation activities	Wholesale and retail trade, transport, accommodation and food service activities	Financial and insurance activities
	Construction	Real estate activities	Education
	Manufacturing	Administrative and support service activities	Professional, scientific and technical activities
		Human health and social work activities	Arts, entertainment and recreation
		Other (personal) service activities	
		Activities of membership organisations	
		Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use	

The map below shows the distribution of gross value added in 2020 (last complete data set) of the four different economic sectors and public administration to the national economies in each of the BSR countries. The quaternary sector and the tertiary sector have been presented together. In line with the three-sector model developed by Allan Fisher, Colin Clark and Jean Fourastié[4] that foresees the main economic activity shifting from the primary through the secondary to the tertiary sector according to a

[4] Developed by the authors in their works between 1935 – 1949; for more information visit http://www.economicport.com/concepts-all/three-sector-model.html

country's state of overall development, the main activities in all BSR countries are in the 3rd and 4th sector. Compared to the EU27 average, especially the Eastern BSR countries as well as Norway have a stronger primary sector though. In Norway this is caused by the large fishing industry, while Poland, Lithuania, and Hungary have an especially large agriculture industry and Estonia and Latvia are more forestry heavy.

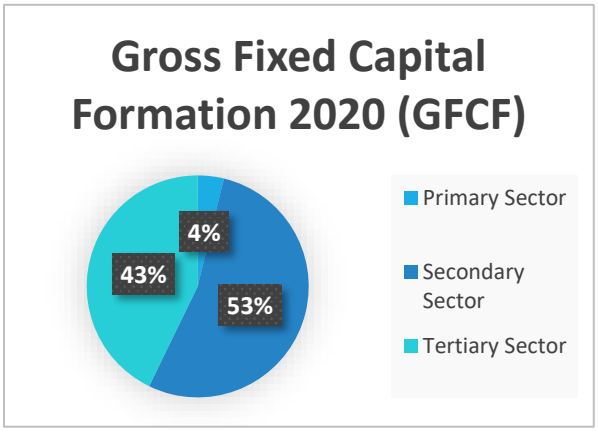
The circles shows the employment numbers per sector. These numbers, however, are not available as detailed as the GVA data. Therefore, they only show the primary, secondary and tertiary sector (which includes the quaternary sector) and no public administration. The sectors with the highest GVA may not always have the most people working in them. As mentioned before, for example, the primary sector is very labour intensive however does not add much value to the overall economy, especially when compared to sectors like the financial sector. This is for example the case in Poland or Lithuania, where the number of people working in the primary sector is significantly higher than the gross value added by this sector. The opposite is the case in Norway, where a very large portion of GVA is attribute to the primary sector, however only very few people work in it. This could be explained by the large fishing industry in Norway that needs fewer human resources to create values, as fish is still a relatively expensive commodity. Overall, in can be seen that in countries with a larger primary sector, the tertiary sector is also smaller, i.e. the Western BSR countries have employ around ¾ of their population in the service sector, while in the Eastern BSR countries it is only about half.

3.3 Investment

Gross Fixed Capital Formation (GFCF) measures the amount of money residents invest in fixed assets produced as outputs from production processes that are used repeatedly. It is differentiated between household corporate and central government investments. Total GFCF in the Baltic Sea Region in 2017 was US$ 1.456.224 (*1.518.899)*, i.e. 33% *(34,5%)* of EU investments.

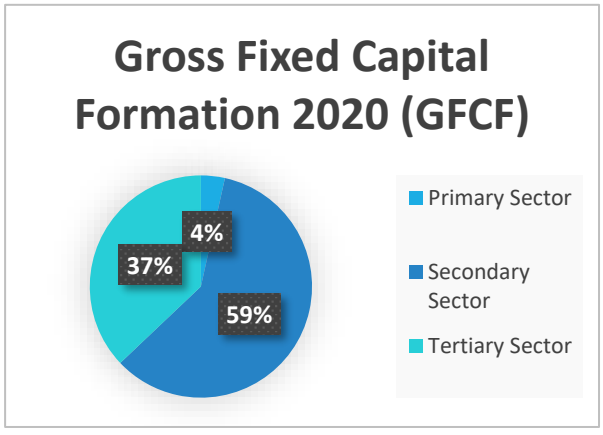
The (OECD) annual percentage growth of investment shows well how much the different countries of the Baltic Sea region have been affected by the economic crisis 2008 – 2010. Whereas investments in Denmark and Germany have remained relatively stable over the course of the 12 years depicted in the graph, all other countries have experienced very volatile levels of investments with the absolute low point in 2009, a large increase in 2011 and another significant decrease in 2016 which they quickly recovered from in 2017.

Denmark



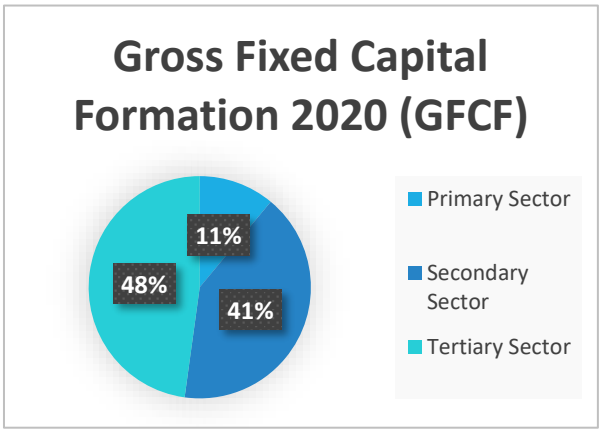
Graph 16 [source: Eurostat (2023) "*Gross fixed capital formation by NUTS 2 regions* "(retrieved: 19.01.2024)]

Germany



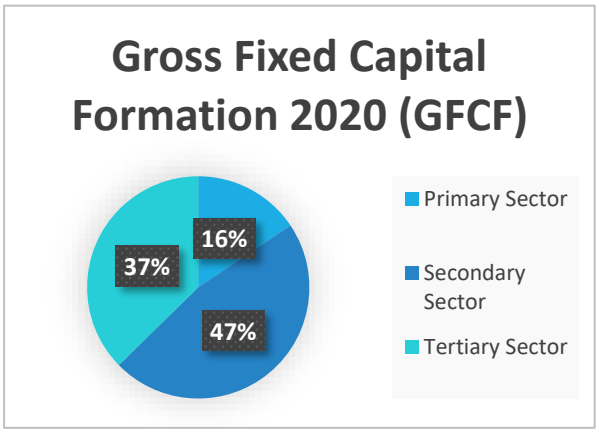
Graph 17 [source: Eurostat (2023) "*Gross fixed capital formation by NUTS 2 regions* "(retrieved: 19.01.2024)]

Estonia



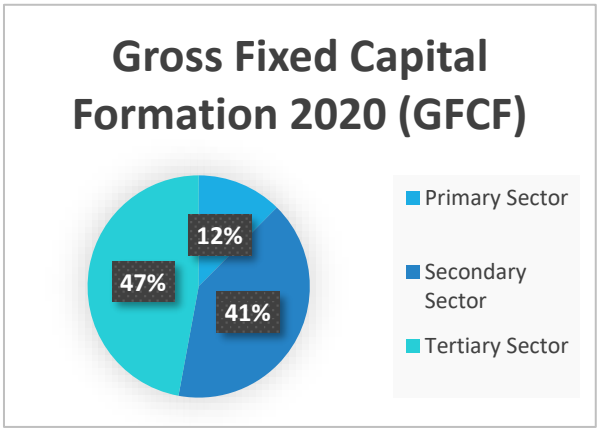
Graph 18 [source: Eurostat (2023) "*Gross fixed capital formation by NUTS 2 regions* "(retrieved: 19.01.2024)]

Latvia



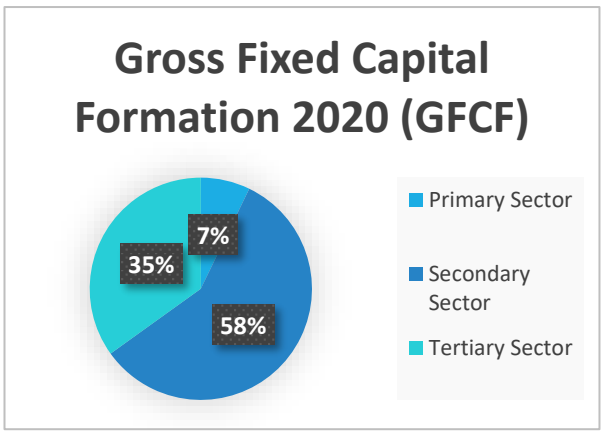
Graph 19 [source: Eurostat (2023) "*Gross fixed capital formation by NUTS 2 regions* "(retrieved: 19.01.2024)]

Lithuania



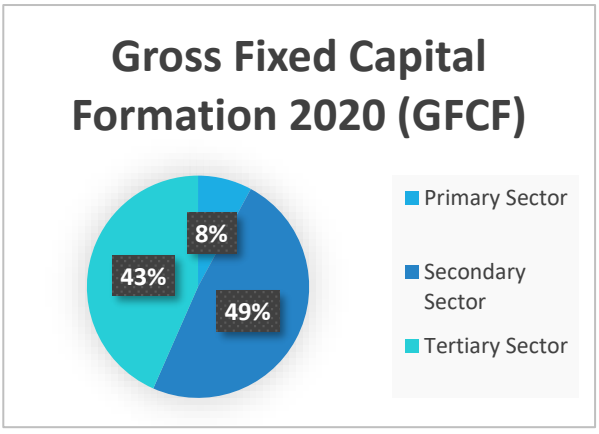
Graph 20 [source: Eurostat (2023) "*Gross fixed capital formation by NUTS 2 regions* "(retrieved: 19.01.2024)]

Hungary



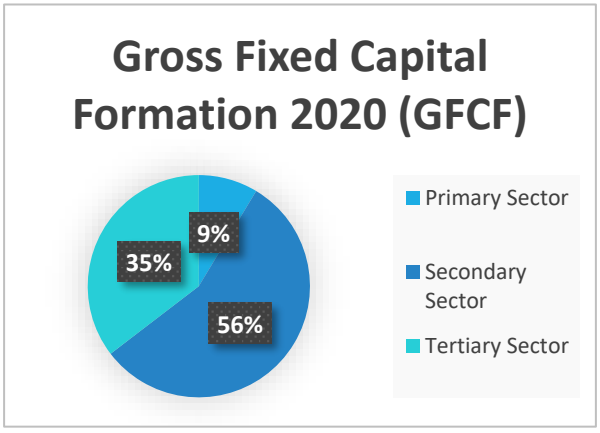
Graph 21 [source: Eurostat (2023) "*Gross fixed capital formation by NUTS 2 regions* "(retrieved: 19.01.2024)]

Poland



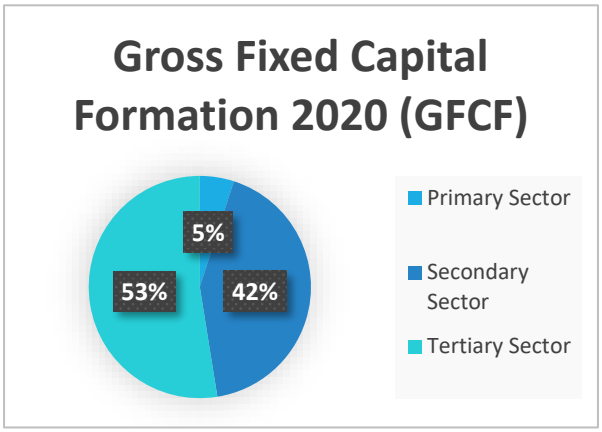
Graph 22 [source: Eurostat (2023) "*Gross fixed capital formation by NUTS 2 regions* "(retrieved: 19.01.2024)]

Finland



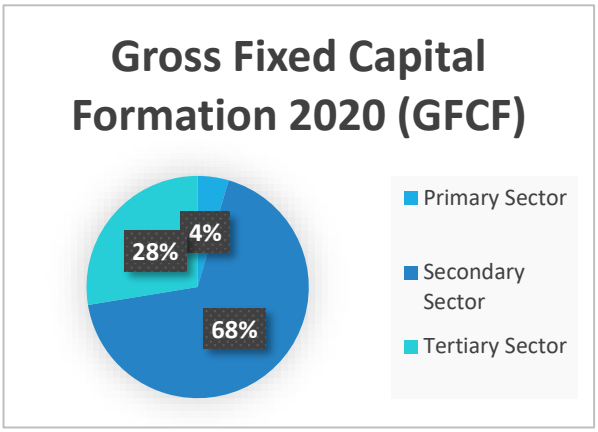
Graph 23 [source: Eurostat (2023) "*Gross fixed capital formation by NUTS 2 regions* "(retrieved: 19.01.2024)]

Sweden



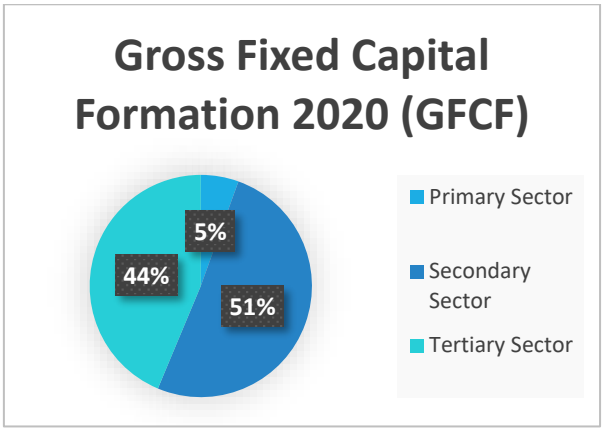
Graph 24 [source: Eurostat (2023) "*Gross fixed capital formation by NUTS 2 regions* "(retrieved: 19.01.2024)]

Norway

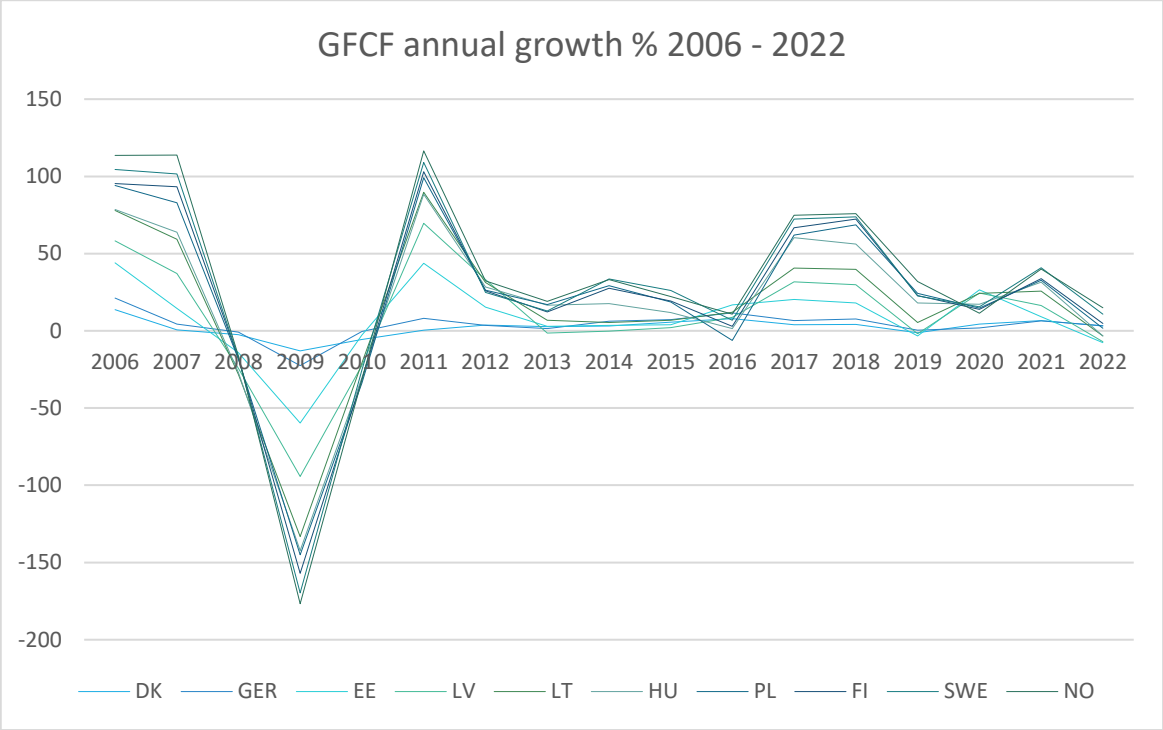


Graph 25 [source: Eurostat (2023) "*Gross fixed capital formation by NUTS 2 regions* "(retrieved: 19.01.2024)]

EU27



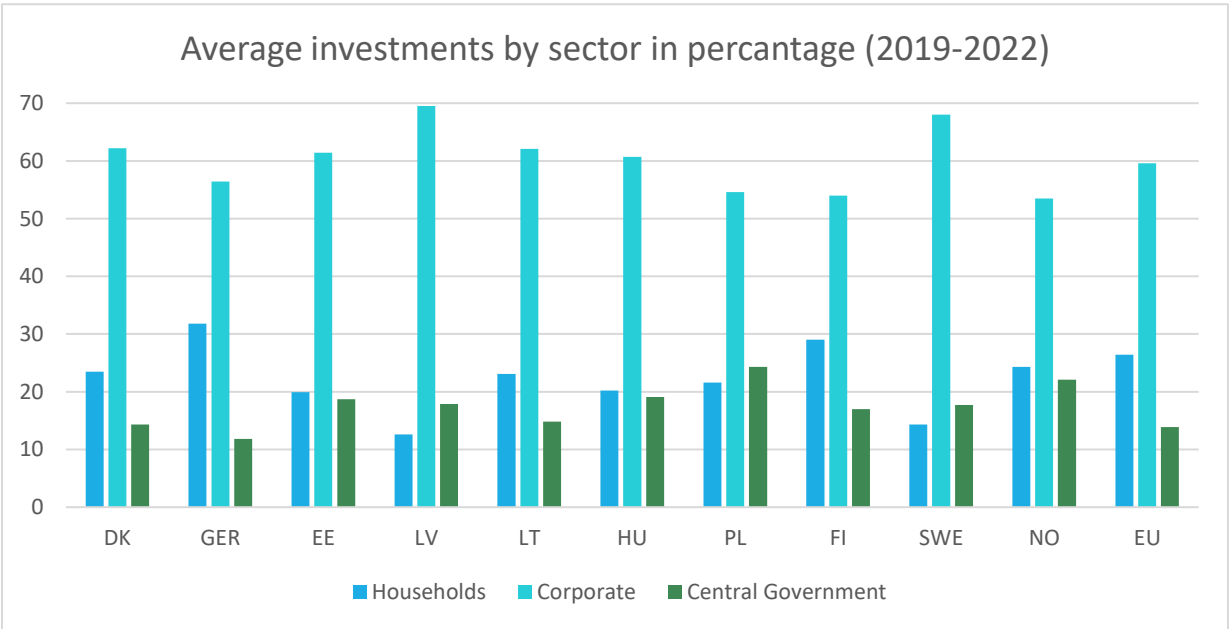
Graph 26 [source: Eurostat (2023) "*Gross fixed capital formation by NUTS 2 regions* "(retrieved: 19.01.2024)]



Graph 27 [source: OECD (2024) "*Investment (GFCF) Total, Annual growth rate (%)* "(retrieved: 09.02.2024)]

The analysis of gross fixed capital formation (GFCF) in various countries from 2006 to 2022 shows interesting trends (Graph 27). After the global financial crisis from 2008 to 2009, most countries recorded a positive trend, interrupted by occasional fluctuations. Particularly noteworthy is the stable growth from 2013 to 2019 recorded by a number of countries. Estonia and Lithuania have shown particularly strong growth phases since 2017.

The years 2020 and 2021 were characterized by the COVID-19 pandemic, which led to declines or slower growth. However, some countries were already able to recover in 2021. These trends in gross fixed capital formation reflect the economic, political and global events that occurred during this period.



Graph 28 [source: OECD (2024) "*Investment by sector* "(retrieved: 09.02.2024)]

Investment by sector (Graph 28) shows a remarkably even distribution between the countries of the BSR. Business investment ranges from 54% in Germany to 68% in Sweden, while central government investment varies from 11.8% in Germany to 24.3% in Norway. Household investment ranges from 12.6% in Latvia to 31.8% in Germany.

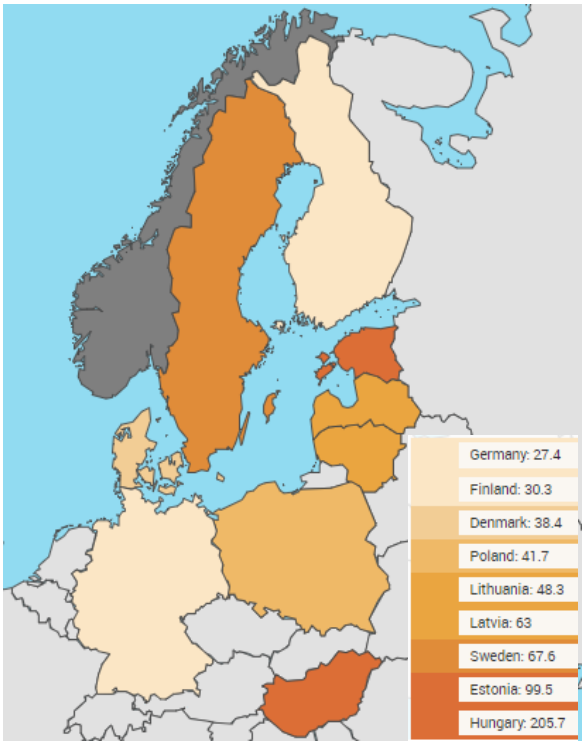
Interestingly, these distributions largely reflect the economic structures and political priorities of the individual countries. Countries with a high proportion of business investment, such as Sweden, may have a strong operational infrastructure and a supportive business environment, while countries with a higher proportion of household investment, such as Germany, may have a culture of personal savings and investment in real estate.

The "Inward FDI stocks in % of GDP" (Graph 29) indicate the proportion of a country's gross domestic product (GDP) accounted for by foreign direct investment. Germany has a share of 27.4%, while Sweden has the highest share at 67.6%. Estonia and Hungary stand out with 99.5% and 205.7% respectively, which indicates a significant contribution of foreign direct investment to their economies.

“FDI flows intensity, market integration" (Graph 30) refers to the intensity of FDI flows and market integration. A higher value indicates more intensive market integration through FDI. Latvia and Hungary show a high level of market integration with values of 7.1 and 8.4 respectively, while Estonia has a negative value of -0.5, which indicates a lower intensity of FDI flows and a possible challenge in market integration.

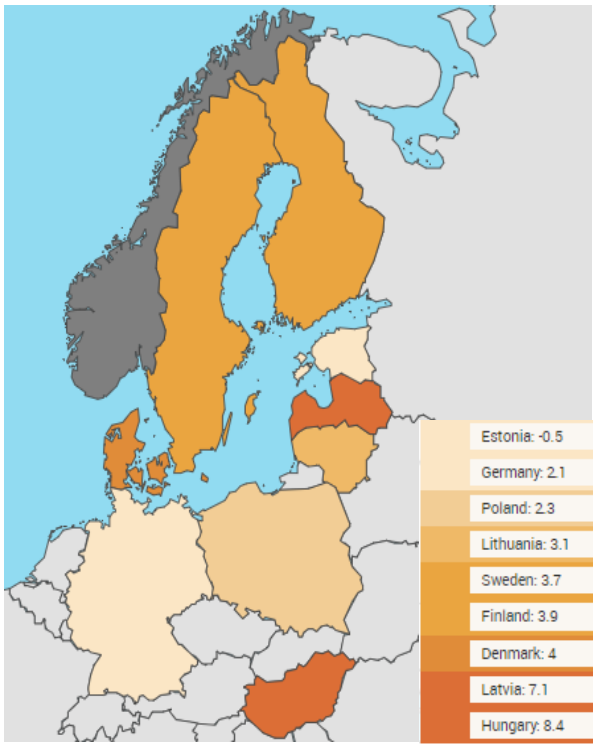
In summary, the data shows that some countries such as Estonia and Hungary have a significant amount of FDI in their economy, while others such as Latvia and Hungary have a higher level of market integration through FDI.

Foreign Direct Investment (FDI) percentage of GDP in 2021



Graph 29 [source: Eurostat (2023) “*Inward FDI stocks in % of GDP* “(retrieved: 09.02.2024)]

FDI flow intensity and market integration in 2021



Graph 30 [source: Eurostat (2023) “*FDI flows intensity, market integration* “(retrieved: 09.02.2024)]

4. Labour Market Development

4.1 Employment[5]

4.1.1 Employment Rate by Regions

Employment and other labour market-related issues are at the heart of the social and political debate in the EU. Paid employment is crucial for ensuring sufficient living standards and it provides the necessary base for people to achieve their personal goals and aspirations. Moreover, employment contributes to economic performance, quality of life and social inclusion, making it one of the cornerstones of socioeconomic development and well-being[6].

The EU's labour force is shrinking as a result of demographic changes that have led to a greater share of older people than younger people in the population. Because of these changes, a smaller number of workers are now supporting a growing number of dependent people, putting the sustainability of Europe's social model, welfare systems, economic growth, and public finances at risk[7].

To face the challenges of an ageing population and rising global competition, the EU needs to make full use of its labour potential. The Europe 2020 strategy, through its 'inclusive growth' priority, places a strong emphasis on job creation. One of its five headline targets address employment, with the aim of raising the employment rate of 20- to 64-year-olds to 75 % by 2020[8]. Building on this is the "ET2030" strategy plan, which places a further focus on the education reform agenda.

In 2017 the overall employment rate in the EU reached 72.2 %. As a result, the distance to the Europe 2020 employment target of 75 % narrowed to 2.8 percentage points. In 2017 five BSR countries had already met their respective national employment targets[9]: Germany, Lithuania, Estonia, Latvia and Sweden. The overall employment rate in the BSR reached 76.8% in 2017 (BSR incl. Hungary – 76.4%) and thus exceeded the EU-28 wide average. In 2022, almost all Baltic Sea Region countries managed to exceed the 80 percent employment rate (Graph 31).

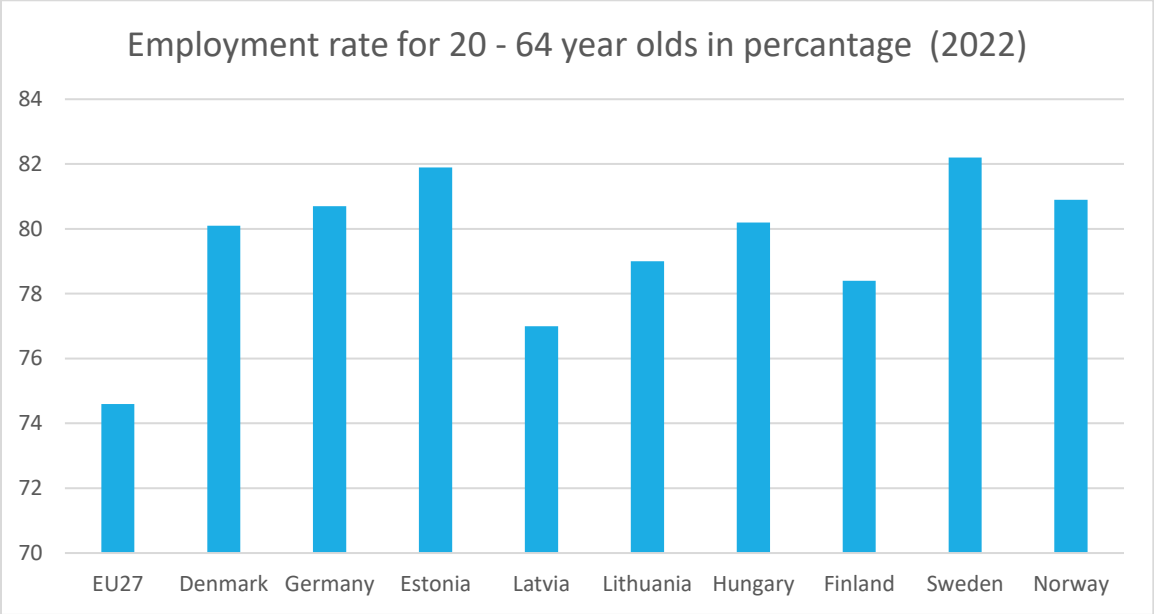
[5] Employment rates represent the share of employed persons in the total population in the same age group; they are typically published for the age group 15 to 64 years. The earliest age that a person can leave full-time compulsory education in the EU is 15 and in many Member States this is also the minimum employment age. However, in a majority of Member States it is rare to attain secondary education while working (even part-time). Therefore, most 15 to 19-year olds who are still in education or training are not seeking employment. Students that attain higher levels of education tend to enter the labour market later. As a result, the lower age limit of the Europe 2020 strategy's employment target has been raised to 20 years. The upper age limit for the employment rate is usually set to 64 years, taking into account statutory retirement ages across Europe (European Commission (2012), The 2012 Ageing Report: Economic and budgetary projections for the EU27 Member States (2010–2060), p. 99.

[6] European Union (2018): STATISTICAL BOOKS. Smarter, greener, more inclusive? Indicators to support the Europe 2020 strategy. 2018 edition: https://ec.europa.eu/eurostat/documents/3217494/9087772/KS-02-18-728-EN-N.pdf/3f01e3c4-1c01-4036-bd6a-814dec66c58c (accessed April 2019), p. 24.

[7] European Union, 2018, p. 24

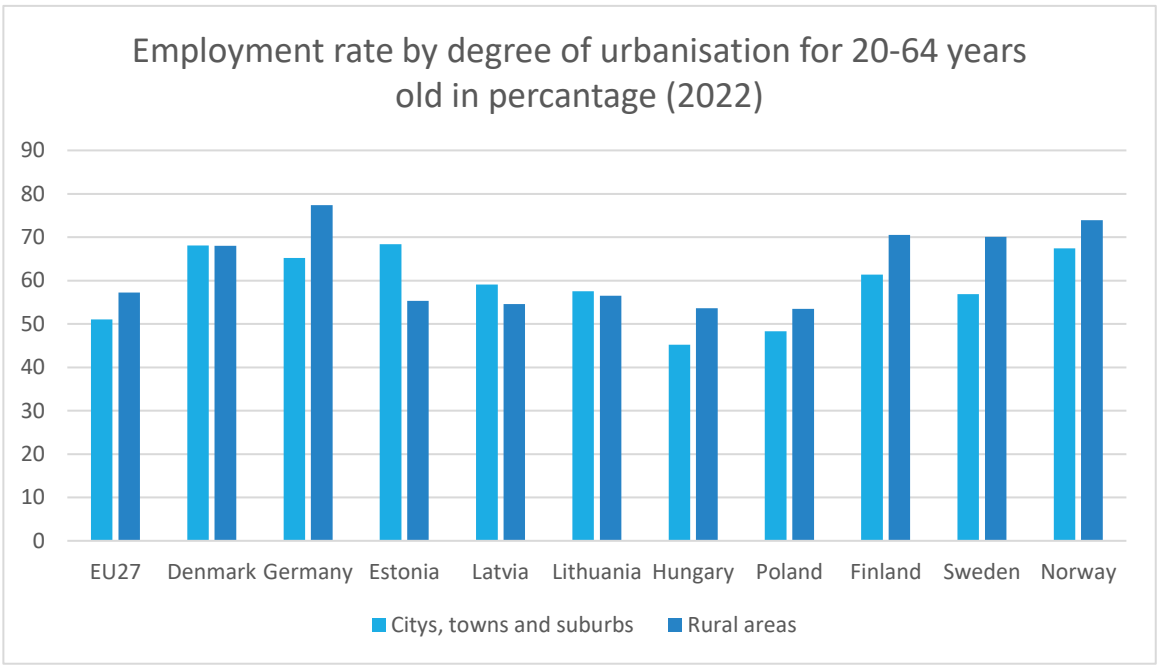
[8] Ibid.

[9] To reflect different national circumstances, the general EU target has been translated into national targets. These range from 62.9 % for Croatia to 80.0 % for Denmark, the Netherlands and Sweden.



Graph 31 [source: Eurostat (2023) "*Employment rate by sex* "(retrieved: 26.01.2024)]

The graph below shows that the highest employment rates in Baltic Sea region were mainly recorded in the rural regions of Germany (77.4%) and Norway (73.9%). Overall, the employment rate in rural regions is either higher than in cities, towns and suburbs in western BSR countries like Germany, Sweden and Norway, or equally high as it is in Denmark. The opposite is true in eastern and southern Baltic Sea region countries Estonia, where the employment rate in the city, town and suburb is higher than in rural regions (Graph 32).



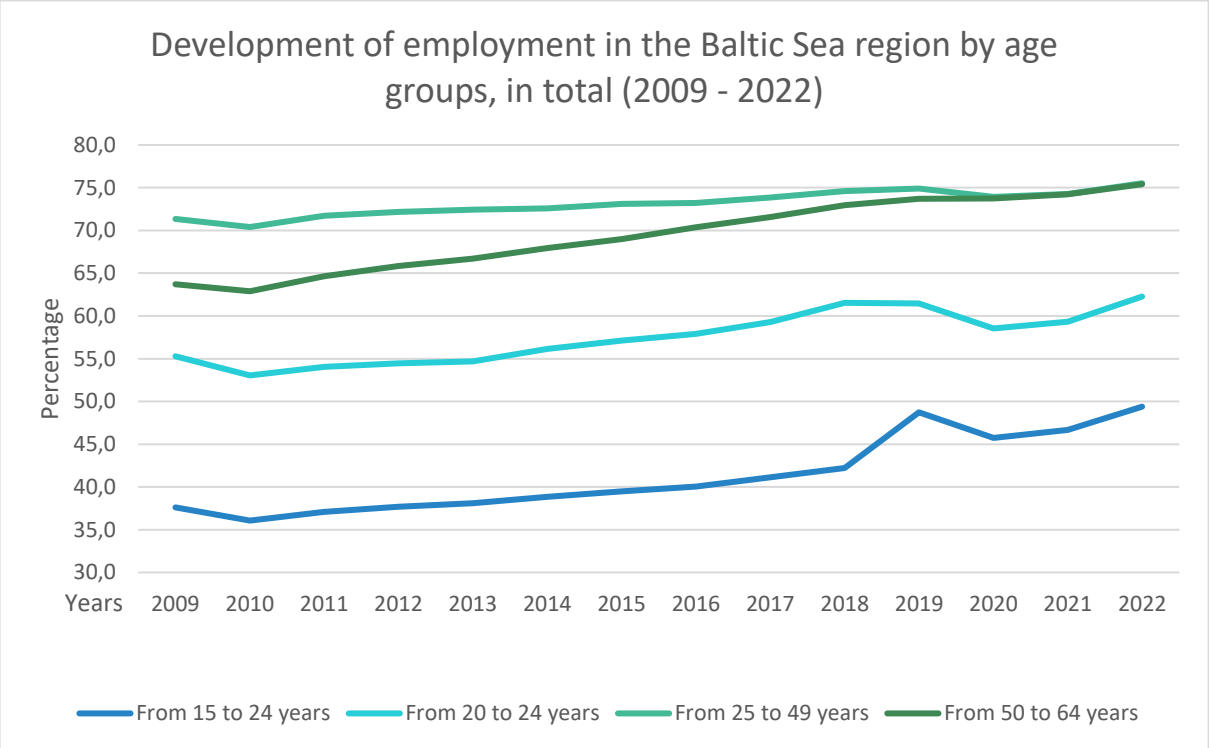
Graph 32 [source: Eurostat (2023) "*Employment rates by sex, age and degree of urbanisation (%)* "(retrieved: 26.01.2024)]

In 2022, Sweden had the highest employment rate in the 20-64 age group in the EU at 82.2%, followed by Estonia at 81.9% and Norway at 80.9%. Other countries in the BSR that exceeded the high 80% employment rate mark are: Germany with an employment rate of 80.7%, Hungary with 80.2% and Denmark with 80.1%. Unfortunately, four countries were unable to reach the 80% mark, but came close. These are Lithuania with 79%, Latvia with 77% and Poland with 76.7%. In the last 5 years, almost all countries had an increase in the employment rate in 2022 or were able to maintain this rate.

4.1.2 Employment Rate by Age

In 2022, the employment rate of 25- to 49-year-olds in the BSR was the highest compared to the other age groups but has converged with the 50- to 64-year-old group since 2020. In 2018, the employment rate was less than 1.5 percentage points behind the 25 to 49-year-olds.

In contrast, significantly lower employment rates were found in 2022 among 15 to 24-year-olds at around 50% and among 20 to 24-year-olds at 62.5% (see Figure 33), who were at least 10 percentage points less likely to be employed than the two older age groups. A positive trend can be observed here in recent years. On the one hand, this significantly lower employment rate is due to the fact that adolescents and young adults are not in regular full-time employment due to their participation in training, studies, a voluntary social year, the German armed forces, internships, participation in international exchange programs, etc. On the other hand, "this may not only affect the employment rate of the older age groups. On the other hand, "this may not only reflect the overall lower employment rate of younger people, but may also be due to the generally insecure position of young people on the labor market, which makes youth employment more sensitive to macroeconomic fluctuations than adult employment.[10]



Graph 33 [source: Eurostat (2023) "*Employment rates by sex, age and citizenship (%)* "(retrieved: 09.02.2024)]

BSR: Denmark, Germany, Estonia, Latvia, Lithuania, Poland, Finland, Sweden and Norway and Hungary

[10] European Union 2018, p. 33

"Overall, the increase in the employment rate of older workers is one of the main drivers of the total rise in employment across the EU. These increases can be linked to structural factors such as cohorts with better educational attainment, especially women, moving up the age pyramid as well as recent pension reforms,

such as increases in the pensionable age, the age for early retirement and the length of pension contribution. This has led to longer working lives for both women and men[11].

All in all, the employment rates of younger and older people continued to be lower than for the total employment rate in the EU.

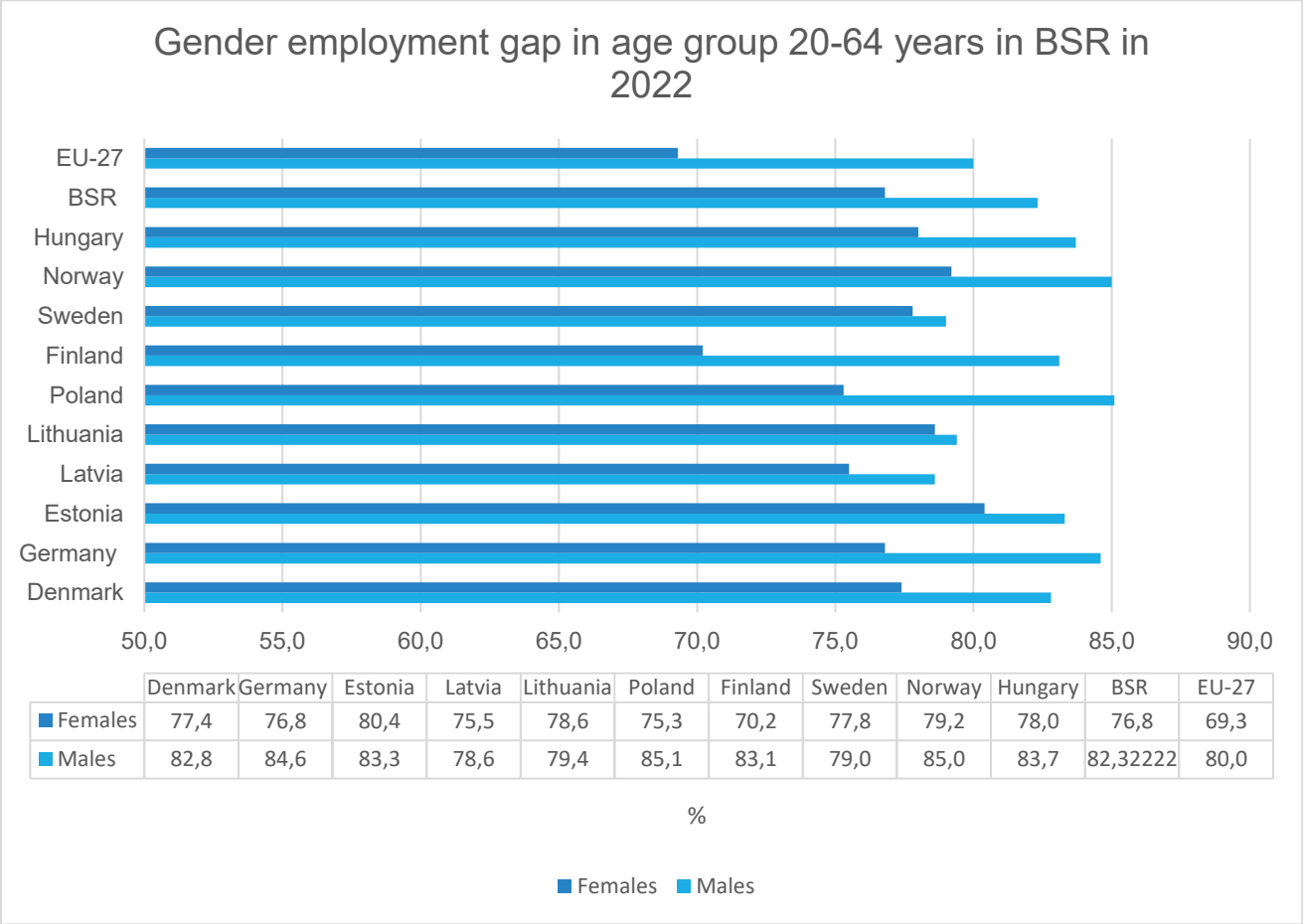
4.1.3 Employment Rate by Gender

Throughout the European Union, "employment rates for women are significantly lower than for men. The gender employment gap is widest in three age groups: 30 to 34 years, 35 to 39 years and 60 to 64 years. Although women are increasingly better qualified and even outperform men in terms of educational attainment, women's participation and employment rates are still lower than those of men (see Figure 34). However, the gender employment gap - the difference between the employment rates of men and women - has narrowed in all age groups. In the age group of 20- to 64-year-old women, the employment rate rose from around 69% (2012) to around 77% (2022). A strong upward trend can be observed here and some countries have seen an increase of almost 20 years, such as Hungary. Several structural factors influencing the participation of women in the labour market may account for why they have been catching up with men. These include changes in social values and attitudes, policies enabling women to reconcile paid work with household responsibilities such as childcare provision, flexible working hours, reduction in financial disincentives for women, improved mechanisms to encourage fathers' parental engagement, and pension reforms. European employment policies promoting new forms of flexibility and security are addressing the specific situation of women to help raise their employment rates in line with the headline target[12].

Developments in the employment rate for men and women are also reflected in the participation of women and men in the labour market in the Baltic Sea region, as the next figure shows.

[11] Ibid.

[12] European Union 2018, p. 34



	Denmark	Germany	Estonia	Latvia	Lithuania	Poland	Finland	Sweden	Norway	Hungary	BSR	EU-27
Females	77,4	76,8	80,4	75,5	78,6	75,3	70,2	77,8	79,2	78,0	76,8	69,3
Males	82,8	84,6	83,3	78,6	79,4	85,1	83,1	79,0	85,0	83,7	82,32222	80,0

Graph 34 [source: Eurostat (2023) "*Employment rates by sex, age and citizenship (%)* "(retrieved: 09.02.2024)]

BSR: Denmark, Germany, Estonia, Latvia, Lithuania, Poland, Finland, Sweden and Norway and Hungary

In the Baltic Sea Region, as in other parts of Europe, the average employment rate for women (77%) is lower than for men (80%), but significantly higher than the EU27 average (69.3%).

Furthermore, the average employment rate for both men and women in the Baltic Sea region is higher than the EU-27 average. Latvia has the lowest female employment rate in the Baltic Sea region at 73 percentage points, closely followed by Hungary at 73.5%. This is around 10 percentage points lower than the average for the Baltic Sea region.

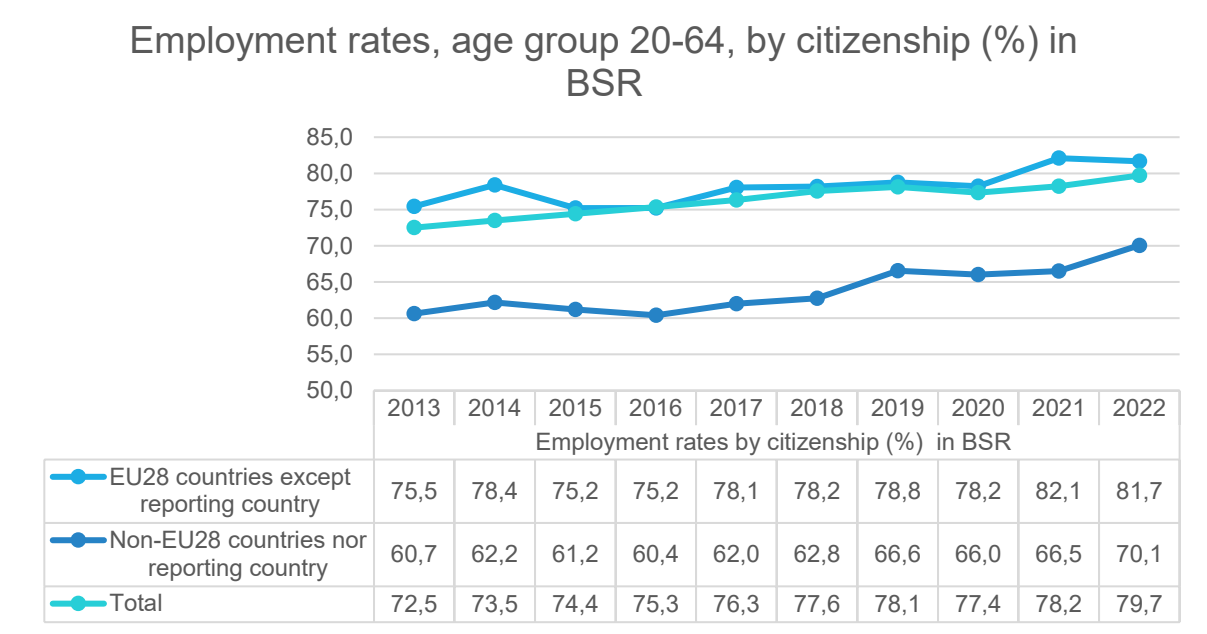
The differences between the employment rates of men in the individual countries and in the EU (80%) and the average for the Baltic Sea region (82.46%) are smaller and range from 78.6% in Latvia to 85.1% in Hungary and 85% in Sweden.

4.1.4 Employment Rate by Country of Origin

In the European context "economic migration is becoming increasingly important for the EU's ability to deal with a shrinking labour force and expected skills shortages. According to current population projections, without net migration the working-age population aged 20 to 64 would shrink by 9 % by 2030 and by 28 % by 2060 compared with 2015 levels. As shown further below, the working-age population is expected to decline even with net migration into the EU, but at slower rates of – 4 % by 2030 and – 13 % by 2060. Country of origin can impact the labour market performance of individuals. Migrant workers from countries outside the EU tend to occupy low-skilled and insecure jobs with temporary contracts and poorer working

conditions. Migrants are also among the first to lose their jobs during economic setbacks. Much lower employment rates are consequently reported for this group than for EU citizens"[13]

In 2022 in the BSR, the employment rate of non-EU nationals aged 20 to 64 was 14.9 percentage points below the total employment rate and 17.1 % below the employment rate by EU citizens. Additionally, their employment rate has so far slightly recovered from the setback caused by the economic crisis, with the 2022 rate being slightly higher than the levels recorded before the crisis.



Employment rates by citizenship (%) in BSR	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
EU28 countries except reporting country	75,5	78,4	75,2	75,2	78,1	78,2	78,8	78,2	82,1	81,7
Non-EU28 countries nor reporting country	60,7	62,2	61,2	60,4	62,0	62,8	66,6	66,0	66,5	70,1
Total	72,5	73,5	74,4	75,3	76,3	77,6	78,1	77,4	78,2	79,7

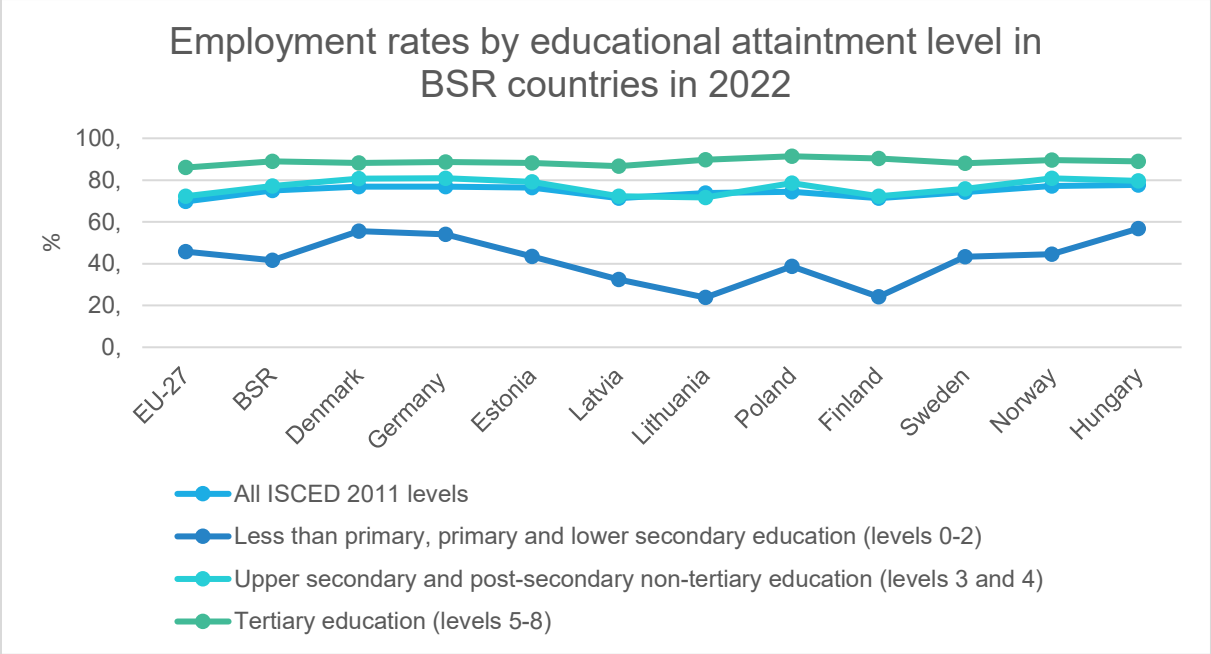
Graph 35 [source: Eurostat (2023) "*Employment rates by sex, age and citizenship (%)* "(retrieved: 16.02.2024)]

It is interesting to note that the employment rate of EU citizens living in other country in the BSR is higher than total employment rate.

[13] European Union 2018, p. 35-36

4.1.5 Employment Rate by Educational Level

People with low educational attainment form one of the most disadvantaged groups in the labour market, exhibiting low employment rates as the figure below shows.



Graph 36 [source: Eurostat (2023) "*Employment rates by sex, age and educational attainment level (%)* "(retrieved: 15.02.2024)]

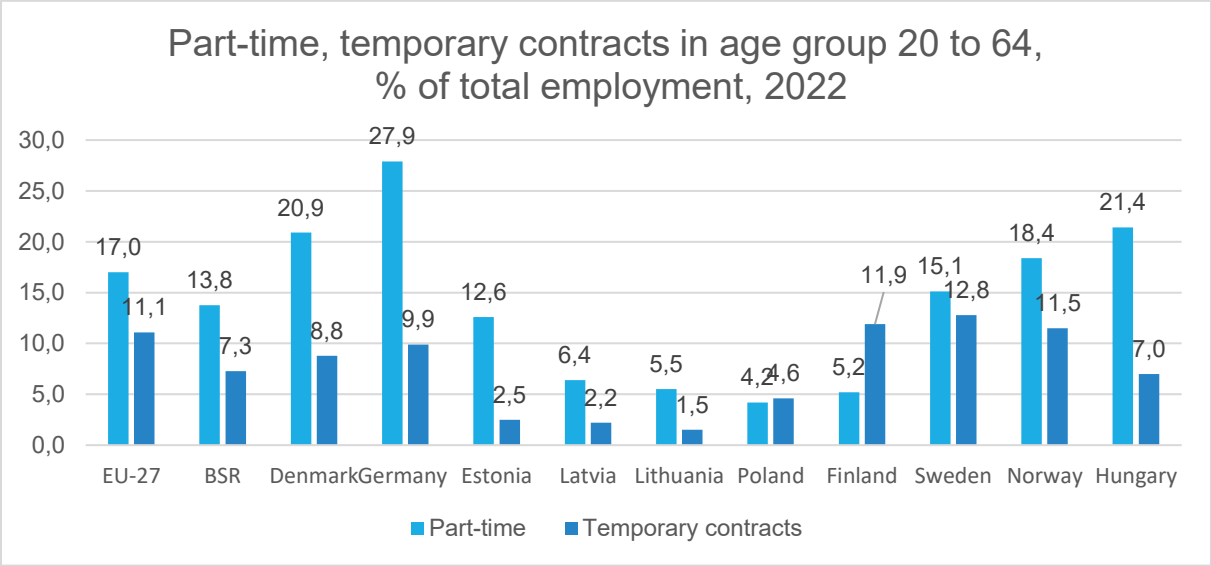
BSR: Denmark, Germany, Estonia, Latvia, Lithuania, Poland, Finland, Sweden, Norway and Hungary

The strong link between the educational attainment and employment can be observed in both the EU and the Baltic Sea region. Employment rates are higher for more well-educated people. In 2022, the employment rate among tertiary education graduates (88.7%) was much higher than the EU average total (75%). In contrast, people who have reached less than primary, primary and lower secondary education are employed at 40% on average in BSR, showing very low employment rates in Lithuania and Poland at 20% level. The employment rate for people with upper secondary or post-secondary non-tertiary education was in between the levels - tertiary education - and slightly above the overall BSR average employment rate[14].

These findings underline the importance of education for employability. Increasing educational attainment and equipping people with skills for the knowledge society are, therefore, a major focus of European employment policies addressing Europe 2020/2030 headline targets on employment and education[15].

[14] cf. European Union 2018, p. 35
[15] European Union 2018, p. 35

4.2 Part-time Employment and Temporary Contracts

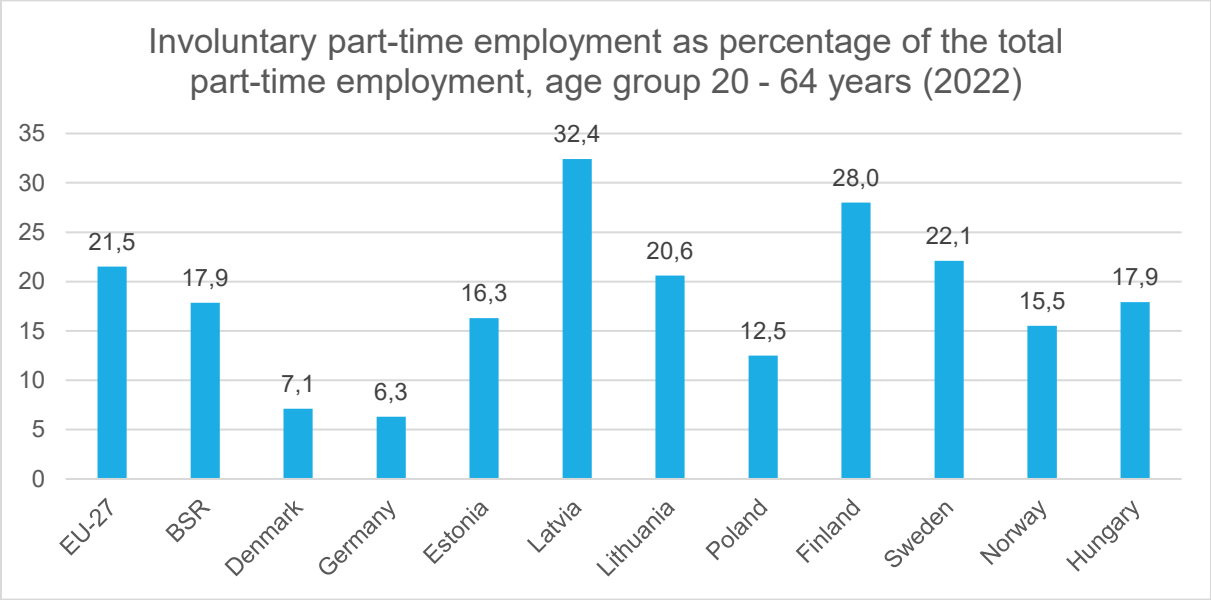


Graph 37 [source: Eurostat (2023) "*Part-time employment and temporary contracts - annual data* "(retrieved: 15.02.2024)]

There is a distinct split between eastern and western regions, with much lower part-time employment rates generally recorded in the former. These patterns probably reflect the maturity of labour markets and the impact of national employment legislation alongside a high degree of conformity within each Member State as regards attitudes to part-time work.

Working part-time has various reasons, but more about this on the next pages.

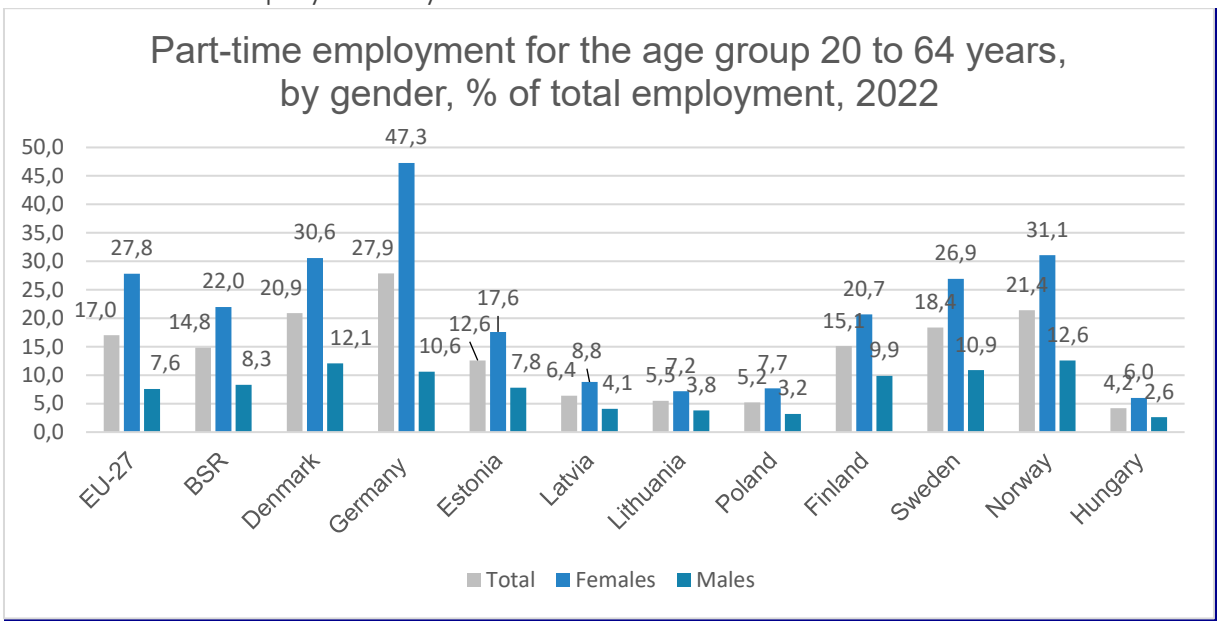
4.2.1 Involuntary Part-Time Employment



Graph 38 [source: Eurostat (2023) "*Involuntary part-time employment as percentage of the total part-time employment, by sex and age (%)* "(retrieved: 15.02.2024)]

One in four part-time workers in EU-27 countries is involuntarily employed part-time; in the Baltic Sea region this is one in five. The most conscious choice for part-time work is in Latvia, where involuntary part-time work is a third of the people.

4.2.2 Part-time Employment by Gender



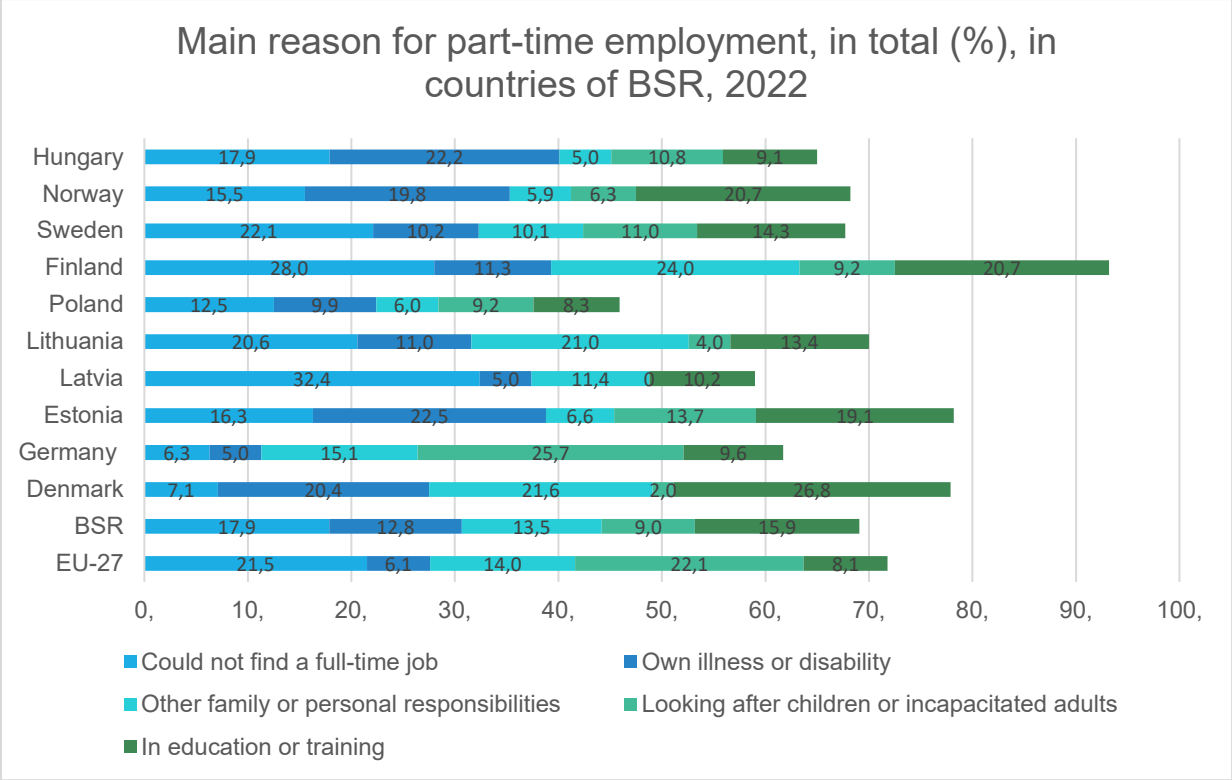
Graph 39 [source: Eurostat (2023) "*Part-time employment and temporary contracts - annual data* "(retrieved: 15.02.2024)]

The main reasons for part-time work vary from country to country in the Baltic Sea region. It is interesting to take a closer look (see graph 40) by highlighting some findings. In 2022, the most frequently cited reason for part-time work in Germany is "looking after children" with 25.7 percentage points. In no other BSR country was this mentioned as the main reason, therefore the BSR average here is only 9%, but in EU-27 it is 22.1%.

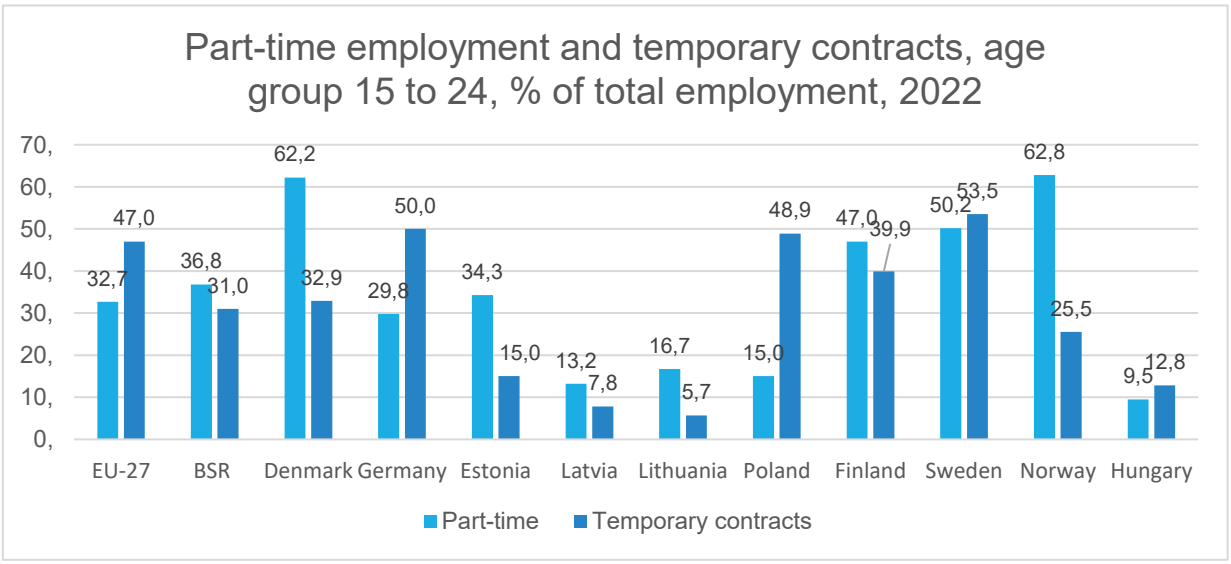
More than one in five part-time employees in Hungary (22.2%) and Estonia (22.5%) do not work full-time due to "own illness or disability". Nowhere else in the BSR are there as many as here. In Norway, the average is (19.8%) and Denmark (20.4%).

In Denmark, for example, the main reason for working part-time is to participate in training or further education - 26.8%.

In many BSR countries, however, the main reason for working part-time is "not being able to find a full-time job". Latvia tops the list of countries for this reason with 32.4%, closely followed by Finland with 28%. This is also the main reason in the BSR average.



Graph 40 [source: Eurostat (2023) "*Main reason for part-time employment - Distributions by sex and age (%)* "(retrieved: 15.02.2024)]



Graph 41 [source: Eurostat (2023) "*Part-time employment and temporary contracts - annual data* "(retrieved: 16.02.2024)]

4.2.3 Youth in Part-time Employment

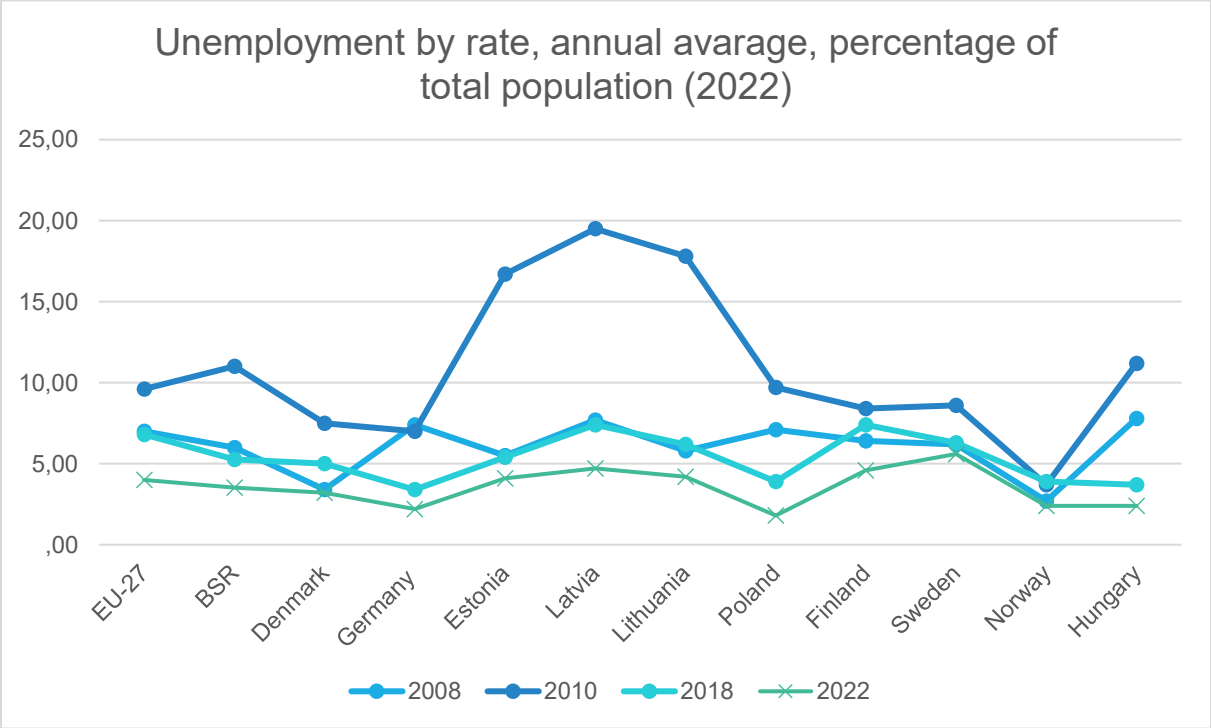
Youth in part-time are two times more likely to be employed than the age group of 20 – 64 years old. A high proportion of young people in part-time are in Denmark and Norway.

One in two in Germany on the basis of temporary contracts.

4.3 Unemployment[16]

Unemployment can have an impact not just on the economic well-being of a country (unused potential labour input and higher social protection payments) but also on the well-being of individuals who are without work. The personal and social costs of unemployment are varied and include a higher risk of poverty, debt or homelessness, while the stigma of being unemployed can cause a reduction in self-esteem, a breakdown in family/personal relations, or social exclusion[17].

In 2019, the recovery of the European labour market continued at a rapid pace, with employment in the EU in 2018 exceeding pre-crisis levels and unemployment rates approaching pre-recession levels. In February 2019, the unemployment rate reached 6.8% in the EU-27 and in the BSR – 4.4% (and 4.3% incl. HU). The decline in unemployment continued to be stronger than expected due to the dynamics of economic growth. All countries benefited from the economic recovery spurred by the dynamism of domestic demand, strong consumer and business confidence and favourable macroeconomic policies, as this is reflected in the lower dispersion of unemployment rates[18]. In 2022, it can be observed that all countries were able to increase their employment rate (see graph 42).



Graph 42 [source: Eurostat (2023) "*Unemployment by sex and age – annual data* "(retrieved: 16.02.2024)]

The graph shows 4 selected points from recent history: 2008 - unemployment rate before the economic crisis, 2010 - during the economic crisis when the highest unemployment rates were reached and figures between 2018 and 2022 in the Corona pandemic.

In the BSR, Sweden and Latvia had the highest unemployment rates in 2022 and are therefore higher than the EU-27 average of 4%.

[16] Based on the ILO definition, unemployed persons are aged 15 to 74 who: -are without work; -are available to sta rt work within the next two weeks; -and have actively sought employment at some time during the previous four weeks.
[17] Eurostat statistics explained: labour market statistics at regional level: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Labour_market_statistics_at_regional_level#Unemployment (May 2019).
[18] Cf. European Commission (2017): Labour Market and Wage Developments in Europe. Annual Review 2017. Luxembourg: Publications Office of the European Union, 2017, p. 1, 8.

Overall, in 2010 the three Baltic States - Latvia, Estonia and Lithuania - were most affected by the economic crisis demonstrating 19.5%, 16.7% and 17.8% unemployment rate respectively, but have recovered most rapidly and in 2018 Estonia and Lithuania have lower unemployment rates than the EU-27 average of 6.8%. Latvia is slightly above the average with 7.4 percentage points. In 2022, Lithuania, Estonia and Latvia are slightly above the Eu27 average and, in this respect, more above that of the BSR. Against the background of the development of unemployment around the Baltic Sea, the Eastern European countries have taken the right steps towards the unemployment problem, as shown by the positive developments in the Baltic States above, Hungary and Poland. In 2022, Poland will have the lowest unemployment rate, closely followed by Germany, Norway and Hungary.

It should be noted that the coronavirus pandemic has not caused a high unemployment rate, as was the case during the global economic crisis. The measures taken by the government and the expansion of the home office can be cited here.

4.3.1 Unemployment Rate by Regions

Looking at the unemployment rate in NUTS-2-regions[19] scale in BSR, the lowest rate is observed with 2.0% in Hungary in Nyugat-Dunántúl region[20], followed by regions with 2.2% unemployment rate – Pest and Közép-Dunántúl (Hungary) and region of Wielkopolskie (Poland). In contrast, the highest unemployment rate is identified in Sydsverige (Sweden) – 8.3% and in Pohjois- ja Itä-Suomi (Finland) – 8.1%.

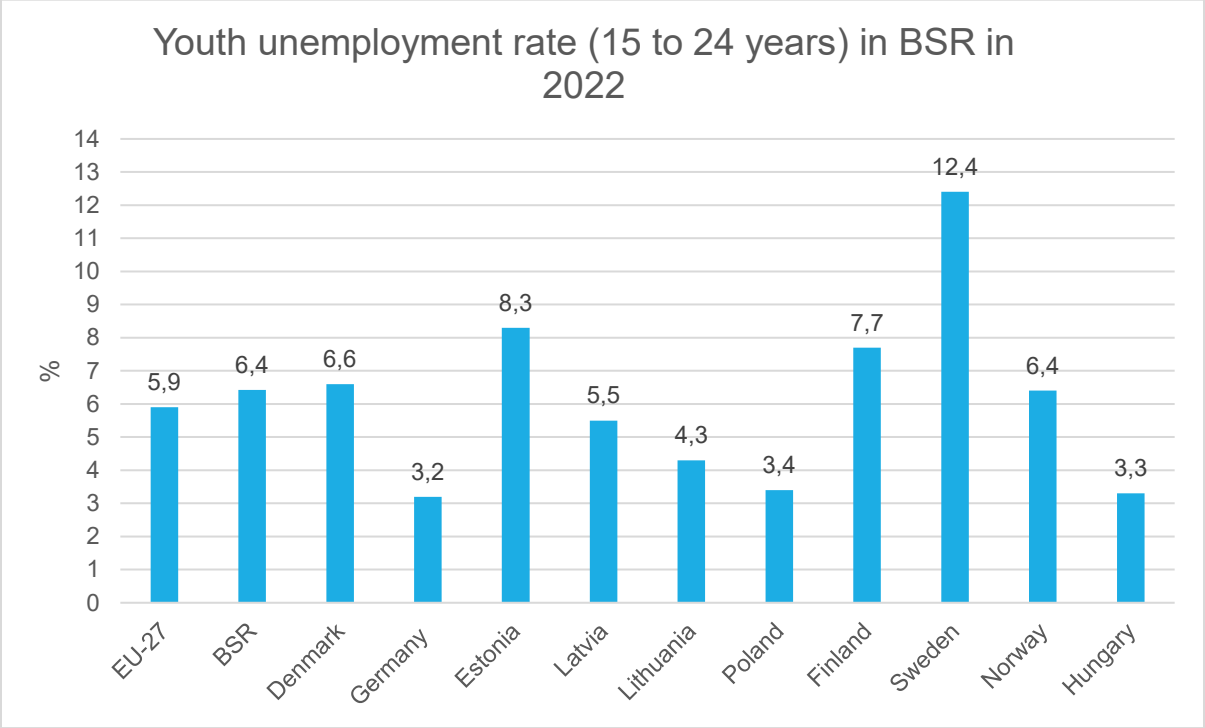
4.3.2 Unemployment Rate by Age

In the previous paragraph, the total unemployment rate has already been shown. Now, this age group of 15-74-year-olds belonging to the active population group is divided into "less than 25 years" and "25 to 74 years" in order to highlight youth unemployment[21]. Youth unemployment is given high priority in describing the economic development of a country, as youth unemployment is an important indicator of this.

[19] Definition for nuts regions here: https://ec.europa.eu/eurostat/web/nuts/background (May 2019)

[20] In the case Germany is not considered as a whole in the BSR, but parts in North. Otherwise, regions in southern Germany are at the top: Mittelfranken (1.8%), Oberpfalz und Tübingen (1.9%).

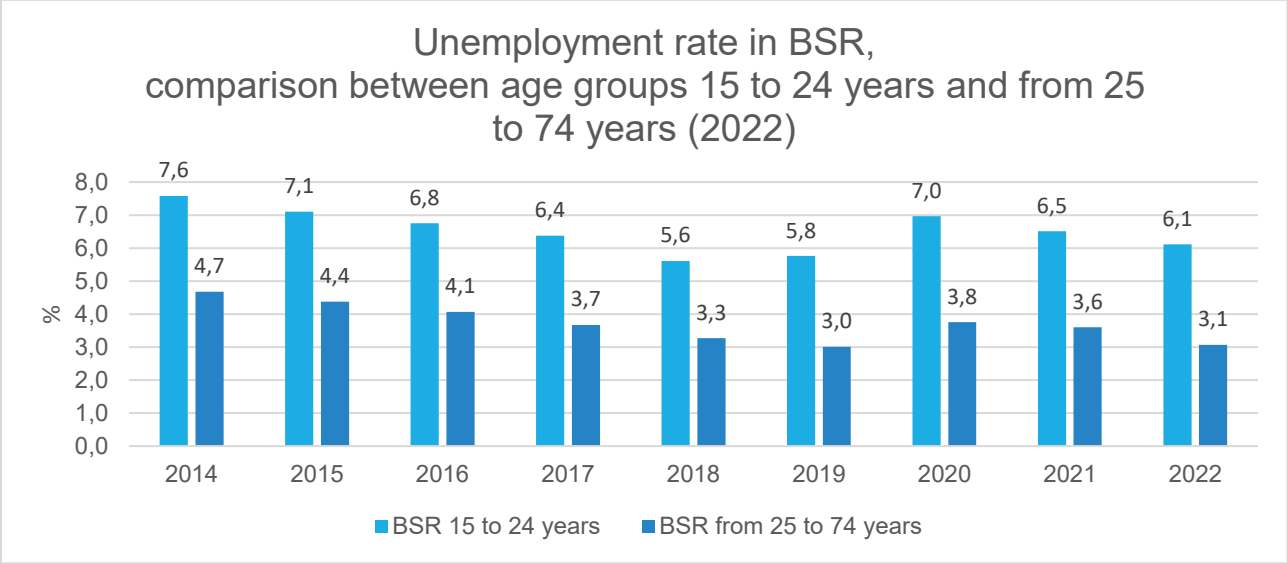
[21] The youth unemployment rate is the unemployment rate of people aged 15 to 24. In contrast, the youth unemployment ratio is the percentage of unemployed young people compared to the total population of that age group (not only the active, but also the inactive such as students).



Graph 43 [source: Eurostat (2023) "*Unemployment by sex and age – annual data* "(retrieved: 16.02.2024)]

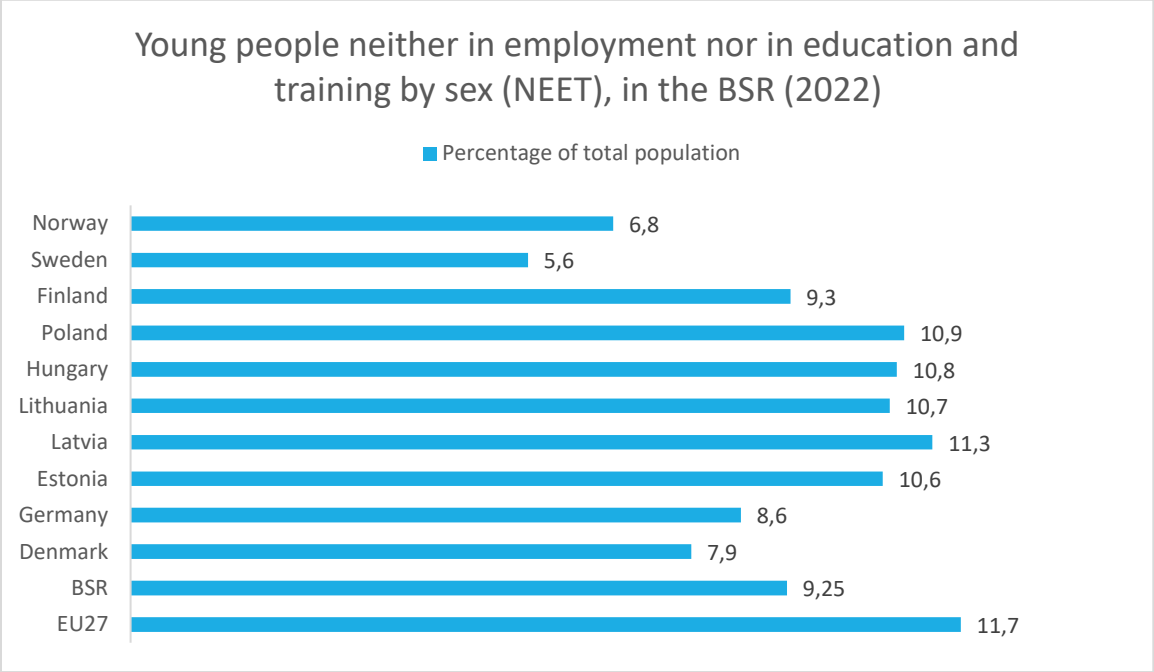
In total numbers, 720 thousand young people (aged 15-24 years) are unemployed in 2022 in the BSR (excl. Hungary).

By direct comparison, it can be seen that youth unemployment in the Baltic Sea region has been double or almost even three times higher than the of 25-74-year-old (see graph 44). The development of the youth unemployment rate is subject to the macroeconomic developments of a country, such as the rate of 25-74-year old, but the young people are more strongly affected by the economic fluctuations; face specific challenges in the transition from school to work; need to overcome structural changes like unsatisfactory outcomes in education and training, segmentation of labour markets affecting young people, and at times the low capacity of public employment services to provide tailored services to young people, particularly to the most vulnerable.



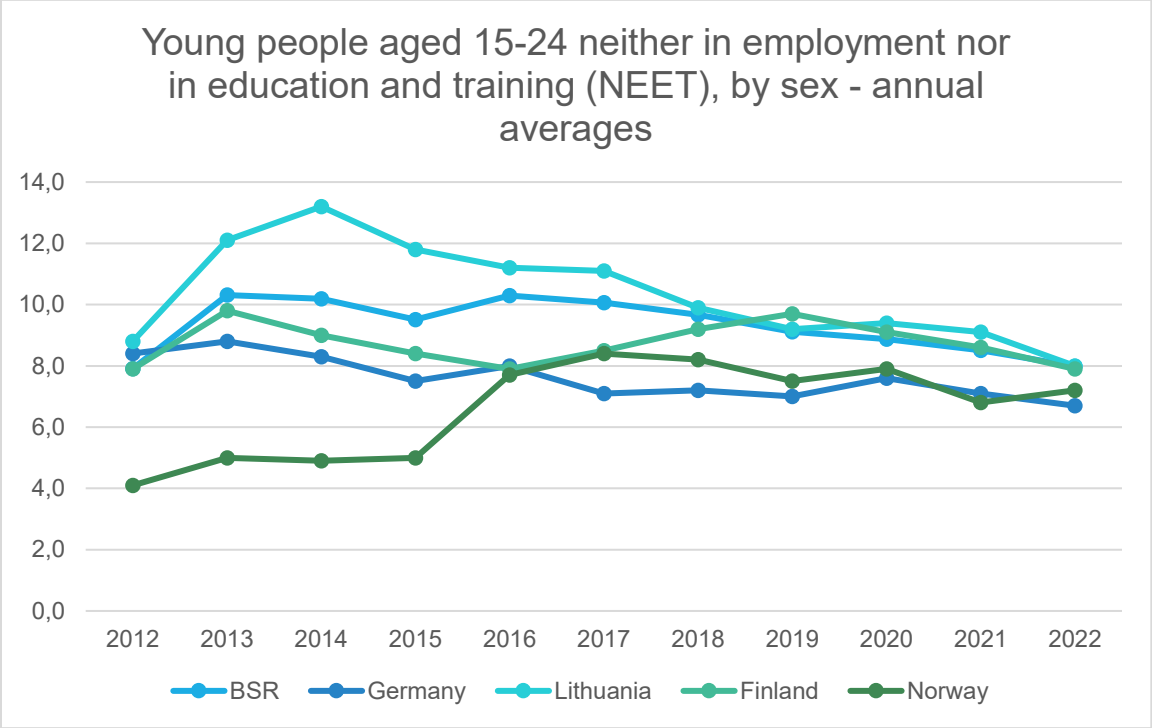
Graph 44 [source: Eurostat (2023) "*Unemployment by sex and age – annual data* "(retrieved: 16.02.2024)]

In 2022, 9,25 % of 15 to 24-year olds were neither in employment nor in education (NEET) in the Baltic Sea region, exposing themselves to the risk of labour market exclusion and dependence on social security.



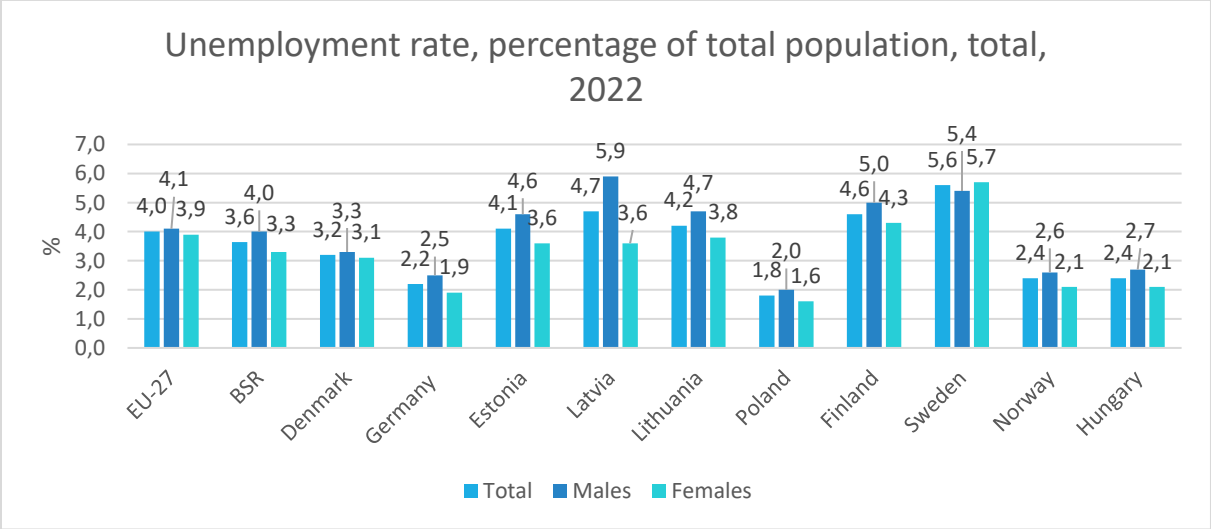
Graph 45 [source: Eurostat (2023) "*Young people neither in employment nor in education and training by sex (NEET)* " (retrieved: 16.02.2024)]

It is interesting to note that the proportion of young people who belong to NEET has changed over the last 10 years in the individual countries without making comparatively large leaps, i.e. if, then by a few percentage points e.g. during the economic crisis, then settled back to a level that can still be observed.



Graph 46 [source: Eurostat (2023) "*Young people neither in employment nor in education and training (NEET), by sex and age - annual data* "(retrieved: 16.02.2024)]

4.3.3 Unemployment Rate by Gender

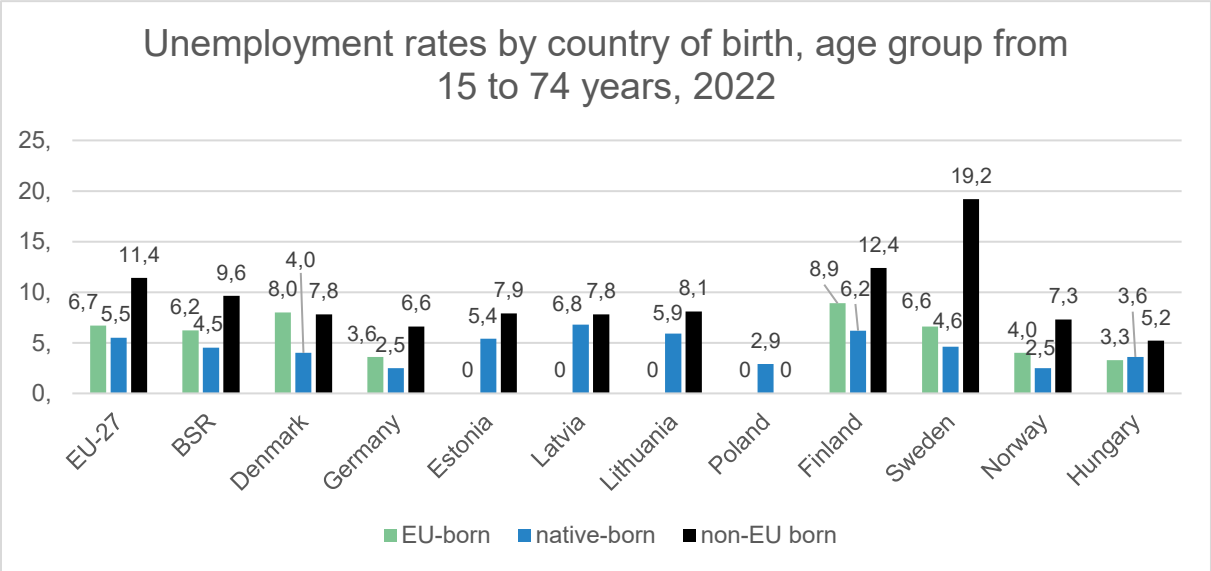


Graph 47 [source: Eurostat (2023) "*Unemployment by sex and age – annual data* "(retrieved: 16.02.2024)]

4.3.4 Unemployment Rate by Country of Origin

Unfortunately, not all countries have complete data sets on unemployment rate of population born abroad – in other EU country or third country, therefore the value 0 is considered "no data available" as it is in Poland and for EU-born population in Estonia, Latvia, Poland, and Lithuania.

An analysis for the individual EU Member States confirms that unemployment rates were generally lower for native-born rather than foreign-born populations.

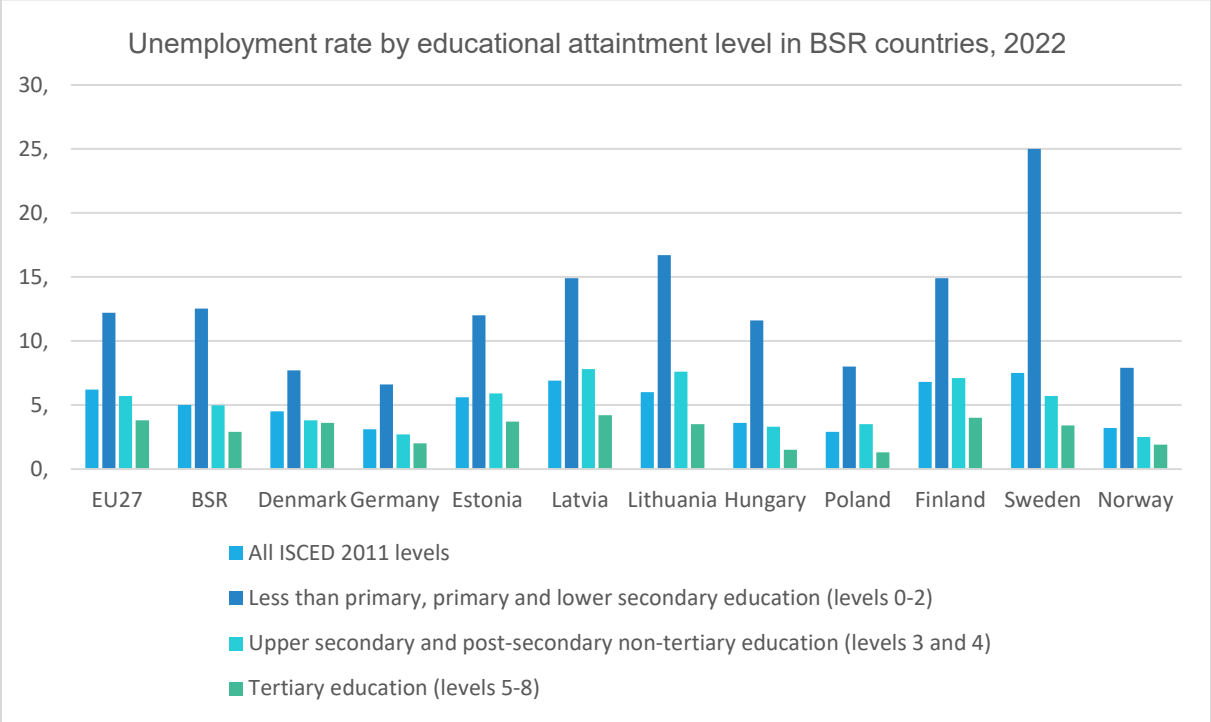


Graph 48 [source: Eurostat (2023) "*Unemployment rates by sex, age and country of birth (%)* "(retrieved: 16.02.2024)]

*EU-born = other than the reporting country

4.3.4 Unemployment Rate by Educational Level

A reflection of the employment rate by educational attainment level can be seen in the unemployment rate. Accordingly, the unemployment rate is highest for people with "less than primary, primary and lower secondary education (levels 0-2) and the lowest having tertiary education degree (levels 5-8).



Graph 49 [source: Eurostat (2023) "*Unemployment rates by sex, age, educational attainment level and NUTS 2 regions (%)* "(retrieved: 16.02.2024)]

5. Educational Markets

5.1 Introduction:

The Education and Training 2020 (ET2020) and Education and Training 2030 (ET2030) strategic frameworks set clear targets and benchmarks for Member States to strive towards in order to improve the quality of education, promote equal opportunities and meet changing societal needs. These strategies serve as a framework for cooperation and the exchange of best practice between the Member States and the European Commission. The analysis of education systems is carried out at the national level. These strategies serve as a reference framework for educational cooperation and development in the European Union and provide a clear benchmark for assessing the Baltic see region's progress in various areas of education.

The order of this analysis reflects the priorities of the ET 2020 and ET 2030 strategies and allows for a systematic assessment of educational development in the Baltic Sea region.

The order of this analysis is chosen to provide a comprehensive assessment of the education systems in the Baltic Sea countries.

We start by analyzing the educational attainment of the population and then look at different aspects such as early childhood education, school success, early school leaving and adult education. This systematic approach allows us to identify potential challenges and successes in the education systems of the Baltic Sea countries. Here is a journey through the educational landscape:

Educational Level of Population in Countries:

- Population by education attaintment level, age group from 15 to 64 years, 2022 (Graph 50)
- Population by educational attaintment level, by gender, age group from 15 to 64 years ,2022 (Graph 51)
- Population of 30 – 34 (ET2020) and 25-34 (ET2030) years old in tertiary education

This topic provides an overview of the educational level of the overall population as well as gender-specific differences and forms the basis for further analyses.

Early Leavers from Education and Training:

- Early leavers from education and training, % of population aged 18 - 24, BSR, 2022
- Early leavers from education and training, by labour status, Baltic Sea region, 2012 and 2022

Early school leavers in the Baltic Sea region: This analysis looks at the percentage of early school leavers among 18- to 24-year-olds in 2022 and their development by employment status from 2012 to 2022.

Adult learning:

- Adult participation in learning, in total, (% of population aged 25 to 64), 2022
- Adult participation in learning, by gender, (% of population aged 25 to 64), 2022
- Participation rate in education and training by adults aged 25 to 64

Examines adult education in the context of ET2020 and ET2030: participation rates and educational measures for 25-64 year olds.

Early education and study performance:

- Participation in early childhood education (%)
- Low achieving 15-year-olds in reading, mathematics or science (%)

Early education and pupil performance: Participation rates and skill levels among children and adolescents.

5.2 Introduction EU2020 Strategy

While the responsibility for education and training systems lies with the Member States, the role of the European Union is to support and supplement their action and capacity. The EU supports Member states though policy cooperation within the ET 2020 framework and individual funding actions (e. g. Erasmus+ programme and the European Structural and Investment Funds).

The European Strategy 2020 for Education and Training (ET 2020) pursues the following four common EU objectives:

- Make lifelong learning and mobility a reality;
- Improve the quality and efficiency of education and training;
- Promote equity, social cohesion, and active citizenship;
- Enhance creativity and innovation, including entrepreneurship, at all levels of education and training[22].

Moreover, the ET 2020 also supports the achievement of the following benchmarks at European level by 2020:

- At least 95% of children should participate in early childhood education
- fewer than 15% of 15-year-olds should be under-skilled in reading, mathematics and science
- the rate of early leavers from education and training aged 18-24 should be below 10%
- at least 40% of people aged 30-34 should have completed some form of higher education
- at least 15% of adults should participate in learning
- at least 20% of higher education graduates and 6% of 18-34-year-olds with an initial vocational qualification should have spent some time studying or training abroad
- the share of employed graduates (aged 20-34 with at least upper secondary education attainment and having left education 1-3 years ago) should be at least 82%[23].

The ET 2020 strategy has encouraged action in individual EU countries by making national plans and country specific recommendations, which, after only a few years, are already reflected not only in figures set as benchmarks, but also in more efficient education that is accessible to all, of better quality, anchored in work-based learning, adapted to labour market needs and permanently changing environment of knowledge based societies. The “old” educational systems have been reorganised. Many restructurings have been carried out, which can be described as reforms of the education systems: establishment of competence centres, introduction of work-based learning in vocational education and training, efforts to make education systems more permeable, new forms of learning by incorporating digital technologies and promoting intense mobility of teaching staff and young people in education and training.

5.3 Introduction EU2030 Strategy

The EU Education Ministers and the education minister 2021 have adopted the strategic framework for European cooperation in education and training for 2021 to 2030, "ET 2030" for short, which builds on the "ET 2020" framework for EU cooperation in education and training agreed in 2009. Among other things, it is expected to play an important role in completing the European Education Area by 2025. In addition, the

[22] European Commission, Education and Training, European Policy Cooperation (ET 2020 framework), https://ec.europa.eu/education/policies/european-policy-cooperation/et2020-framework_en (May 2019)
[23] European Commission, Education and Training, European Policy Cooperation (ET 2020 framework), https://ec.europa.eu/education/policies/european-policy-cooperation/et2020-framework_en (May 2019)

EU member states have defined the following priorities and objectives for the European Union's education cooperation:

- Higher quality, more equal opportunities, better integration, and more success for all in education and training
- Realizing lifelong learning and mobility for all
- Strengthening skills and motivation in pedagogical professions
- Strengthening European higher education
- Supporting the green and digital transitions in and through education and training

In addition, the ET 2030 also supports the achievement of the following benchmarks at European level by 2030:

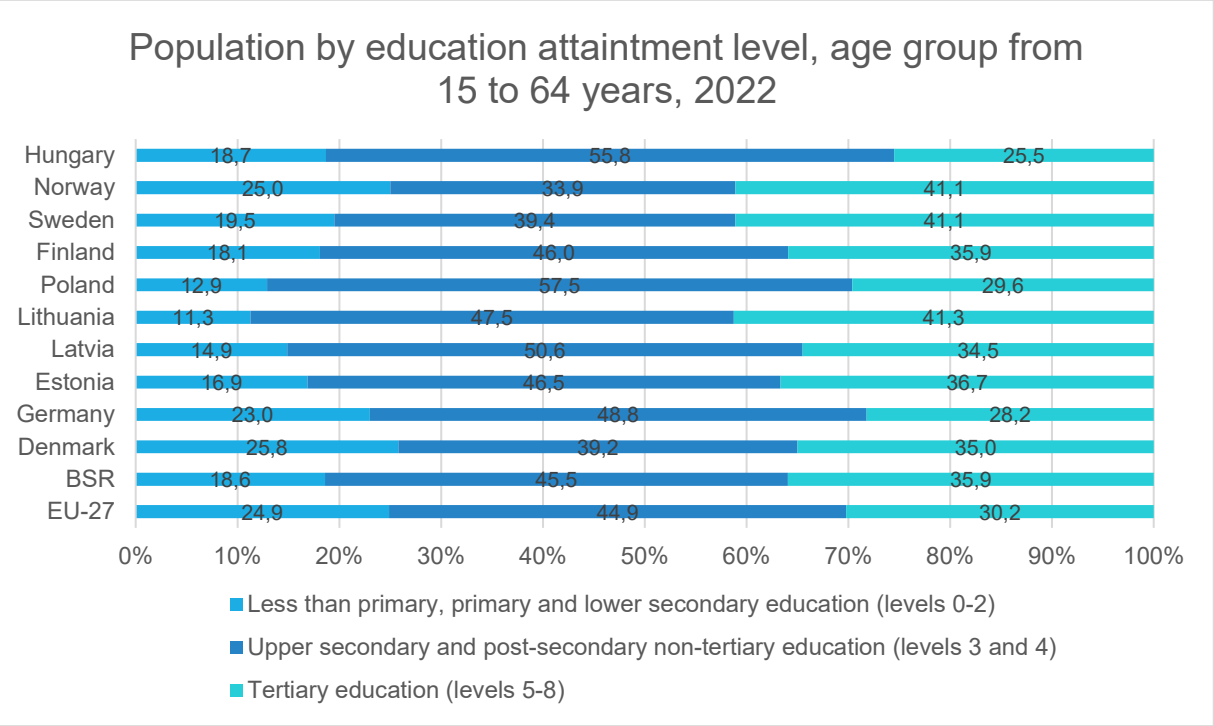
- 15-year-olds with bad performance in basic skills: By 2030, the proportion of 15-year-olds performing poorly in reading, math and science should be below 15%.
- Low computer and information skills in the 8th grade: By 2030, the proportion of students in the 8th grade with low computer and information skills should be below 15%.
- Participation in early childhood education and care: By 2030, at least 96% of children between the ages of three and the statutory school entry age should participate in early childhood education and care.
- Early school leavers: By 2030, less than 9% of learners should drop out of education or training.
- Acquisition of tertiary educational qualifications: By 2030, the proportion of 25- to 34-year-olds with tertiary education qualifications should be at least 45%.
- Workplace learning in initial and continuing vocational education and training: By 2025, the proportion of young graduates who have benefited from workplace learning as part of their vocational education and training should be at least 60%.
- Participation of adults in educational opportunities: By 2025, at least 47% of adults aged 25 to 64 should have taken advantage of educational opportunities in the last 12 months.

The EU education ministers, and the European Commission regularly submit joint interim reports on the progress of the education targets. The reports are based on contributions from the Member States, which set out national measures. Germany contributes to the report, which is compiled by the Federal Ministry of Education and Research and the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder. The Standing Conference promotes the exchange of successful educational concepts in the EU and sends representatives to relevant EU working groups. Seven European benchmarks are used to monitor progress and challenges and to support evidence-based policy (The above listed Points).[24]

[24] European Commission, Education and Training, European Policy Cooperation (ET 2030 framework), https://education.ec.europa.eu/about-eea/strategic-framework

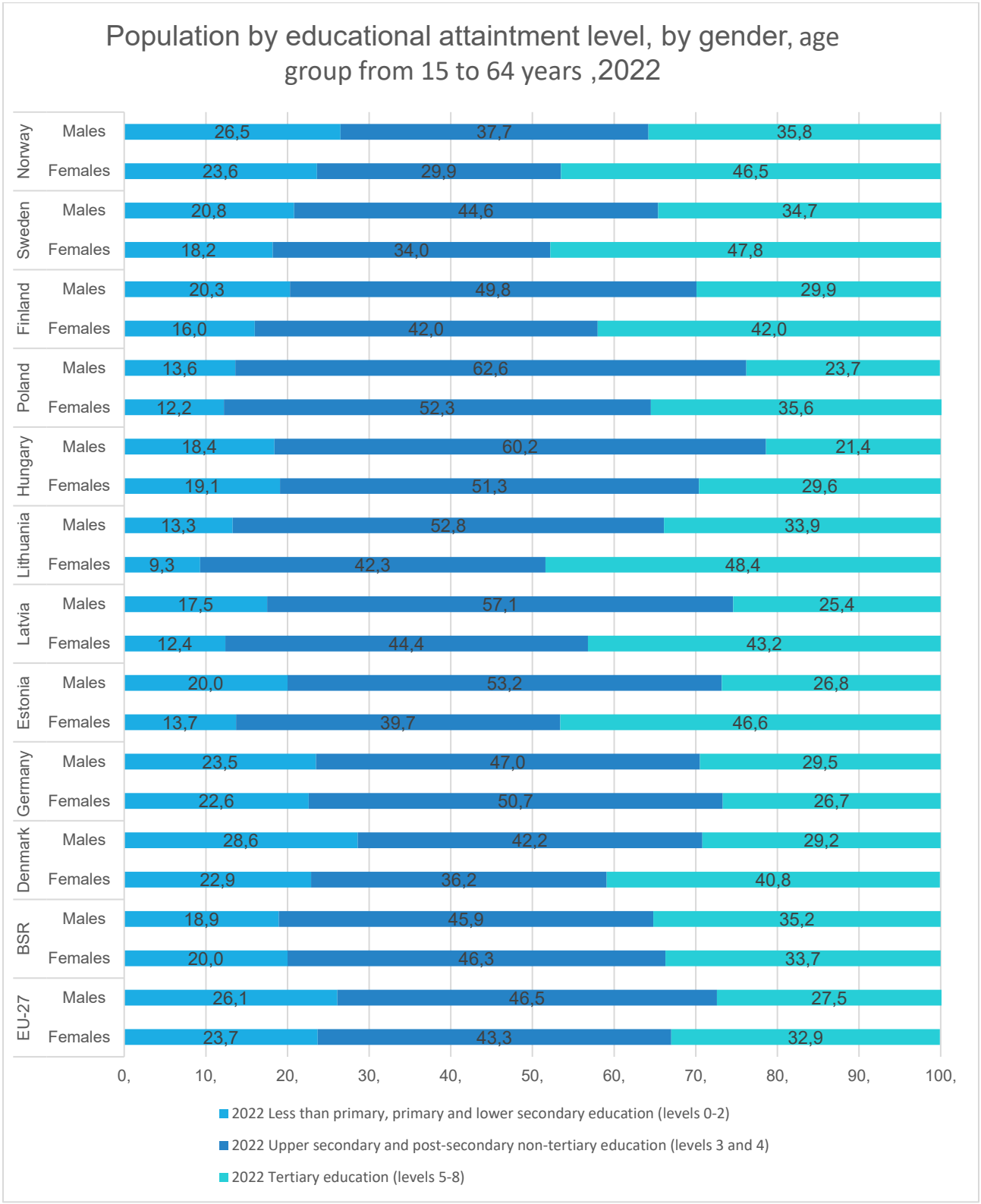
5.4 Educational Level of Population in Countries

‘‘Tomorrow belongs to those who can hear it coming’, said David Bowie forty five years ago. Jobs, labour markets and economies are rapidly changing - globalisation, technology and a growing services sector are both causes and symptoms. Ageing populations and dwindling youth cohorts, on the one hand, and labour migration, on the other, are affecting workforce composition. And that’s not to mention the lingering impact of the financial crisis[25]. What about the educational landscape in the BSR countries today?



Graph 50 [source: Eurostat (2023) “*Population by educational attainment level, sex and age (%)* “(retrieved: 16.02.2024)]

[25] CEDEFOP, briefing note – what future for vocational education and training in Europe? http://www.cedefop.europa.eu/en/publications-and-resources/publications/9133 (May 2019)



Graph 51 [source: Eurostat (2023) "*Population by educational attainment level, sex and age (%)* "(retrieved: 16.02.2024)]

As mentioned above, one of the targets identified in ET 2020 was that "at least 40% of 30-34-year olds have completed tertiary education". The following graph shows the situation as to the extent to which this target has been achieved in the BSR countries shortly before the 2020 deadline.

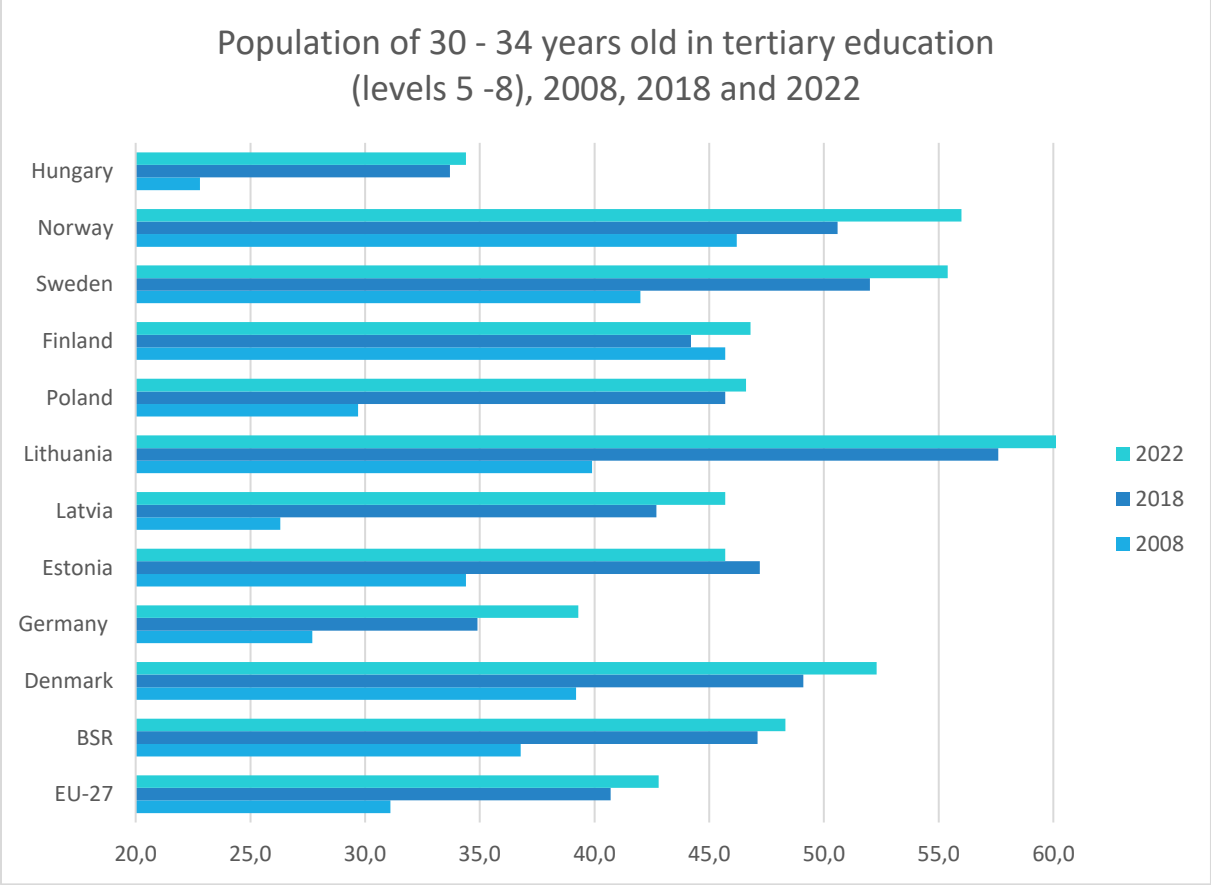
In the European Union and the Baltic Sea region, the overall participation of 30-34-year olds in tertiary education has increased significantly over the last 10 years. If in 2008 only three countries in the Baltic Sea region - Norway, Sweden and Finland - had exceeded the 40% threshold, then in 2018 only Germany (and Hungary) were below it and had not yet met this ET 2020 target.

The highest participation in tertiary education (57.6%) reaches Lithuania in 2018, followed by Sweden with 52% and Norway with one in two tertiary education graduates.

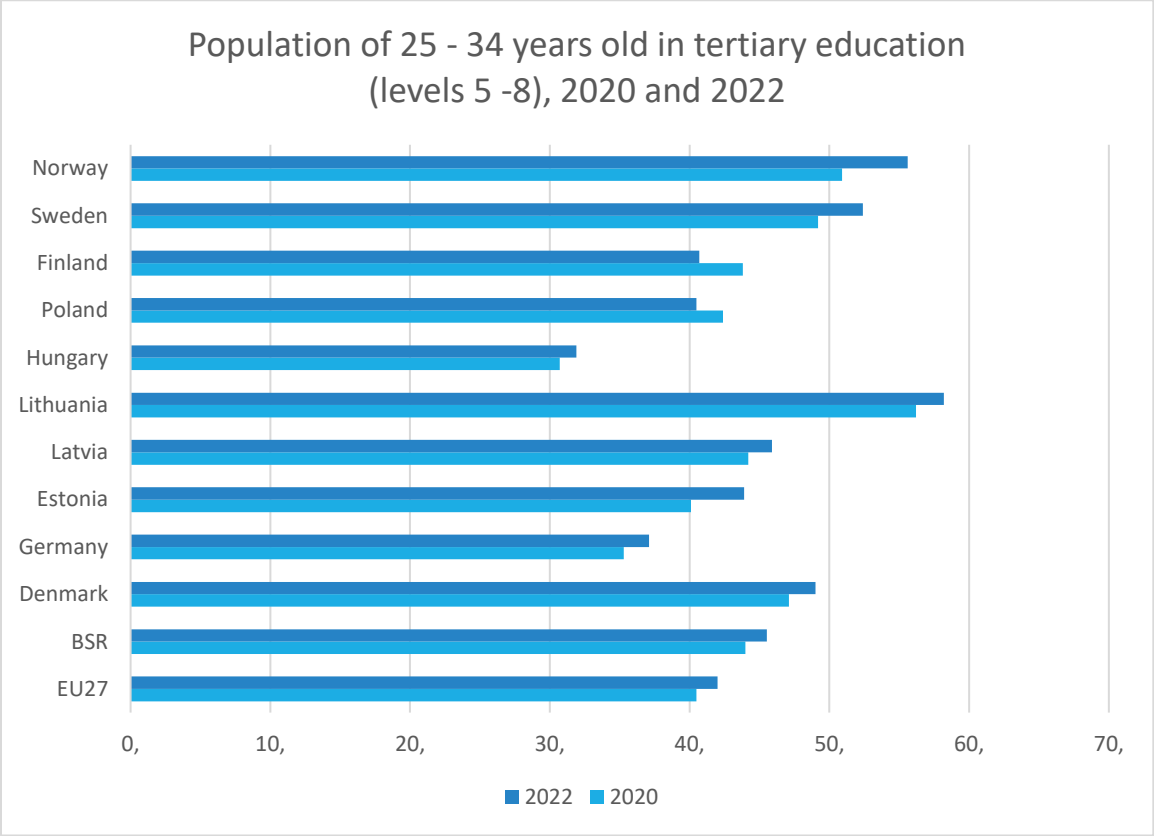
By comparison, the lowest rates were in Hungary (33.7%) and Germany (34.9%), although in Germany this could be due to the strong participation of young people in dual vocational education and training.

As can be seen in Graph 52, Germany was able to achieve a further jump and all countries in the Baltic Sea region and Hungary were able to claim further percentage points for themselves. If you look at the average value for the EU27 and the BSR, it is clear that the Baltic Sea region is expanding more slowly than the EU average.

In relation to the "ET 2030" strategy target, percentage points were gained up to Estonia. It should be noted that the BSR average already exceeded the 45% mark in 2018 and will be around 49% in 2022. Germany and Hungary were unable to achieve this percentage. However, they have recorded a relative increase.



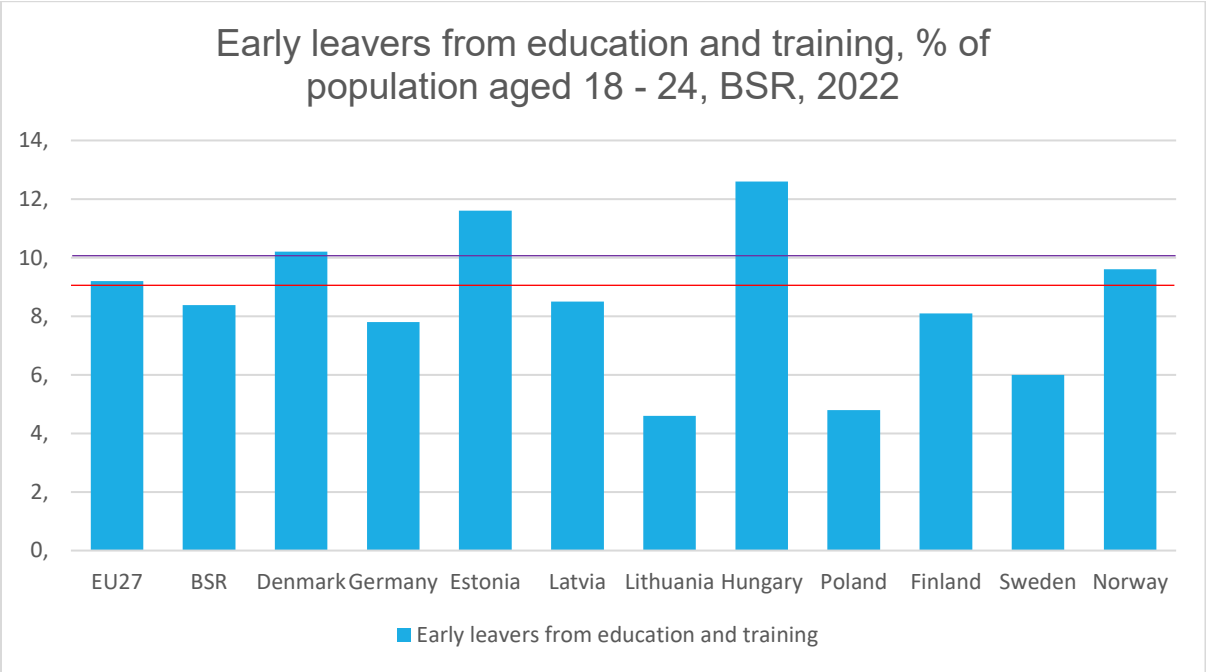
Graph 52 [source: Eurostat (2023) "*Population by educational attainment level, sex and age (%) - main indicators* "(retrieved: 16.02.2024)]



Graph 53 [source: Eurostat (2023) "*Population by educational attainment level, sex and age (%) - main indicators* "(retrieved: 27.02.2024)]

5.5 Early Leavers from Education and Training

In general, low educational attainment — at lower secondary education — influences other socioeconomic factors. The most important of these are employment, unemployment and the risk of poverty or social exclusion. Fortunately, the statistical data show a positive trend: early leaving from education and training has been falling continuously in the EU since 2002, for both men and women. Additionally, this development represents steady progress towards the Europe 2020 targets of 10%. The successor (ET2030) provides for a reduction of one percent, which corresponds to a percentage of 9. (see graph 54).



Graph 54 [source: Eurostat (2023) "*Early leavers from education and training, by citizenship* "(retrieved: 16.02.2024)]

In 2022, the ration of early leavers ranged from 4.6% in Lithuania and 12.5% in Hungary. Accordingly, the lowest early leaver rates in the Baltic Sea region are in Lithuania (4.6%) and Poland (4.8%). In all other EU countries, this figure is significant, almost twice as high.

Overall, in 7 of the 9 BSR countries, less than 10% of population aged 18 - 24 leave education and training, which was set as the target to be achieved by 2020. Only in Estonia, Denmark and Hungary, the early levers rate is higher than the 10% threshold. The EU-27 and BSR average is already below 10%

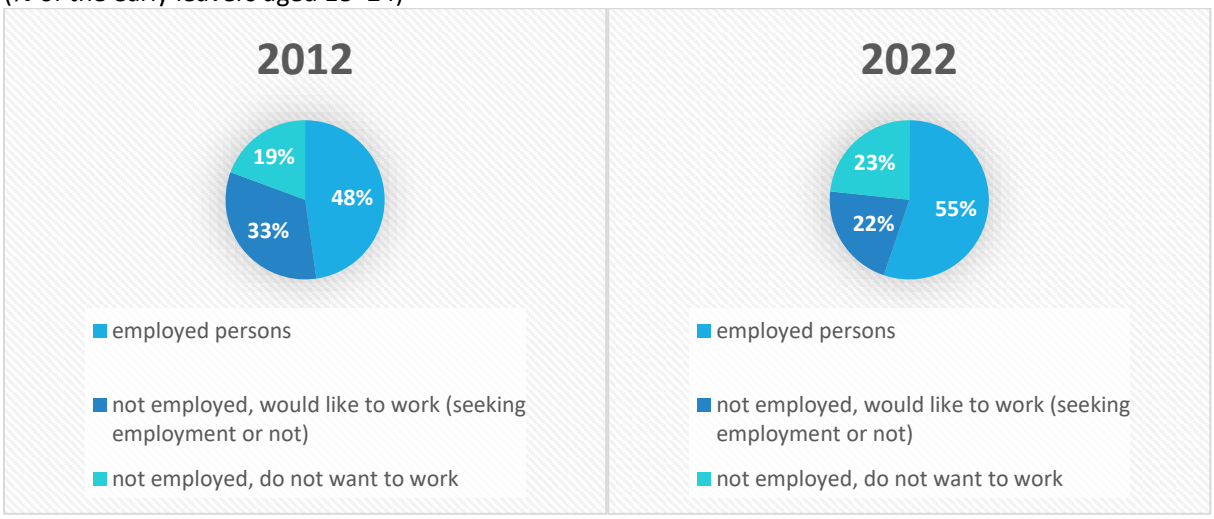
As described at the beginning of this part, early leavers from education and face particularly severe problems in the labour market. As figure shows below (Graph 55), 44% of the early leavers, were either unemployed or inactive in 2012 (52% in the BSR).

Between 2012 and 2022, the share of early school leavers aged 18 to 24 who were not employed but wanted to work fell by 11 percentage points, and those who do not have a job and do not want to work their number increased by 4 percentage points. Overall, the unemployment rate has fallen by 7 percent.

In relation to the "ET 2030" strategic framework, the EU average was just able to reach the target of 9% and has a value of 9.2%. The BSR is slightly better with 8.4% and was able to achieve the target on average. The outliers Denmark, Estonia, Hungary and Norway have nevertheless recorded positive progress in recent years.

Early leavers from education and training, by labour status, Baltic Sea region, 2012 and 2022

(% of the early leavers aged 18–24)



Graph 55 [source: Eurostat (2023) "*Early leavers from education and training by sex and labour status* "(retrieved: 16.02.2024)]

5.6 Adult Learning[26]

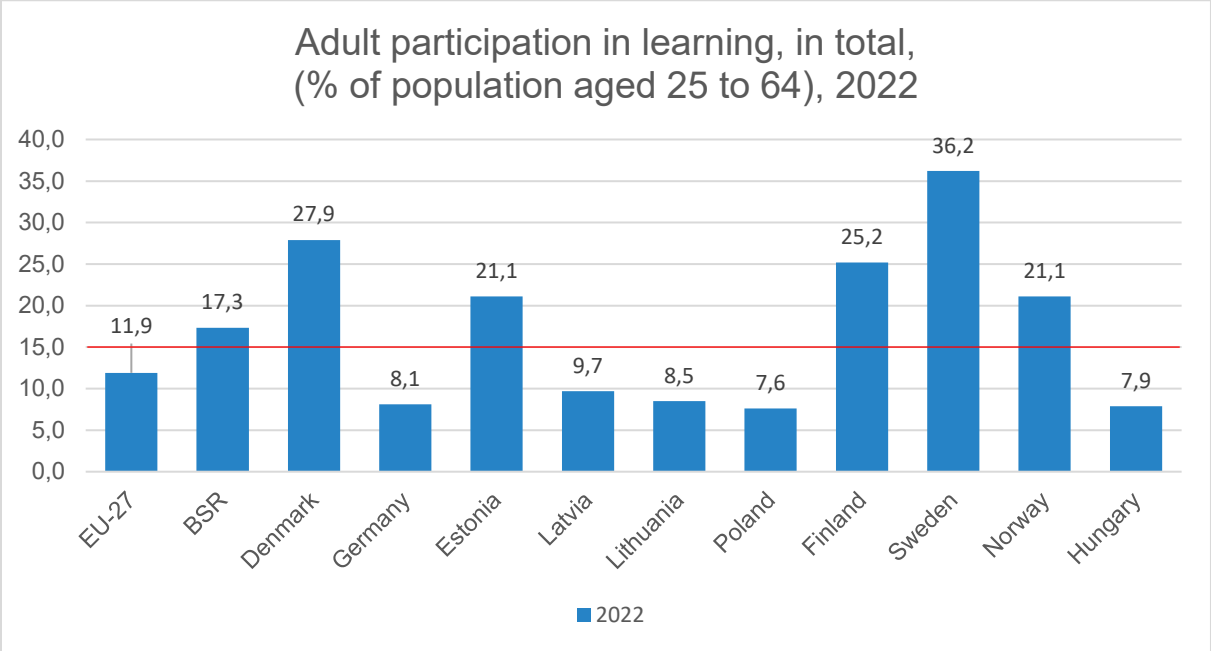
Adult learning is crucial for maintaining good health, remaining active in the community and being fully included in all aspects of society, as well as improving and developing skills, adapting to technical developments, advancing a career or returning to the labour market.

The Education and Training 2020 (ET 2020) framework includes the benchmark to increase the share of adults participating in learning to 15 %. Adult learning is the key subject of the Council Resolution[27] on a renewed European agenda for adult learning and the ET 2020 framework. The ET2030 takes the approach that 47% of adults aged 25 to 64 should have attended an educational program in the last 12 months.

In addition to tertiary educational attainment, adult participation in learning is also crucial for providing Europe with a highly qualified labour force. Adult education and training cover the longest time span in the process of learning throughout a person's life. However, the share of adults participating in learning does not seem to be increasing fast enough to meet the ET 2020 benchmark at EU level, however the average participation in the countries of the BSR has already reached the 17,3%. However, adult participation in learning varies widely across the BSR countries (see Graph 56) and the high average adult participation at BSR level has been achieved mainly thanks to the Nordic countries - Denmark, Sweden, Norway and Finland - where adult participation in learning is disproportionately high compared to other countries, from 21.1% in Norway (and Estonia) to 36.2% in Sweden. Another outlier is the Balticum, where Estonia has an above-average participation rate of 21.1% in the BSR compared to its neighbouring countries Latvia and Lithuania.

[26] According to the Eurostat glossary adult learning means the participation of adults in lifelong learning. Adult learning usually refers to learning activities after the end of initial education and is a vital component of the EU's lifelong learning policy.
The main indicator to measure adult learning is the participation rate in education and training, which covers participation in formal and non-formal education and training. The target population of Eurostat's adult learning statistics is the population aged 25-64.

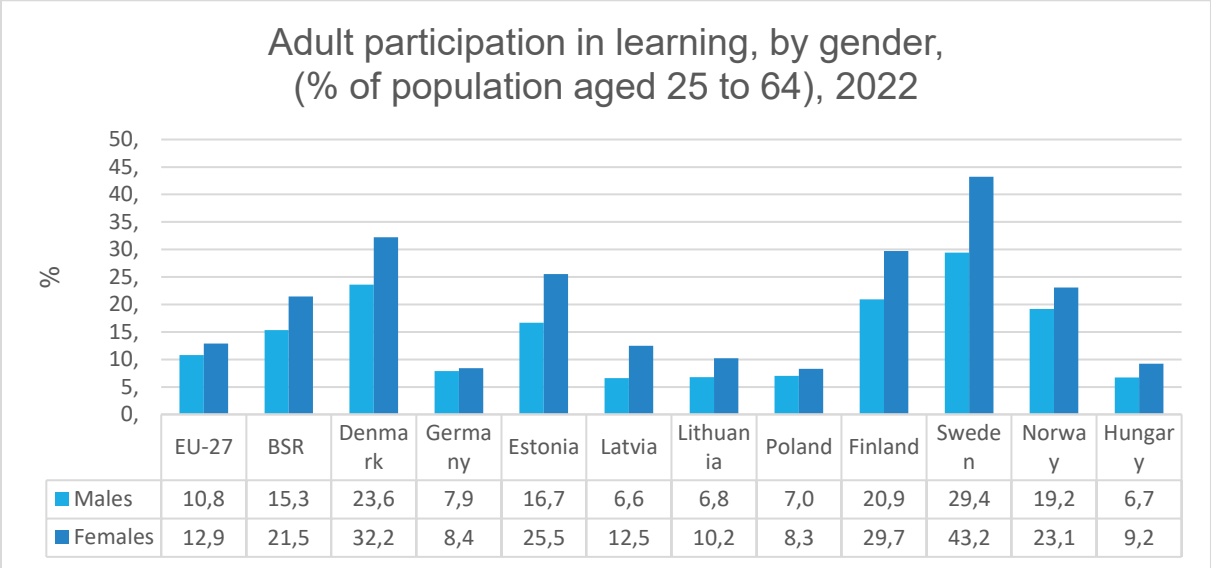
[27] Council Resolution on a renewed European agenda for adult learning (2011/C 372/01), Official Journal of the European Union, 20 December 2011:
https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2011:372:0001:0006:EN:PDF (May 2019)



Graph 56 [source: Eurostat (2023) "*Participation rate in education and training (last 4 weeks) by sex and age* "(retrieved: 16.02.2024)]

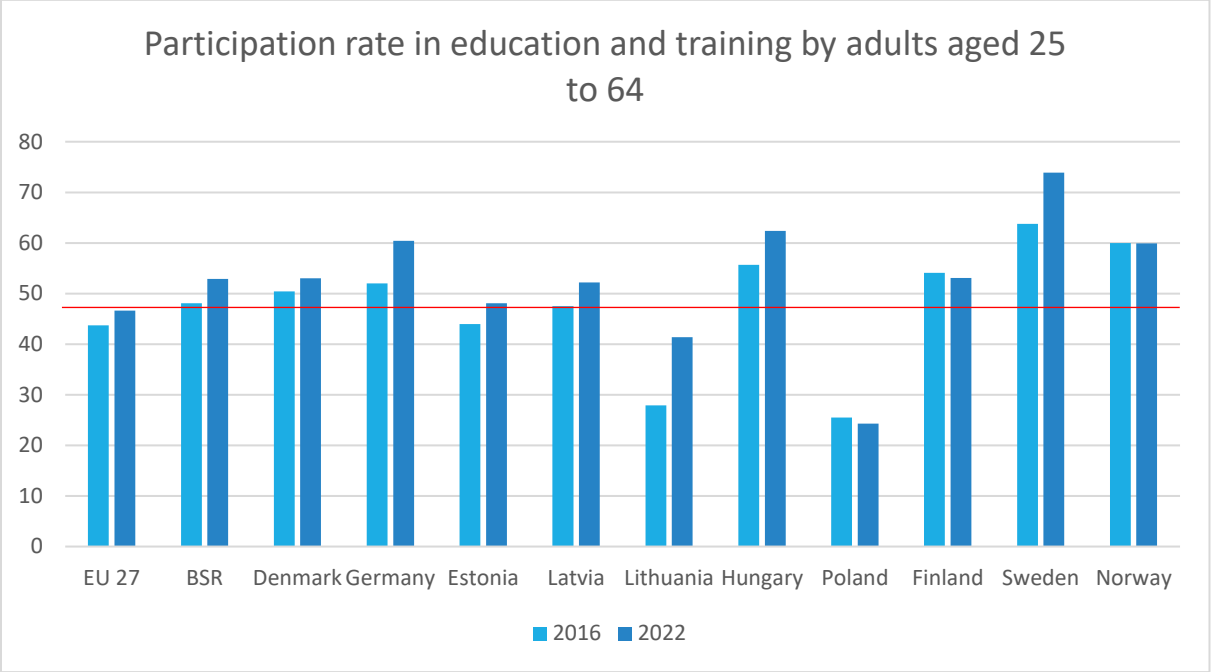
When looking more closely at the development of the adult participation rate in learning (see Graph 56), it has not developed continuously and stably over the last 15 years in the individual countries, but shows jumps, declines and increases. So, in 2018 in several countries, the participation rate is lower than in 2017, e.g. Denmark, Germany, Latvia, Sweden, Norway and Hungary. Nevertheless, most countries experienced growing adult participation rates in education and training in last decade.
Women are more likely to participate in adult learning than men and this trend is stable over time. In 2018, the share of adult women engaged in learning was 2 percentage points higher than that of men (12.1 % compared with 10.1 %) in EU-27 and 5.5 percentage points higher than that of men in BSR countries.

Germany is the only country among the countries of the Baltic Sea region (and Hungary) where adult male participation in learning was higher than that of women in 2018. In the Graph below are the latest figures. Today, women continue to outstrip men in terms of percentage.



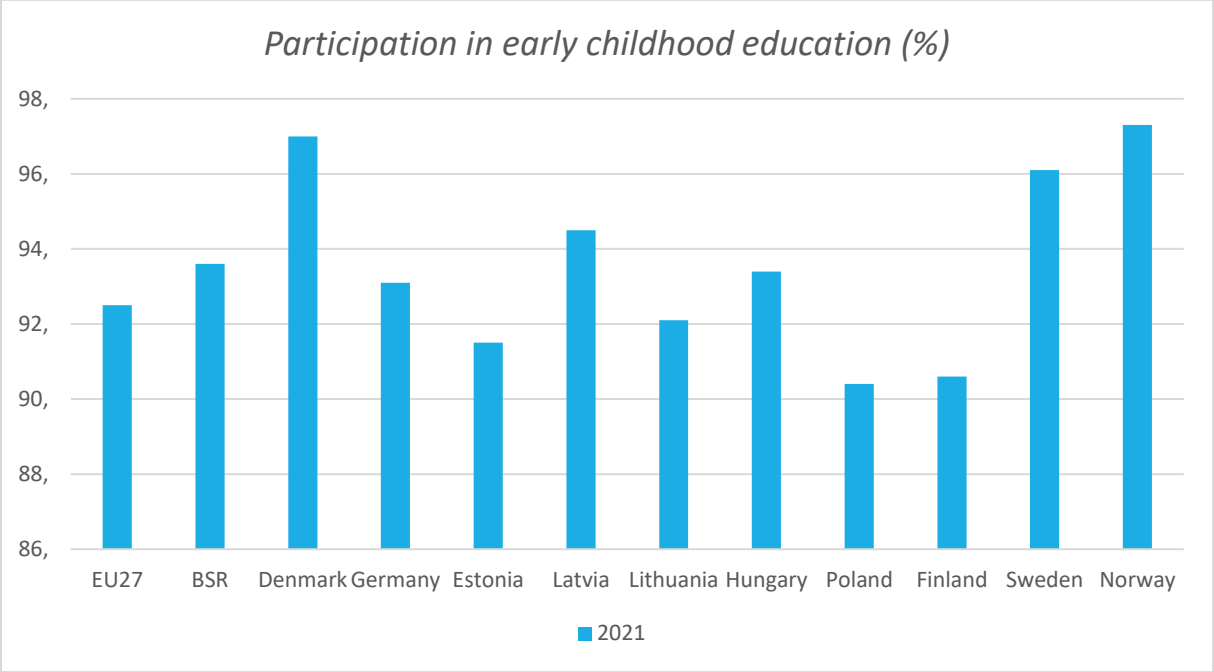
	EU-27	BSR	Denmark	Germany	Estonia	Latvia	Lithuania	Poland	Finland	Sweden	Norway	Hungary
Males	10,8	15,3	23,6	7,9	16,7	6,6	6,8	7,0	20,9	29,4	19,2	6,7
Females	12,9	21,5	32,2	8,4	25,5	12,5	10,2	8,3	29,7	43,2	23,1	9,2

Graph 57 [source: Eurostat (2024) "*Participation rate in education and training (last 4 weeks) by sex and age* "(retrieved: 16.02.2024)]



Graph 58 [source: Eurostat (2024) "*Participation rate in education and training by age* "(retrieved: 27.02.2024)]

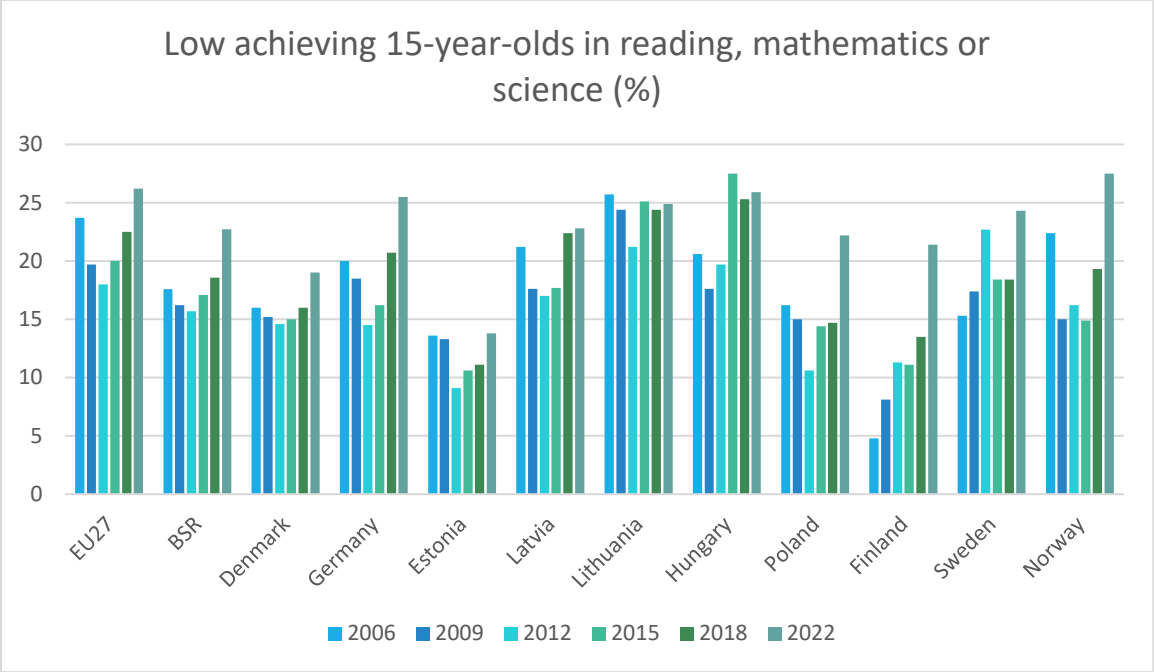
As can be seen from the chart (Graph 58), the percentage of adults aged between 25 and 64 is moving towards the "ET 2030" target. The target is 47%, which falls just 0.4 percentage points short of the EU average. The BSR can score with 53%. Only Poland with around 24% and Lithuania with around 41.5 per cent have not yet been able to achieve the target. Lithuania's increase in recent years is worth mentioning. Poland has had to record a minimal downturn of 1.5 percentage points in 6 years.



Graph 59 [source: Eurostat (2024) "*Participation in early childhood education by sex (children aged 3 and over)* "(retrieved: 27.02.2024)]

In 2021, an average of 92.5% of children in the European Union between the ages of three and the statutory school entry age participated in early childhood education and care. Germany recorded a participation rate of 93.1%, while countries such as Denmark and Sweden were higher at 97.0% and 96.1% respectively. The aim is to achieve a participation rate of at least 96% by 2030, which is already close to being achieved for some countries, while others still need to make efforts to reach the target.

Participation in early childhood care, education and upbringing plays a crucial role in early childhood development and contributes significantly to equal opportunities and lifelong learning. This data serves as a basis for monitoring progress and adapting educational policies to realise the desired goal, as more recent ones are not yet available.



Graph 60 [source: Eurostat (2024) "*Low achieving 15-year-olds in reading, mathematics or science (source: OECD)* "(retrieved: 27.02.2024)]

In 2022, the average proportion of low-achieving 15-year-old students in reading, maths, and science in the Baltic Sea Region (BSR) was 22.73%. This data comes from the OECD data set (Graph 60).

Possible reasons for these differences may be different education systems, teaching methods, investment in education, cultural differences, and socio-economic factors. It is possible to speak of a negative trend, as the results are increasingly poorer. Germany and Hungary are almost at the level of the EU average (26.2%) and occupy the worst places in the BSR. It is worth noting that the BSR was on average better than the European average, but in some cases, they are far from the 15% target.

It is important to emphasise that tackling educational inequalities and improving the quality of education requires long-term efforts that need to be coordinated at national and international level. This could include developing and implementing more effective teaching methods, promoting educational opportunities for all students, and providing resources and support for disadvantaged communities.

5.6.1 Overview of what has been achieved so far as part of ET2030 on average in the EU

The ET2030 strategy is a central framework strategy for European education policy. On 21 February 2021, the Council of the EU published the "Council Resolution on a strategic framework for European cooperation in education and training with a view to the European Education Area and beyond (2021-2030)". The implementation of this strategic framework, building on the experience of the two predecessor strategies ET2010 and ET2020, will continue to be monitored by expert groups in the respective education sectors and the annually published "Education and Training Monitor" is the central tool for reviewing the measures to achieve the objectives at national level.

The European average is taken from the website of the European Commission (Graph 61). This is followed by the individual BSR countries (Graph 62 -70), which show the EU average for comparison. It should be noted that these data do not all come from Eurostat alone. Further information on the sources can be found on the website of the European Commission, as well as in the source list of the monitor extracts.

EU-level target		Latest EU average Total	Female	Male
1. By 2030, at least 96% of children between 3 years old an the starting age compulsory primary education should partizipatein early childhood education and care		92,5% [2021]	92,6% [2021]	92,4% [2021]
2. By 2030, the share of early leavers from education and training should be less than 9%		9,6% [2022]	8% [2022]	11,1% [2022]
3. By 2030, the share of low-achieving 15-year-old in reading, mathematics and science should be less than 15%	Reading	22,5% [2018]	17,5% [2018]	27,4% [2018]
	Mathematics	22,9% [2018]	22,9% [2018]	22,8% [2018]
	Science	22,3% [2018]	21,2% [2018]	23,2% [2018]
4. By 2030, the share of -achieving eighth graders in computer and information literacy should be less than 15%.		[*]	[*]	[*]
5. By 2025, the share of recent VET graduates who benefit from exposure to work-based learning during their vocational education and training should be at least 60%		60,1% [2022]	59,3% [2022]	60,8% [2022]
6. By 2030, the share of 25-34-year-olds with tertiary educational attainment should be at least 45%		42% [2022]	47,6% [2022]	26,5% [2022]
7. By 2025, at least 47% of adults aged 25-64 should have participated in learning over the previous 12 months		[**]	[**]	[**]

Graph 61 [source: European Commission, Directorate-General for Education, Youth, Sport and Culture, Education and training monitor 2023 – Comparative report, Publications Office of the European Union, 2023, https://data.europa.eu/doi/10.2766/936303 (retrieved: 01.03.2024)]

5.6.2 Overview of the data situation in relation to the ET2030 targets of the individual countries in figures and in comparison to the EU

			Denmark		EU	
			2011	2021	2011	2021
EU-level-targets		EU target				
Participation in early childhood education (from age 3 to starting age of compulsory primary education)		≥ 96%	97,6%	97,6%	91,8%	93%
Low achieving eighth-grader in digital skills		< 15%	21,40%	16,20%	:	:
Low achieving 15 -year-olds in:	Reading	< 15%	15,2%	16,0%	19,7%	22,5%
	Maths	< 15%	17,1%	14,6%	22,7%	22,9%
	Science	< 15%	16,6%	18,7%	18,2%	22,3%
Early leavers from education and training (age 18-24)		< 9%	10,3%	9,8%	13,2%	9,7%
Exposure of VET graduates to work-based-learning		≥ 60% (2025)	:	:		60,7%
Tertiary educationl attainment (age 25-34)		≥ 45%	38,6%	49,7%	33,0%	41,2%
Participation of adults in learning (age 25-64)		≥ 47% (2025)	:	:	:	:

Graph 62 [source: European Commission, Education and training monitor 2023https://op.europa.eu/webpub/eac/education-and-training-monitor-2022/en/country-reports/denmark.html (retrieved: 01.03.2024)]

			Germany		EU	
			2011	2021	2011	2021
EU-level-targets		EU target				
Participation in early childhood education (from age 3 to starting age of compulsory primary education)		≥ 96%	95,8%	93,7%	91,8%	93%
Low achieving eighth-grader in digital skills		< 15%	29,20%	33,20%	:	:
Low achieving 15 -year-olds in:	Reading	< 15%	18,5%	20,7%	19,7%	22,5%
	Maths	< 15%	18,6%	21,1%	22,7%	22,9%
	Science	< 15%	14,8%	19,6%	18,2%	22,3%
Early leavers from education and training (age 18-24)		< 9%	11,6%	11,8%	13,2%	9,7%
Exposure of VET graduates to work-based-learning		≥ 60% (2025)	:	96,2%		60,7%
Tertiary educationl attainment (age 25-34)		≥ 45%	27,6%	35,7%	33,0%	41,2%
Participation of adults in learning (age 25-64)		≥ 47% (2025)	:	:	:	:

Graph 63 [source: European Commission, Education and training monitor 2023, https://op.europa.eu/webpub/eac/education-and-training-monitor-2022/en/country-reports/germany.html (retrieved: 01.03.2024)]

			Estonia		EU	
			2011	2021	2011	2021
EU-level-targets		EU target				
Participation in early childhood education (from age 3 to starting age of compulsory primary education)		≥ 96%	89,6%	91,9%	91,8%	93%
Low achieving eighth-grader in digital skills		< 15%	:	:	:	:
Low achieving 15 -year-olds in:	Reading	< 15%	13,3%	11,1%	19,7%	22,5%
	Maths	< 15%	12,6%	10,2%	22,7%	22,9%
	Science	< 15%	8,3%	8,8%	18,2%	22,3%
Early leavers from education and training (age 18-24)		< 9%	10,6%	9,8%	13,2%	9,7%
Exposure of VET graduates to work-based-learning		≥ 60% (2025)	:	73,5%		60,7%
Tertiary educationl attainment (age 25-34)		≥ 45%	39,0%	43,2%	33,0%	41,2%
Participation of adults in learning (age 25-64)		≥ 47% (2025)	:	:	:	:

Graph 64 [source: European Commission, Education and training monitor 2023, https://op.europa.eu/webpub/eac/education-and-training-monitor-2022/en/country-reports/estonia.html (retrieved: 01.03.2024)]

			Latvia		EU	
			2012	2022	2012	2022
EU-level-targets		EU target				
Participation in early childhood education (from age 3 to starting age of compulsory primary education)		≥ 96%	91,3%	94,5%	91,8%	93%
Low achieving eighth-grader in digital skills		< 15%	:	:	:	:
Low achieving 15 -year-olds in:	Reading	< 15%	17,6%	22,4%	19,7%	22,5%
	Maths	< 15%	22,6%	17,3%	22,7%	22,9%
	Science	< 15%	14,7%	18,5%	18,2%	22,3%
Early leavers from education and training (age 18-24)		< 9%	10,6%	6,7%	12,6%	9,6%
Exposure of VET graduates to work-based-learning		≥ 60% (2025)	:	:	:	60,1%
Tertiary educationl attainment (age 25-34)		≥ 45%	38,7%	45,9%	34,1%	42,0%
Participation of adults in learning (age 25-64)		≥ 47% (2025)	:	:	:	:

Graph 65 [source: European Commission, Education and training monitor 2023, https://op.europa.eu/webpub/eac/education-and-training-monitor-2023/en/monitor-toolbox/country-page/latvia.html (retrieved: 01.03.2024)]

			Lithuania		EU	
			2012	2022	2012	2022
EU-level-targets		EU target				
Participation in early childhood education (from age 3 to starting age of compulsory primary education)		≥ 96%	83,4%	92,1%	91,8%	93%
Low achieving eighth-grader in digital skills		< 15%	45,10%	:	:	:
Low achieving 15 -year-olds in:	Reading	< 15%	24,4%	24,4%	19,7%	22,5%
	Maths	< 15%	26,3%	25,6%	22,7%	22,9%
	Science	< 15%	17,0%	22,2%	18,2%	22,3%
Early leavers from education and training (age 18-24)		< 9%	6,5%	4,8%	12,6%	9,6%
Exposure of VET graduates to work-based-learning		≥ 60% (2025)	:	46,7%	:	60,1%
Tertiary educationl attainment (age 25-34)		≥ 45%	48,6%	58,2%	34,1%	42,0%
Participation of adults in learning (age 25-64)		≥ 47% (2025)	:	:	:	:

Graph 66 [source: European Commission, Education and training monitor 2023, https://op.europa.eu/webpub/eac/education-and-training-monitor-2023/en/monitor-toolbox/country-page/lithuania.html (retrieved: 01.03.2024)]

			Hungary		EU	
			2012	2022	2012	2022
EU-level-targets		EU target				
Participation in early childhood education (from age 3 to starting age of compulsory primary education)		≥ 96%	88,3%	93,4%	91,8%	93%
Low achieving eighth-grader in digital skills		< 15%	:	:	:	:
Low achieving 15 -year-olds in:	Reading	< 15%	17,6%	25,3%	19,7%	22,5%
	Maths	< 15%	22,3%	25,6%	22,7%	22,9%
	Science	< 15%	14,1%	24,1%	18,2%	22,3%
Early leavers from education and training (age 18-24)		< 9%	11,8%	12,4%	12,6%	9,6%
Exposure of VET graduates to work-based-learning		≥ 60% (2025)	:	32,3%	:	60,1%
Tertiary educationl attainment (age 25-34)		≥ 45%	30,5%	31,9%	34,1%	42,0%
Participation of adults in learning (age 25-64)		≥ 47% (2025)	:	:	:	:

Graph 67 [source: European Commission, Education and training monitor 2023, https://op.europa.eu/webpub/eac/education-and-training-monitor-2023/en/monitor-toolbox/country-page/hungary.html (retrieved: 01.03.2024)]

			Poland		EU	
			2012	2022	2012	2022
EU-level-targets		EU target				
Participation in early childhood education (from age 3 to starting age of compulsory primary education)		≥ 96%	76,4%	90,4%	91,8%	93%
Low achieving eighth-grader in digital skills		< 15%	25,30%	:	:	:
Low achieving 15 -year-olds in:	Reading	< 15%	15,0%	14,7%	19,7%	22,5%
	Maths	< 15%	20,5%	14,7%	22,7%	22,9%
	Science	< 15%	13,1%	13,8%	18,2%	22,3%
Early leavers from education and training (age 18-24)		< 9%	5,7%	4,8%	12,6%	9,6%
Exposure of VET graduates to work-based-learning		≥ 60% (2025)	:	16,4%	:	60,1%
Tertiary educationl attainment (age 25-34)		≥ 45%	40,8%	40,5%	34,1%	42,0%
Participation of adults in learning (age 25-64)		≥ 47% (2025)	:	:	:	:

Graph 68 [source: European Commission, Education and training monitor 2023, https://op.europa.eu/webpub/eac/education-and-training-monitor-2023/en/monitor-toolbox/country-page/poland.html (retrieved: 01.03.2024)]

			Finland		EU	
			2012	2022	2012	2022
EU-level-targets		EU target				
Participation in early childhood education (from age 3 to starting age of compulsory primary education)		≥ 96%	80,0%	90,6%	91,8%	93%
Low achieving eighth-grader in digital skills		< 15%	:	27,30%	:	:
Low achieving 15 -year-olds in:	Reading	< 15%	8,1%	13,5%	19,7%	22,5%
	Maths	< 15%	7,8%	15,0%	22,7%	22,9%
	Science	< 15%	6,0%	12,9%	18,2%	22,3%
Early leavers from education and training (age 18-24)		< 9%	8,9%	8,4%	12,6%	9,6%
Exposure of VET graduates to work-based-learning		≥ 60% (2025)	:	77,4%	:	60,1%
Tertiary educationl attainment (age 25-34)		≥ 45%	39,7%	40,7%	34,1%	42,0%
Participation of adults in learning (age 25-64)		≥ 47% (2025)	:	:	:	:

Graph 69 [source: European Commission, Education and training monitor 2023, https://op.europa.eu/webpub/eac/education-and-training-monitor-2023/en/monitor-toolbox/country-page/finland.html (retrieved: 01.03.2024)]

			Sweden		EU	
			2012	2022	2012	2022
EU-level-targets		EU target				
Participation in early childhood education (from age 3 to starting age of compulsory primary education)		≥ 96%	95,0%	96,1%	91,8%	93%
Low achieving eighth-grader in digital skills		< 15%	:	:	:	:
Low achieving 15 -year-olds in:	Reading	< 15%	17,4%	18,4%	19,7%	22,5%
	Maths	< 15%	21,1%	18,8%	22,7%	22,9%
	Science	< 15%	19,1%	19,0%	18,2%	22,3%
Early leavers from education and training (age 18-24)		< 9%	7,5%	8,8%	12,6%	9,6%
Exposure of VET graduates to work-based-learning		≥ 60% (2025)	:	67,0%	:	60,1%
Tertiary educationl attainment (age 25-34)		≥ 45%	42,5%	52,4%	34,1%	42,0%
Participation of adults in learning (age 25-64)		≥ 47% (2025)	:	:	:	:

Graph 70 [source: European Commission, Education and training monitor 2023, https://op.europa.eu/webpub/eac/education-and-training-monitor-2023/en/monitor-toolbox/country-page/sweden.html (retrieved: 01.03.2024)]

5.7 Education Providers in Baltic Sea Region

Eurostat makes available, even if it is scarce information, the distribution of non-formal education and training activities by provider. Data are available for 2007, 2011, 2016 and 2022. In the table below the most current information is presented and the highest rates in the respective category in each country highlighted which shows a rather homogeneous picture in the Baltic Sea region - in most countries the employer is the most frequent provider of non-formal education, and training activities, except for Lithuania and Poland, where “non-formal education and training institutions” provide education and training in the majority of cases. Chambers of commerce show low engagement in providing education, except for Lithuania where chambers of commerce provide 15.2% and thus show the highest rate in all BSR countries. Overall, there is a high variety in forms and providers in adult education.

	Formal education and training institutions	Non-formal education and training institutions	Commercial institutions where education and training is not the main activity (e.g. equipment	Non-commercial institutions where education and training is not the main activity (e.g.	Employer	Employers' organisations, chambers of commerce	Trade unions	Non-profit associations (e.g. cultural society, political party)	Other training providers
EU-27	7,0	19,9	9,4	3,4	34,7	4,2	2,8	6,7	6,3
BSR	7,41	20,4	10,2	1,9	31,4	4,5	2,1	4,6	5,7
Denmark	18,0	16,3	8,6	2,9	33,2	2,0	8	3,3	11,1
Germany	2,9	9,3	13,6	0,9	43,1	8,4	6	5,4	1,1
Estonia	10,6	32,2	6,1	2,7	22,2	:	1,2	10,4	2,9
Latvia	9,1	26,4	11,8	3,4	31,5	3,6	2,1	1,5	2,4
Lithuania	7,5	12,0	8,2	3,0	12,8	15,2	1	1,7	3,7
Poland	9,8	46,1	8,0	1,1	18,7	1,4	0,2	2,0	3,6
Finland	3,6	34,8	3,1	1,4	34,5	1,1	5,3	12,3	5,4
Sweden	5,8	5,5	22,1	1,6	31,2	3,3	5,8	2,0	11,2
Norway	5,2	12,2	10,3	:	27	5,4	5,3	2,4	9,7
Hungary	1,6	9,1	3,8	1,8	59,5	7,7	0,6	3,3	1,0

Graph 71 [source: Eurostat (2024) "Distribution of non-formal education and training activities by provider "(retrieved: 23.02.2024)]

5.8 Vocational Education and Training in the Baltic Sea Region[28]

Share of students in vocational education programmes, 2019									
%									
	Lower secondary			Upper secondary			Post-secondary non-tertiary		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
EU-27	2.3	2.6	2.0	48.4	54.9	41.6	94.5	93.5	95.2
BSR	1.9	2.3	1.5	44.5	50.3	34.4	96.5	95.5	97.5
Denmark	0.9	1.2	0.6	37.3	43.7	30.6	-	-	-
Germany	4.1	5.0	3.1	48.1	56.2	37.9	93.7	92.0	95.0
Estonia	2.8	3.1	2.4	39.8	46.5	33.3	100.0	100.0	100.0
Latvia	0.3	0.5	0.2	38.9	44.2	33.4	100.0	100.0	100.0
Lithuania	1.8	2.5	1.0	26.1	32.5	19.0	100.0	100.0	100.0
Hungary	0.1	0.1	0.1	44.0	50.4	37.2	100.0	100.0	100.0
Poland	-	-	-	52.5	62.4	41.8	100.0	100.0	100.0
Finland	-	-	-	68.7	72.2	65.5	100.0	100.0	100.0
Sweden	-	-	-	35.2	36.7	33.7	72.1	75.5	76.8
Norway	-	-	-	50.3	58.3	41.2	100.0	100.0	100.0

In 2019, vocational programmes accounted for 2.3% of the total number of pupils in lower secondary education in the EU, with a higher proportion of males than females. Croatia and Belgium reported a double-digit share of pupils following vocational programmes within lower secondary education. In the EU, there is a higher proportion of male pupils than females in vocational training, except for Bulgaria, Ireland, or Croatia.

In 2019, 48.4% of all upper secondary school pupils in the EU followed vocational programmes, with males (54.9%) higher than females (41.6%). In 14 EU Member States, less than half of all upper secondary pupils were studying vocational programmes, with Cyprus (16.9%). In eight EU countries, the share of students in upper secondary vocational education went above 60.0%, with even higher shares in Czechia and Slovenia (70.8%).

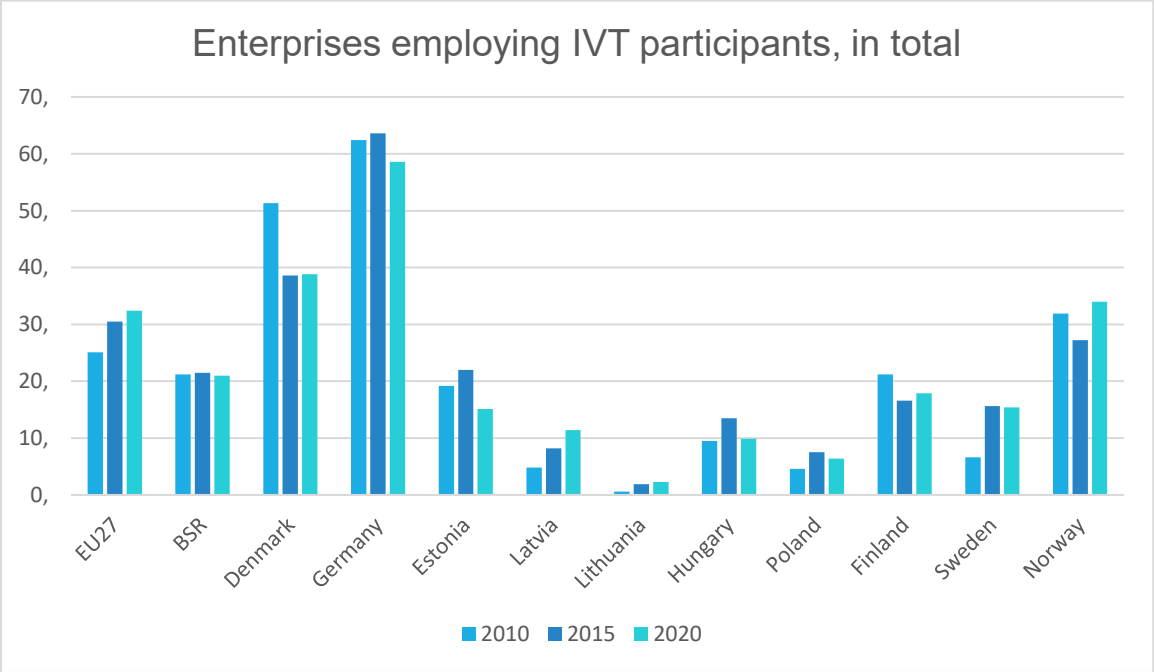
Within post-secondary non-tertiary education (ISCED level 4), the vast majority of pupils followed vocational programmes, an average of 94.5% across the EU Member States in 2019. The share of females (95.2%) in post-secondary non-tertiary education enrolled in vocational programmes was somewhat higher than that for males (93.5%). In a majority of the EU Member States, all pupils at this educational level were enrolled in vocational programmes. Czechia was one of only two Member States where less than half of the total number of pupils in post-secondary non-tertiary education were following vocational programmes (36.1%).

[28] [28] cf. Eurostat statistics explained, with additions to the numbers for BSR and modification of table by the author

5.8.1 Initial Vocational Training (IVT) in Enterprises

The latest statistics to these figures are from 2020. As these show in 2020, almost 1/3 (32.4%) of all enterprises in the EU-27's business economy with 10 or more persons employed provided IVT, although the proportion varied greatly between EU Member states[29].

In the countries of the Baltic Sea region was at least one of five enterprises (21%) that engages for young people in IVT.



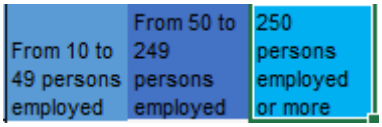
Graph 73 [source: Eurostat (2023) "*Enterprises employing IVT participants by size class - % of all enterprises* "(retrieved: 16.02.2024)]

In the countries of the Baltic Sea region, however, a great deal of dynamism can be observed in this respect, so for example: in Estonia in 2005 – 1.2% of all enterprises employed IVT participants and 5 years later it was already – 19.2%, 2015 – 22.0% and falls again to around 15% in 2022.

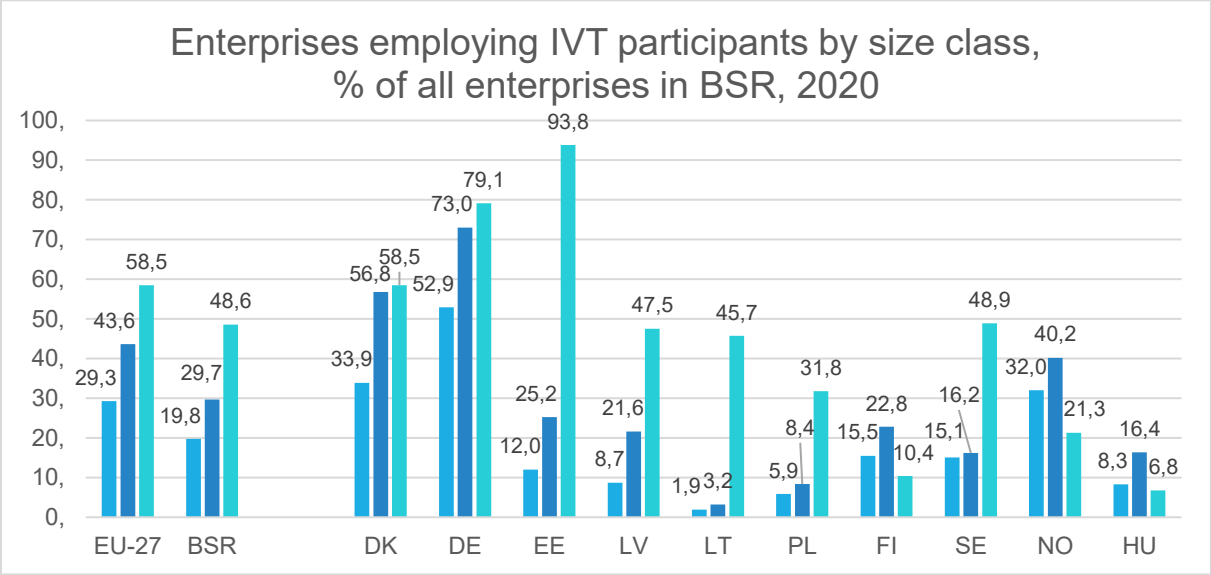
In Lithuania, this trend has taken a completely different direction as in Estonia, with 16.5% of companies engaged in initial training in 2005, only 0.6% five years later, and a slight increase in 2015 - although at 1.9% they are still only a few companies involved in IVT. There is no significant increase to be seen in 2020.

Companies from Germany have the highest rates in the Baltic Sea region employing IVT participants.

The next graph shows the involvement of companies in training depending on the size class. Accordingly, throughout the whole BSR the companies "250 persons employed or more" make up the largest proportion of all companies involved in initial training.



[29] Eurostat statistics explained, Vocational Education and Training statistics: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Vocational_education_and_training_statistics#Initial_vocational_training_in_enterprises (May 2019)

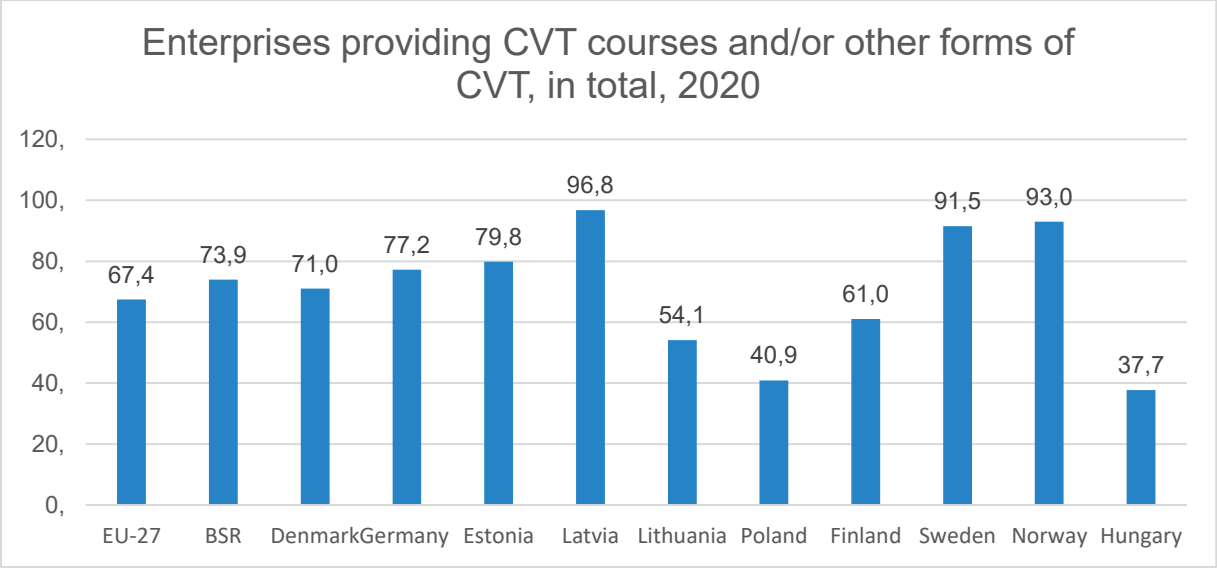


Graph 74 [source: Eurostat (2023) "*Enterprises employing IVT participants by size class - % of all enterprises* "(retrieved: 16.02.2024)]

A different picture becomes apparent when it comes to offering and carrying out continuing vocational training.

5.8.2 Continuing Vocational Training (CVT) in Enterprises30

In 2020 in BSR 73,9% of all enterprises (in EU-27 67.4%) provided CVT to their staff. Among the BR countries, the share of enterprises that provided such training in 2020 ranged from 40.9% in Poland (incl. Hungary it would be Hungary with 37.7%) to 96.8% in Latvia (guided on-the-job training).



Graph 75 [source: Eurostat (2023) "*Enterprises providing training by type of training and size class - % of all enterprises* "(retrieved: 16.02.2024)]

[30] This information refers to education or training activities which are financed, at least in part, by enterprises; part financing could include, for example, the use of work time for the training activity; CVT can be provided either through dedicated courses or other forms of CVT, such as guided on-the-job training. In general, enterprises finance CVT in order to develop the competences and skills of the people they employ, hoping that this may contribute towards increasing competitiveness. A large majority of CVT is non-formal education or training, in other words, it is provided outside the formal education system (Eurostat Statistics explained)

For more data and information on CVT provided by enterprises see Eurostat: https://ec.europa.eu/eurostat/web/education-and-training/data/database

For the vast majority of EU Members States, the highest proportion of enterprises providing CVT courses was recorded in information and communication services and financial and insurance activities. In Denmark, Latvia and Lithuania the highest proportion was recorded for other services, which includes real estate activities, professional, scientific, technical, administrative and support service activities, arts, entertainment and recreation as well as other service activities. Latvia also recorded 100% of construction enterprises providing CVT[31].

[31] Eurostat statistics explained, Vocational Education and Training statistics: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Vocational_education_and_training_statistics#Initial_vocational_training_in_enterprises (May 2019)

6. Education Systems in the Baltic Sea Region Countries

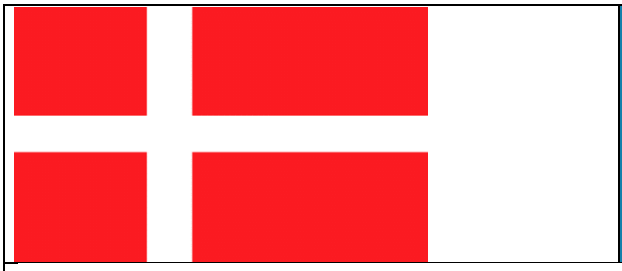
Education systems are described in the individual countries as a whole, from early childhood, pre-kindergarten education to tertiary education inclusive. Vocational and education training (VET) systems will be described in detail. Also, here the focus lies on nine Baltic Sea region countries and Hungary.

The information on education systems is based on relevant literature, such as CEDEFOP, European Commission/EACEA/Eurydice or publications of the relevant ministries in the respective countries.

The country specific general information about the education systems in the tables have the online source: Eurodyce, National Educational Systems

An overview on the national VET systems delivers: Cedefop (2022)

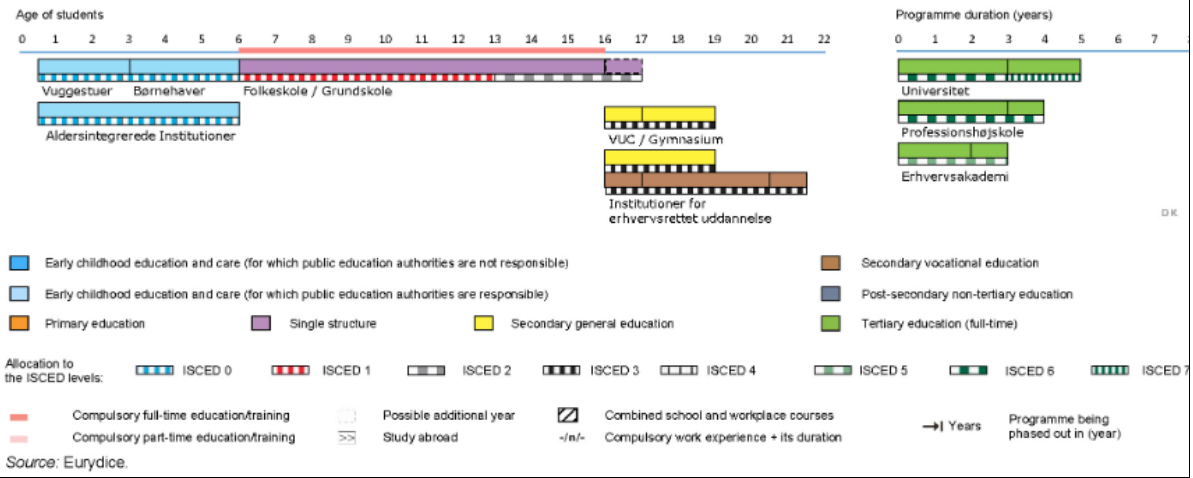
The schematic diagrams on education systems are provided by European Commission/EACEA/Eurydice, 2022. *The Structure of the European Education Systems 2023/24: Schematic Diagrams.* Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.



Denmark[32]

Structure of the Danish Education System

Denmark – 2023/2024



Source: Eurydice.

The Danish education system consists of the following stages

The Danish education system consists of an ordinary education system and a parallel education system for adult education and continuing training.
The ordinary education system consists of early childhood education and care, integrated primary and lower secondary education, general and vocational upper secondary education and higher education.

Primary and lower school education	Primary education consists of integrated primary and lower secondary education. The educational institutions at which primary and lower secondary education takes place is called primary and lower secondary schools (in Danish: Folkeskole). Primary education is compulsory between the age of six and 16 and consists of one pre-school year (grade 0) and nine school years (grades 1-9). It is possible to prolong the compulsory education with a tenth grade, but that remains optional.
Following the primary and lower secondary education, students are free to choose the educational path they wish. In brief, the choice is between **academically oriented general upper secondary education programmes** and **secondary vocational education programmes.**	
General upper secondary education	General upper secondary education programmes take place at several institutions whereas some institutions offer various types of programmes:

[32] Source for flags images for each country: www.pixabay.com, international website for sharing photos, illustrations, vector graphics, and film footage under a proprietary license.

Secondary vocational education	The three-year upper secondary school leaving examination (STX) takes place at upper secondary schools (in Danish: gymnasium) The three-year higher commercial examination (HHX) takes place at commercial upper secondary schools, also known as business colleges (in Danish: handelsgymnasium) The three year higher technical examination (HTX) takes place at technical upper secondary schools, also known as technical colleges (in Danish: teknisk gymnasium) The two-year higher preparatory examination (HF) usually takes place at upper secondary schools (in Danish: gymnasium), but the programme is also offered at adult education centres (VUC Centres). The duration of the three first-mentioned programmes is three years. Students usually start at the age of 16 and graduate at the age of 19. However, this depends on several factors, including whether the student in question has taken the tenth grade. The duration of the last-mentioned, HF, is two years, and the age of the students vary greatly. Secondary vocational education programmes vary in duration depending on the programme in question. More specifically, the duration varies from 1½ to 5½ years, the most typical being 3½ to 4 years. The programmes are offered at vocational/ technical schools (in Danish: erhvervsskole). The age of students when starting and graduating varies greatly.
Following the general upper secondary education programmes and secondary vocational education programmes, there is a great variety in the students' educational opportunities. In general, general upper secondary education qualifies for further studies at the level of higher education, while secondary vocational education qualifies for the labour market.	
Higher education (ISCED 5-7)	Higher education takes place at different educational institutions: • Business academies (Erhvervsakademi) offer short-cycle programmes; • Maritime education and training institutions offer professionally oriented vocational upper secondary education programmes, short cycle and first cycle degree programmes; • Maritime education and training institutions offer professionally oriented vocational upper secondary education programmes, short cycle and first cycle degree programmes; • Maritime education and training institutions offer professionally oriented vocational upper secondary education programmes, short cycle and first cycle degree programmes;

VET in Denmark

Vocational education and training (VET) plays a key role in the Danish strategy for lifelong learning, alongside meeting the challenges of globalisation and technological change. Danish education and training provides qualifications at all levels, from compulsory schooling to doctoral degrees, and a parallel adult education and continuing vocational training (CVT) system. The two systems offer equivalent qualifications at various levels, enabling horizontal permeability. VET jurisdiction is with the Ministry of Education. Initial VET (106 programmes) is organised into four broad entry routes; care, health and pedagogy; office, trade and business services; food, agriculture and 'experiences' (an umbrella term for tourism and recreation); and technology, construction and transportation. Programmes are organised according to the dual principle, alternating between periods of college-based and work-based learning (apprenticeship training) in enterprises. A typical initial VET programme (EUD) lasts three-and-a-half years with a 2:1 split between workplace and college-based training, although there is considerable variation among programmes. Individual study plans are compiled for all students. VET colleges and social partners share the responsibility for developing curricula to ensure responsiveness to local labour market needs. Qualifications at this level provide access to relevant fields in academy profession (KVU) programmes and professional bachelor programmes at tertiary level.

Alternative routes to VET qualifications include:

- combined vocational and general upper secondary education (EUX, an academic preparation programme), a relatively new pathway, which lasts around four years. It enables highly motivated students to obtain access to higher education along with a vocational qualification;
- 'new apprenticeship' (1) (Ny Mesterlære) programmes, where the entire training takes place at a company instead of partly at a VET college. Students with a practical approach to learning benefit from these programmes;
- basic VET (FGU) for lower secondary graduates, with a practical approach to learning. The programme caters to the young unemployed, lasts three to four years, and includes at least 75% of work-based learning (WBL).

Adult Learning

VET for adults aged 25 or older (EUV) has been established as a specific track to offer the low-skilled an attractive and goal-oriented path to becoming a skilled worker. Adults with at least two years of work experience can receive VET education without the basic programme and without internship. Adult vocational training (arbejdsmarkedsuddannelser, AMU) provides participants with skills and competences relevant to the labour market and is primarily geared to specific sectors and jobs. The programmes help learners either deepen their existing knowledge in a particular field or develop new knowledge in related fields. AMU programmes (around 500) are created, adapted or discontinued in response to labour market.

Distinctive features of VET:

The Danish Vocational Education and Training (VET) system is a collaborative effort between social partners, vocational colleges, teachers, and learners. Stakeholders advise the Ministry of Education on VET policy and determine training programs' structure. Denmark has one of the highest rates of adult education and continuing training in the EU, influenced by the country's focus on knowledge-intensive sectors and lifelong learning. An integrated lifelong learning strategy introduced in 2007 improved services and recognition of non-formal learning. Public financing is central to the VET system, with colleges receiving performance-based block grants and apprenticeships and employee further training subsidized through the AUB system. Enterprises contribute a fixed amount per employee to a central fund, partially reimbursed for training placements and continuing training.

needs. At tertiary level, further VET and adult education programmes lead to EQF level 5 qualifications.

Challenges and policy responses:

Education and training are considered a key area. As demand for skilled labour continues to increase, IVET is expected to accommodate an increasingly heterogeneous learner population.

Two reforms have had significant influence on VET development. The VET reform (2014) established VET learners' minimum entrance requirements. Requirements for VET teachers were strengthened in 2010, since when all VET teachers must have a pedagogic diploma (60 ECTS) at EQF level 6. Both initiatives are expected to increase VET quality.

Social assistance reform (2014) makes it mandatory for unemployed people under 30, receiving social benefits, to participate in education and training. This will increase the number of weaker learners entering VET.

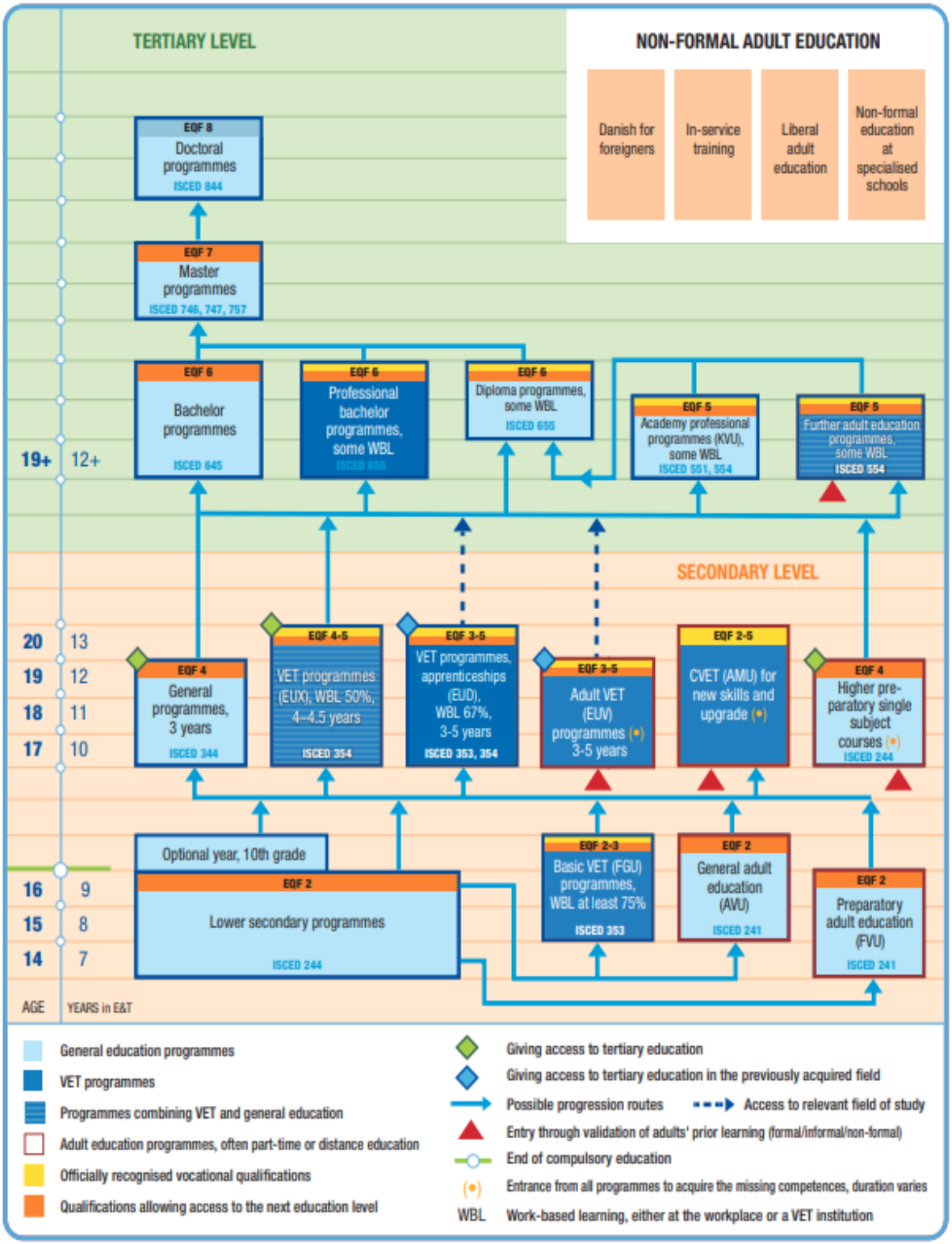
The 2014 VET reform has four main objectives for improving VET quality:

- more learners must enter VET directly from compulsory schooling: from 18% in 2015 to 30% by 2025;
- completion rates in VET must be improved: from 52% in 2012 to 67% in 2025;
- VET must challenge all learners so they reach their full potential;
- employer and learner satisfaction with VET must gradually be increased by 2020.

A lack of suitable training placements in enterprises is frequently cited as a primary reason for learner dropout. Several policy initiatives seek to address the problem, but the Covid-19 crisis has further widened the gap between training place supply and demand. A tripartite agreement in 2016 aims to establish 10 000 new placements in 2025.

Unemployment, and particularly long-term unemployment, among young people with little or no work experience poses challenges for adult education and continuing training. Substantial upskilling and reskilling are necessary to avoid a considerable part of the workforce becoming permanently excluded from the labour market. Due to the Covid-19 crisis in 2020 the government has launched a plan for upskilling unemployed adults. In the training period it is possible to receive 110% of the unemployment benefits.

VET in the Danish education and training system

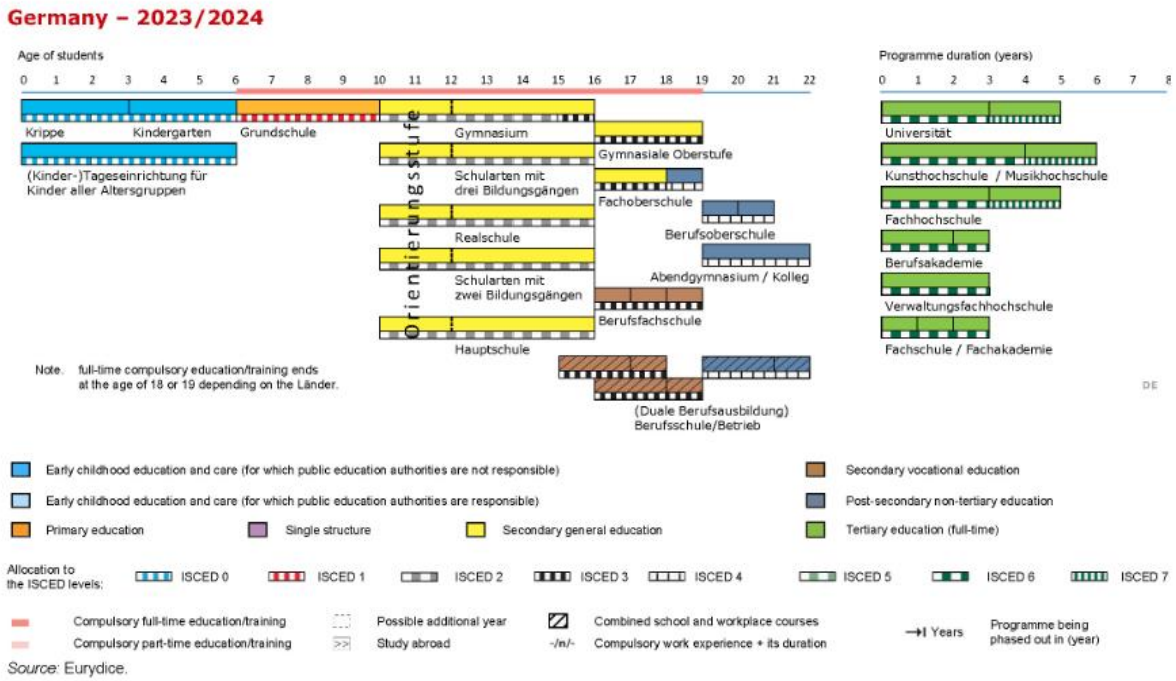


NB: ISCED-P 2011.

Please cite as: Cedefop; ReferNet Denmark (2022). VET in the Danish education and training system. In: Cedefop; ReferNet (2022). *Vocational education and training in Europe* [database]. www.cedefop.europa.eu/en/tools/vet-in-europe

Germany

Structure of the National Education System



In Germany, the responsibility for the education system is shared between the federal government and the states. The Federal Government's obligations in education are outlined in the Basic Law (Grundgesetz). If the Basic Law does not grant legislative powers to the Federation, then the Länder have the authority to legislate. This concept pertains to the school sector, higher education sector, adult education, and continuing education within the education system. The administration of the education system in these regions is primarily the responsibility of the Länder.

Early childhood education and care in Germany is primarily managed by the child and youth welfare sector, separate from the state-organized school system.

Compulsory Education:

In the Federal Republic of Germany, obligatory schooling starts for all children at the age of six and lasts for nine years. Youth who do not enrol in full-time general education or vocational school after completing compulsory schooling must still attend part-time schooling, known as required Berufsschule attendance. The typical duration is three years.

Early Childhood Education and Care	Early childhood education is provided by institutions catering for children until the age of six at which they usually start school. Children of school age who have not yet attained a sufficient level of development to attend a school have a further option in some Länder, namely Schulkindergärten and Vorklassen. These institutions are either assigned to the early childhood or the primary sector according to the particular Land.

Primary Education	As a rule, in the year in which children reach the age of six, they are obliged to attend primary school. All pupils in Germany enter the Grundschule which in almost all Länder covers grades 1 to 4 (in Berlin and Brandenburg grades 1 to 6).
Secondary education	Following the primary school stage, secondary education in the Länder is characterised by division into the various educational paths with their respective leaving certificates and qualifications for which different school types are responsible. Once pupils have completed compulsory schooling they move into upper secondary education. The range of courses on offer includes full-time general education and vocational schools, as well as vocational training within the duales System (dual system). At school types offering one course of education all teaching is channelled to a specific qualification. These have traditionally been the Hauptschule, Realschule and Gymnasium. Schularten mit mehreren Bildungsgängen (schools offering more than one type of course of education) bring two or three courses of education under one umbrella. In most of the Länder they have meanwhile led to the abolition of the Hauptschule and Realschule. For pupils with sonderpädagogischer Förderbedarf (special educational needs), additionally various types of sonderpädagogische Bildungseinrichtungen (special schools), have been set up within the organisational framework of general and vocational education. Once pupils have completed compulsory schooling – generally when they reach the age of 15 – they move into upper secondary education. The type of school entered depends on the qualifications and entitlements obtained at the end of lower secondary education. The range of courses on offer includes full-time general education and vocational schools, as well as vocational education and training within the duales System (dual system).
Tertiary Education	The tertiary sector encompasses institutions of higher education (universities, Fachhochschulen/Hochschulen für angewandte Wissenschaften, colleges of art and music) and other establishments that offer study courses qualifying for entry into a profession to students who have completed the upper secondary level and obtained a higher education entrance qualification. Additionally there are a number of special higher education institutions which only admit certain groups, e.g. higher education institutions of the Federal Armed Forces and Verwaltungsfachhochschulen, and are not considered below. Those with a higher education entrance qualification may also choose to enter a Berufsakademie offered by some Länder as an alternative to higher education. At state or state-recognised Studienakademien (study institutions) and in companies students receive academic but, at the same time, practical career training. The Fachschulen and the Fachakademien in Bayern are institutions of continuing vocational education that, as a rule, call for the completion of relevant vocational education and training in a anerkannter Ausbildungsberuf (recognised occupation requiring formal training) and relevant employment. The qualification level achieved here is comparable to the first level of the tertiary sector

	in accordance with the International Standard Classification of Education ISCED.
Adult Education and Lifelong Learning	The activities of the state in the field of continuing education are, for the most part, restricted to laying down principles and to issuing regulations relating to organisation and financing. Such principles and regulations are enshrined in the legislation of the Federal Government and the Länder. State regulations are aimed at establishing general conditions for the optimum development of the contribution of continuing education to lifelong learning. As part of lifelong learning, continuing education is assuming greater importance and is increasingly becoming a field of education in its own right. In response to the vast range of demands made on continuing education, a differentiated structure has been developed. Continuing education is offered by municipal institutions, in particular Volkshochschulen, as well as by private institutions, church institutions, the trade unions, the various chambers of industry and commerce, political parties and associations, companies and public authorities, family education centres, academies, Fachschulen, institutions of higher education and distance learning institutions. Radio and television companies also provide continuing education programmes. It is usually possible to acquire school-leaving qualifications later in life at evening classes (Abendhauptschulen, Abendrealschulen, Abendgymnasien) and in what is called Kollegs.

VET in Germany

Vocational education and training (VET) in Germany relies on collaboration among the government, businesses, and social partners. The Federal Ministry of Education and Research (BMBF) oversees broad vocational education and training policy matters and plays a coordinating and directing role for all training occupations in collaboration with the relevant ministries. The BMBF collaborates closely with the Federal Institute for Vocational Education and Training (BIBB), which conducts research and provides advice to the Federal Government and VET providers. The federal states are in charge of the school-based aspects of vocational education and training (VET) and establish VET committees that include representatives from employers and employees.

The apprenticeship programme at the upper secondary level (EQF level 4) is a key component of vocational education and training (VET) and is appealing to upper secondary graduates. Over 25% of apprentices had obtained a higher education admission qualification before starting their apprenticeship. Programmes typically span three years and involve a combination of learning at two venues: companies and vocational schools. Work-based learning makes up around 75% of the programme. No specific prerequisites are needed to participate in the dual VET programme, however a formal apprenticeship agreement must be signed between the student and the firm. Enterprises incur the expenses of providing company-based training and compensate trainees with a wage. Individuals who successfully finish the training programme are eligible to work as skilled labourers. Advancement can be achieved through several vocational education and training programmes available at the post-secondary and tertiary levels.

School-based VET programmes at the upper secondary level (EQF level 2 to 4) run parallel to apprenticeships. These programmes vary in terms of entry requirements, duration, and the qualifications they offer.

These consist of full-time vocational studies at institutions like as Berufsfachschule, lasting one to three years based on the qualification level, leading to professions like nurse or childcare worker. The minimum entry requirement is the lower secondary general school certificate (Hauptschulabschluss). There are also general upper secondary programmes with a vocational aspect that typically result in the general higher education entrance qualification (Berufliches Gymnasium/Fachgymnasium), lasting two to three years. Applicants must possess an intermediate level certificate (mittlerer Schulabschluss) to be eligible for admission.

Youth facing social disadvantages, learning difficulties, disabilities, or limited German language proficiency (migrants) can enhance their skills through various transition programmes such as pre-vocational training (which allows for the acquisition of a secondary school leaving certificate) or a basic vocational training year.

Specialised programmes at the post-secondary level, such as Berufsoberschulen and Fachoberschulen, require students to have completed the intermediate school leaving certificate or basic vocational education and training (VET) and provide advanced occupational knowledge. They typically have a duration of one to three years and result in eligibility for admission to institutions of applied sciences or universities.

Tertiary level vocationally qualified individuals can pursue advanced vocational training (AVT) to get qualifications at EQF level 6, such as master craftsperson, technician, and specialist (Meister, Techniker, Fachwirt). AVT grants the privilege to do a trade autonomously, to recruit and educate apprentices, and to participate in bachelor degrees linked to the field. It also helps employees obtain middle management certifications within firms. AVT significantly enhances the appeal of the VET track. Training programmes for AVT certifications are available through chambers or specialised schools such as Fachoberschulen and master craftsperson schools. Typically, one needs several years of experience in the relevant field to be eligible for the assessment.

Applied learning is a crucial component of higher education at EQF levels 6 to 7. Dual study programmes combine vocational and academic training, available through universities of applied sciences bachelor degrees and other higher education institutions like Berufsakademien and duale Hochschule. Some result in dual qualifications, combining an occupational qualification with a bachelor's or master's degree. Businesses incur the expenses of providing in-house training and compensate trainees according to a contractual agreement.

Ongoing training is becoming more crucial in enhancing employability. It is defined by a diverse range of training providers and minimal State oversight.

Distinctive features of VET

Germany's VET is a successful model, largely based on the dual system (apprenticeship) leading to high-quality vocational qualifications, valued on the labour market. Apprenticeship enables smooth education-to-work transitions, contributing to low youth unemployment: in 2019 this was 5.8% of those aged 15 to 24, versus 15.1% in the EU-27. About 50% of upper secondary school learners are enrolled in a VET programme; of those, 70% participate in apprenticeship. A growing share of apprentices has a higher education entrance qualification (29.2% of apprentices starting their training in 2017). The success of the German apprenticeship system was also the main driver for implementing the European Alliance for Apprenticeships. National standards and training regulations (curricula for in-company and school-based components) ensure the quality of the dual training programmes. Companies provide apprenticeships in accordance with the training regulations, developed by the four stakeholders (Federal and State governments, companies and trade unions). These regulations allow for flexibility to agree on company training plans with apprentices. Regular revisions to training regulations guarantee keeping pace with rapid technological and organisational changes. Social partner contribution at different levels is important. As vocational training must respond to labour market needs, employer organisations and trade unions have a major influence on the content and form of IVET and CVET. At national level, they are represented in the BIBB board and participate in its vocational training committees. At regional level, the chambers play a crucial role in VET, such as in examinations. The initiative for updating or developing new occupational profiles comes mainly from social partners.

Challenges and policy responses

Increasing the attractiveness of VET to secure a future skilled workforce by promoting:

- vocational educational pathways up to EQF levels 6 and 7 and underlining the equivalence to academic education through new designations of bachelor professional and master professional;
- excellence in VET with the funding scheme InnoVET, which supports cooperation between learning locations, for the transfer of new developments (including artificial intelligence) from research institutions via VET into company practice;
- training for care and nursing occupations, by broadening the qualification, abolishing school fees and introducing remuneration for trainees.

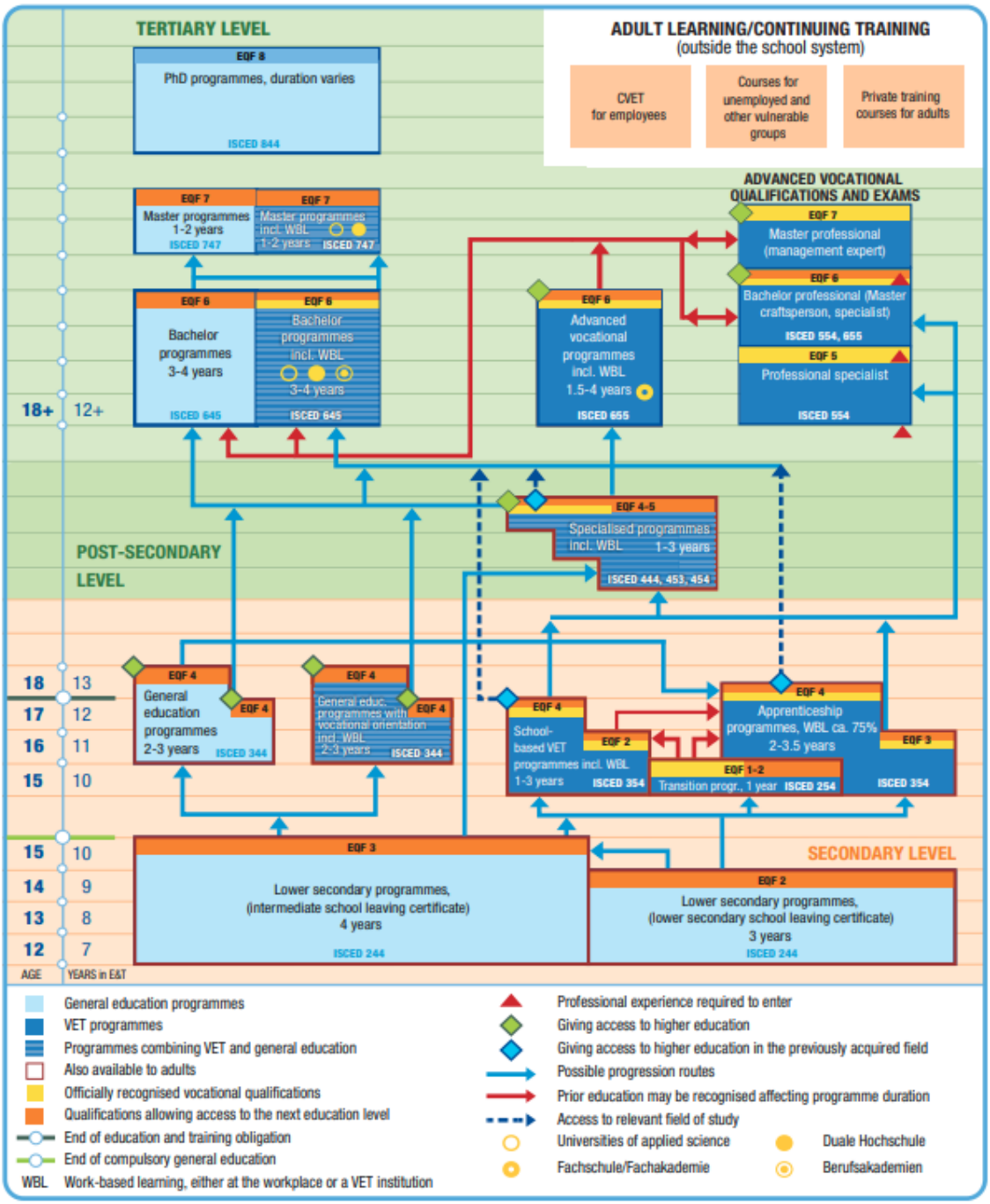
Modernising IVET and CVET to prepare for digital and ecological transition:

- IVET: the VET 4.0 initiative investigates the effects of digitalisation on qualifications and competences requirements of skilled professionals;
- CVET: the Qualification Opportunities Act introduces the right of employees to access CVET funding, if they are affected by structural changes. The National skills strategy responds to the challenges of the increasing digitalisation of the world of work. The overall goal is understanding occupational CVET as a lifelong necessity.

Providing guidance and coaching to reduce matching problems and support inclusive VET:

- the number of unfilled training places shows a need for reconciling supply and demand while taking into account regional and branch-specific differences. Employment agencies play a major role in matching SMEs and applicants;
- the Alliance for initial and further training has committed to integrating all interested learners in a VET programme; pre-VET measures and support during training are offered to migrants, refugees and other disadvantaged groups to facilitate their transition to VET and successful completion

VET in the German education and training system

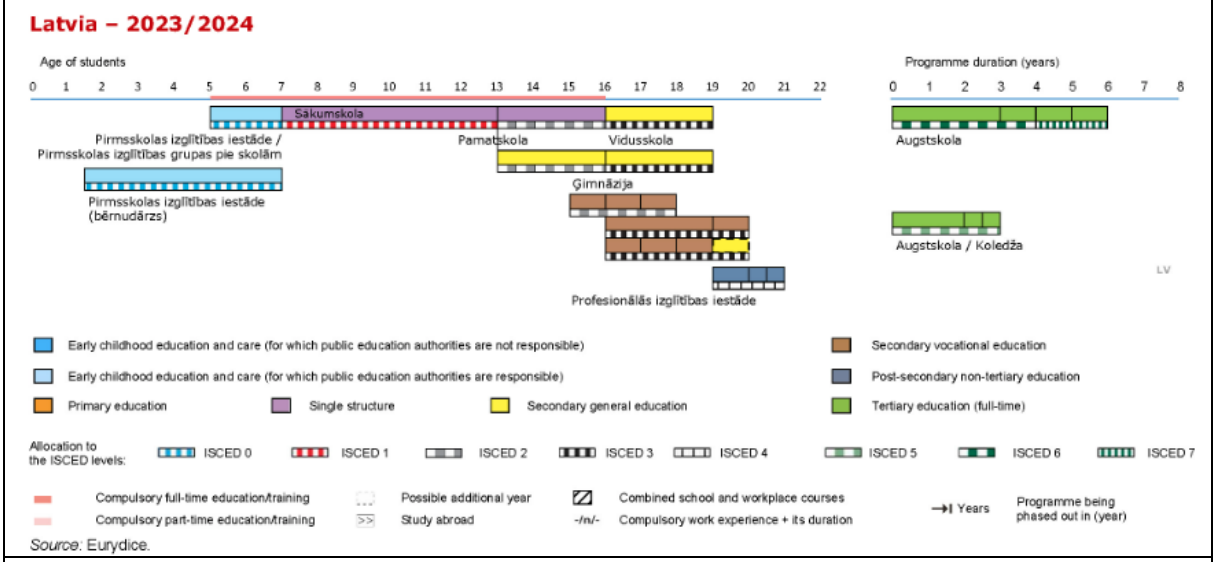


NB: ISCED-P 2011. This is a simplified chart, based on the unified approach used for the spotlights on VET in all EU-27 countries plus Iceland and Norway.

Please cite as: Cedefop; ReferNet Germany (2022). VET in the German education and training system. In: Cedefop; ReferNet (2022). *Vocational education and training in Europe* [database]. www.cedefop.europa.eu/en/tools/vet-in-europe

Latvia

Structure of the national education system



Source: Eurydice.

Latvia's education system aims to provide quality opportunities for all residents, promoting their potential and ability to manage constant changes in society and the economy. The system is highly equitable, with lower-secondary students scoring higher than the OECD average in mathematics and natural science and almost at the OECD average in reading. Municipalities invest 14.7 million euros in special education to improve learning performance and create a well-being environment. Government expenditure on education remained above the EU average in 2021. The 2023 budget increases funding for education and science by over EUR 180 million to ensure teacher salaries, promote excellence in higher education, and increase science and research capacity for economic transformation. The education system also includes vocationally oriented education in sports, art, and music, which combines basic education and higher education in music and arts.

Early childhood education	Latvia provides legal rights to early childhood education and care (ECEC) for children who are 1.5 years old. Municipalities are responsible for ensuring that children living within their jurisdiction have access to nearby ECEC facilities. Attendance at ECEC is mandatory for children aged five and six.
Primary and lower secondary education	Primary and lower secondary education is a unified system known as basic education, starting at age 7 and lasting for nine years of mandatory study. Primary education concludes at grade 9 with final exams in the student's native language, Latvian language for students in ethnic minority programmes, mathematics, Latvian history, and a foreign language. This results in the issuance of a certificate required for admission to upper-secondary education.

Upper secondary education	Upper secondary education, known as vidējā izglītība, starts at 16 and finishes at 19. It is offered through general and vocational courses by institutions such as vidusskola, ģimnāzija, and profesionālās izglītības iestāde. While upper-secondary education is not mandatory, a significant portion of the population has completed it, surpassing the OECD average. Vocational upper-secondary education curricula typically last between two to four years and result in various qualification levels. Upper-secondary vocational programmes are more common than lower-secondary vocational education, which is only available in a limited number of schools.
Higher education	Higher education is offered by independent public and private institutions known as universities, which provide academic and professional tertiary programmes, and other institutions such as academies or colleges that offer professional tertiary programmes. The degree programme adheres to a three-cycle framework consisting of bachelor's, master's, and doctoral level study.
Adult learning: There are various formal and non-formal education programmes and courses available for adult learners. Adult education within the formal education system encompasses general education at the primary and secondary levels, vocational and advanced vocational training given by professional education institutions, and higher education at universities. Public and private education institutions and organisations offer a range of informal adult education alternatives. Informal learning from work and personal experiences can be recognised as professional skills gained outside of formal education.	

VET in Latvia

Vocational education and training (VET) in Latvia is offered at three (1) levels: lower secondary (part of the national 'basic' education; integrated primary and lower secondary); upper secondary (secondary); and tertiary (professional higher) education. It includes practical training (50% to 65% of curricula) at schools and enterprises. In 2015, an apprenticeship scheme (called 'work-based learning' nationally) was introduced with alternating study periods at school and in an enterprise. The scheme is available for all VET programmes at EQF levels 2 to 4. To acquire a VET qualification at these levels, all VET learners take a State qualification exam at the end of the programme. Basic VET programmes (one to three years, ISCED 254) lead to qualifications at EQF level 2 and involve around 1% of the VET population (2018/19 data). Learners must be at least 15 years old to enrol. Those without completed basic education are admitted to three-year programmes (ISCED 254) that include a compulsory basic general education course. At upper secondary level, VET enrols 42% of all learners in:

- three-year programmes (ISCED 353) leading to a qualification at EQF level 3 and involving 2% of VET learners. To enrol in higher education, graduates should attend an additional one-year follow-up programme;
- four-year programmes (ISCED 354) leading to a secondary VET qualification at EQF level 4 and involving 67% of VET learners. Graduation from the programme requires both the VET qualification and success in four State exams in general subjects, giving access to higher education;
- one- to two-year programmes (ISCED 351 and 453) leading to a qualification at EQF levels 3 and 4. These programmes are designed for 17 to 29 year-olds with or without completed upper secondary education. They involve 30% of VET learners and focus on vocational skills, so they are shorter.

Professional higher education programmes are provided at two levels:

- first-level college (short cycle) programmes (two to three years; ISCED 554, EQF 5) targeted mainly at the labour market, though graduates can continue their studies in second-level professional higher education;
- second-level higher education programmes (two to six years) (ISCED 655, 656, 657, 756 and 757, EQF 6 and 7) leading to a professional qualification and either professional bachelor or master degree or a professional higher education diploma.

Formal continuing VET (CVET) programmes enable adults with education/work experience to obtain a State-recognised professional qualification in 480 to 1 280 hours, depending on the field of study. Shorter professional development programmes (at least 160 hours) enable learners to acquire or upgrade their professional knowledge and skills regardless of their age, education and professional background but do not lead to a qualification. Craftsmanship (not part of apprenticeships) exists on a small scale, separate from the rest of the education system. The Ministry of Education and Science is the main body responsible for the VET legal framework, governance, funding and content. Social dialogue and strategic cooperation are arranged through the national Tripartite Sub-Council for Cooperation in Vocational Education and Employment. Twelve sectoral expert councils ensure that VET provision is in line with labour market needs; they participate in developing sectoral qualifications frameworks, occupational standards, qualifications requirements, education and training programmes and quality assessment procedures. Since 2015, collegial advisory bodies, including representatives from employers, local governments and the supervising ministry – conventions – have been established at each VET school contributing to strategic development and cooperation with the labour market.

Distinctive features of VET

Initial VET is centralised and highly regulated by the State. Most vocational schools are owned and run by the State; half have the status of vocational education competence centres, receiving substantial investments in infrastructure and equipment with the support of EU funds since 2007. In addition to provision of vocational programmes, they validate non-formal and informal learning and offer lifelong learning and continuing teacher training. Comprehensive reforms of VET content – the introduction of modular vocational education programmes, new occupational standards and sectoral qualifications frameworks – increase the responsiveness of VET to labour market needs and support the use of learning outcomes. CVET providers are mainly private. IVET providers are increasing their educational offer for adults. Most vocational education learners (92%) are at upper secondary level (2019/20 data). This share has increased in recent years. VET provides learning opportunities for early leavers from education and training. With more investment in infrastructure and the development of new programmes, VET attractiveness is increasing. A validation system for professional competences acquired outside formal education has been available since 2011, allowing direct acquisition of professional qualifications at EQF levels 2 to 4. Procedures for assessment and criteria for validation of prior learning were set up for higher education in 2012.

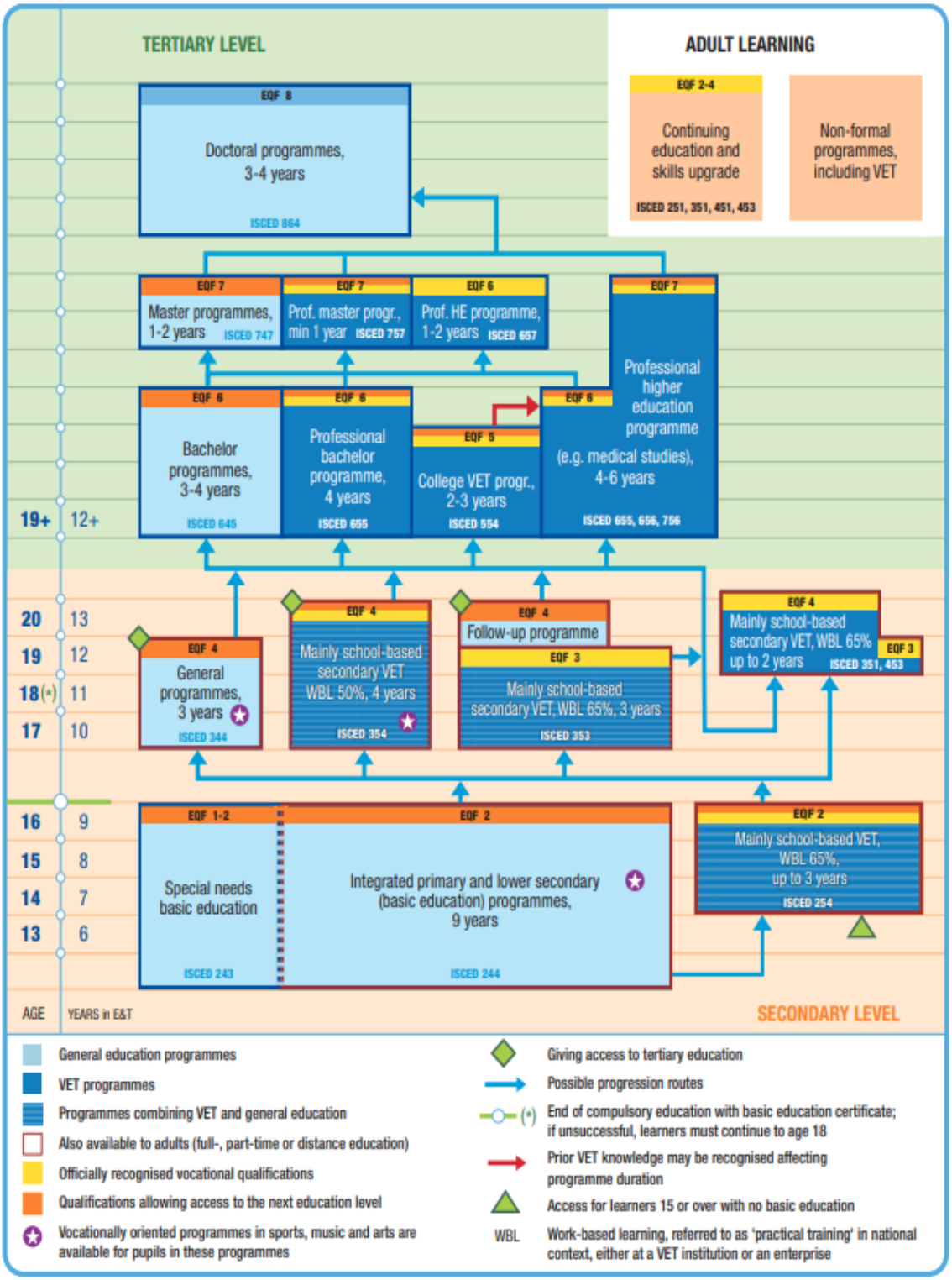
Challenges and policy responses

Reforming VET and adult learning are national policy priorities. Recent reforms aim at:

- promoting VET quality;
- ensuring its relevance to labour market needs;
- efficient use of resources to raise VET attractiveness.

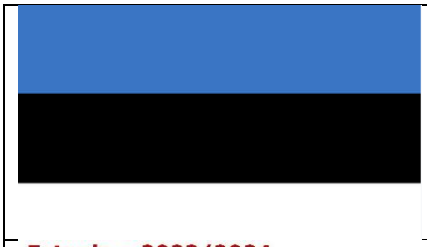
Policy strives for a balanced (equal) distribution of students choosing VET and general education after completing basic education. It also aims to double adult participation in learning from the current 7.4% (2019). In order to improve the responsiveness of VET to labour market needs, modularisation of programmes is being implemented. Content for modular programmes is being developed and gradually introduced. Limited access to guidance and counselling for young people, and the need to put in place ECVET and EQAVET principles for better quality and permeability, are challenges that require aligning stakeholder opinions and extensive promotion. Other challenges include motivating employers to cooperate with VET providers, for example, by offering training at the workplace and promoting continuing training for employees. In order to address these challenges, the education development plan (Future skills for the future society 2021-27) was submitted for consultation in October 2020. The priorities for VET include developing the education offer according to labour market needs, modern, digital, and green VET schools, competent educators, international cooperation and involvement of employers in VET.

VET in the Latvian education and training system

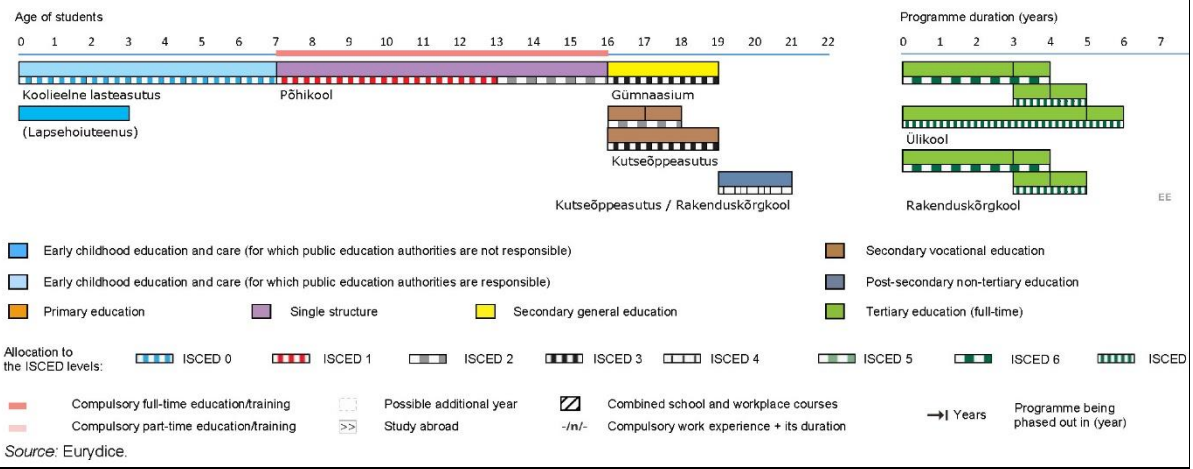


NB: ISCED-P 2011.

Please cite as: Cedefop; ReferNet Latvia (2022). VET in the Latvian education and training system. In: Cedefop; ReferNet (2022). *Vocational education and training in Europe* [database]. www.cedefop.europa.eu/en/tools/vet-in-europe



Estonia



The Estonian education system is based on the Republic of Estonia Education Act and lower level acts. It offers different levels of education, including preschool, basic, upper secondary, and higher education. The obligation to attend school is for children aged 7 or older. The system is decentralized, with responsibilities divided between the state, local government, and schools. The Estonian Education Strategy 2021-35 guides long-term developments, and national standards guarantee quality education provision. Local governments maintain preschool, basic, upper secondary, and some VET schools. Vocational schools are mostly state-owned, while universities are public law institutions.

Studies are conducted under uniform national curricula in preschool childcare institutions, general education schools, and vocational schools. The language of instruction is mainly Estonian, but other languages may be used as stipulated in legislation. Financing for educational institutions depends on the institution's ownership, with state funding covering expenses related to teachers' salaries, in-service training, textbooks, study aids, and school lunch expenses. Higher education institutions are mainly financed through operational support allocations.

Teaching staff and management work based on employment contracts, with a standard workload of 35 hours and annual holidays up to 56 calendar days. Vocational teachers teach both theoretical and practical subjects, with many working part-time without pedagogical qualifications. Data on the Estonian educational system is gathered through the web-based national register EHIS, which contains information on educational institutions, students, teaching staff, curricula, rights to conduct study, and documents certifying education acquisition.

Preschool education (ISCED level 0)	Preschool education is generally acquired in childcare institutions (koolieelne lasteasutus). Local governments are obliged to provide all children aged from 1.5 to 7 years permanently residing in their catchment area with the opportunity to attend a preschool child care institution if the parents so wish. In addition, there is also a system of childcare services (lapsehoiuteenus)

	catering mainly for the youngest children. These services can be either centre- or home-based.
Basic education (ISCED levels 1 and 2)	Basic education is the minimum compulsory general education, which is acquired in the basic school (põhikool) and which gives the right to continue studies at upper secondary education level. Basic school includes grades 1–9. Successful completion of the curriculum and passing final examinations is the condition for acquiring basic education.
Secondary education	Secondary education (ISCED level 3) is based on basic education and is divided into general secondary education, which is acquired in upper-secondary schools (gümnaasium), and vocational upper-secondary education, which is acquired in vocational schools (kutseõppeasutus). The length of general upper-secondary education is 3 years (grades 10–12). To graduate from upper-secondary school, students must pass state examinations, a school examination and a student investigation paper or practical work. The volume of vocational education curricula is calculated in VET credit points (EKAP). One credit point corresponds to 26 hours of work used by a student for studying. The yearly study volume is 60 credit points. The study volume of vocational secondary education (ISCED 3) is 180 credit points. Successful completion of the curriculum, taking necessary tests and passing all required assessments, practical training and the final examination is the condition for graduating from a vocational school. Acquisition of upper secondary education gives the right to continue studies at higher education level. Vocational education may be acquired also after graduation from upper secondary school. The study volume of VET after secondary education (post-secondary non-tertiary education, ISCED 4) is 120–150 credit points. Also, people with unfinished basic education can enter VET studies, study volume is 15–120 credit points (ISCED 2).
Higher education	Higher education can be acquired as professional or academic higher education, with three levels: Bachelor's, Master's, and Doctoral. All individuals with upper secondary education or foreign qualifications have equal rights to be admitted to these institutions. The volume of higher education curricula is calculated in credit points of the European Credit Point Transfer System (ECTS), with one credit point corresponding to 26 hours of study time. The yearly study volume is 60 credit points, with the standard volume for Bachelor's and professional higher education being 180-240 ECTS, Master's 60-120 ECTS, and the combined period of

	Bachelor's and Master's study being at least 300 ECTS. Doctoral study is 180-240 ECTS. Educational institutions can consider a person's previous study results and professional experiences (APEL) during the course of studies, allowing a curriculum to be completed in full, except for the final examination or paper.
Adult education: Adult education is divided into formal education and continuing education. Formal education acquired within the adult education system allows adults to acquire general lower and upper secondary education at adult upper secondary schools. Schools implement individual curricula when needed. In addition to formal education, VET and higher education institutions provide continuing education and retraining courses.	

VET in Estonia

Vocational education and training (VET) in Estonia is under the jurisdiction of the Ministry of Education and Research and is crucial to ensuring a flexible and skilled workforce. Professional standards in the eight-level Estonian qualifications framework are outcomes-based and are the basis for VET curricula. Social partners are involved in VET policy development and implementation. They participate in national professional councils and are involved in drafting VET-related legislation, including curricula. At provider level, their representatives belong to VET institution advisory bodies. Recognition of prior learning and work experience has improved accessibility to VET for learners from diverse education and professional backgrounds. VET providers offer both initial and continuing programmes. Initial VET is offered at levels 2, 3, 4 and 5 of the Estonian qualifications framework (and European qualifications framework, EQF). Learners can choose between full-time studies and those where the emphasis is on self-study (referred to as 'non-stationary' studies in the national context). Full-time studies are available as school-based tracks, and as apprenticeship. Financial assistance is available for VET learners to guarantee equal access to education. There are no minimum admission requirements at levels 2 and 3 but learners must be at least 17 years old to enrol. Entry to level 4 studies usually requires completed basic education but there are exceptions (1) for those over 22 without basic education.

VET programmes at ISCED level 354 are referred to nationally as upper secondary vocational education. The ratio of learners in general and vocational upper secondary programmes is three to one. The qualification achieved in vocational secondary education gives access to higher education. This may require learners to pass State examinations that are compulsory for general upper secondary education graduates: an optional additional year of general education is available for upper secondary VET graduates (ISCED 354) to help prepare. Around 8-9% of upper secondary VET graduates continue in tertiary education. Upper secondary education gives access to EQF level 5 initial VET programmes (ISCED 454). These post-secondary programmes prepare learners for technical and associate professional occupations and further studies. Continuing VET is offered at EQF levels 4 and 5. To enrol in these formal programmes, learners need a VET qualification or relevant competences, in addition to completed upper secondary education. Tertiary VET does not feature in Estonian legislation, though

tertiary education may also comprise professional qualifications. These are accessible to all graduates of upper secondary education and post-secondary VET. Non-formal continuing VET is part of adult learning. Its forms, duration and content vary. To support up- and reskilling of vulnerable groups (e.g. with obsolete, low-level or no qualification), VET providers and professional higher education institutions offer free courses for working adults.

Distinctive features of VET

Although the number of VET learners has been decreasing, the share of adult learners (age 25 and over) in initial and continuing VET has more than doubled since 2010/11, reaching 41.7% of the total VET population in 2019. This pattern reflects demographic trends but also changing labour market needs. Since 2010, the proportion of higher educated adults entering VET has also been increasing. In both initial and continuing education, learners have the right to take study leave. The share of practical training in VET programmes is 35% or more, depending on the type of programme. In the school-based track, it is usually divided equally between school workshops and workplace learning, featuring work and study assignments with specific objectives. Participation in apprenticeships has been increasing since 2016/17 and now accounts for 8% of VET learners. This is a result of the education ministry's efforts to develop a functioning and sustainable work-based learning system with stronger employer involvement, including more ESF investments. General secondary education has remained the more popular option among basic education graduates despite the government's efforts to increase the attractiveness of VET. Preferences in education paths vary greatly by region and gender. Many basic and upper secondary education graduates make a choice in favour of VET within several years of graduation; within three years after basic school completion, 37% of young people reach vocational training. The most common VET study fields are engineering, manufacturing and construction, with 50% of upper secondary vocational graduates earning a qualification. VET programmes are mainly offered in Estonian but, to a lesser extent, also in Russian and English.

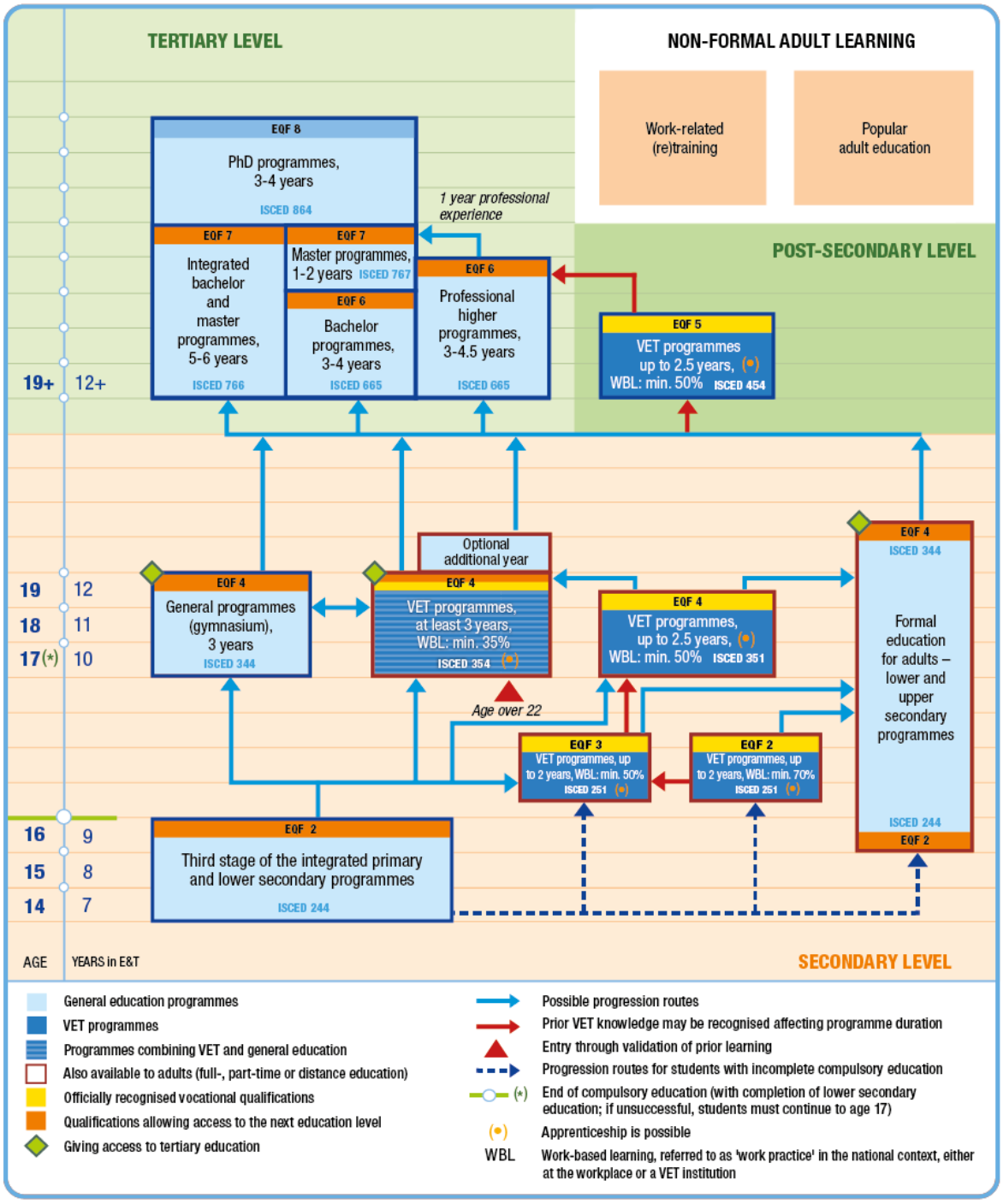
Challenges and policy responses

The Estonian labour market has a high level of skills mismatch. A labour market needs monitoring and forecasting system (OSKA) was launched in 2015 to improve alignment between education and the labour market. Results are available online and are used in curriculum development, career counselling, and planning of State-funded education. Dropping out from VET is a challenge. Compared with 1.2% of dropouts from general upper secondary education, the rate in the first year of vocational upper secondary education was 23.4% in 2019. There are career counselling services, vocational orientation programme at EQF level 2 and other measures to prevent early leaving. In 2019, 27% of adults aged 25 to 64 had no professional or vocational qualification; the objective is to reduce this share. Several measures have been introduced to encourage adults without a qualification to return to formal education.

Participation in lifelong learning increased from 6% in 2005 to 20.2% in 2019. The goal to increase it to 20% by 2020 has been achieved and VET has been playing a great role in this. There is a focus on broadening access to non-formal education, training courses for developing key competences, and career services. During the Covid-19 crisis, regulatory flexibility of VET has facilitated the transition to distance learning. WBL was reorganised case by case: postponed, suspended or continued. State-level support was tailored according to VET providers' needs. For example, short webinars, Facebook groups, answers to

FAQs on school management, organisation of studies, lists and guidelines for distance-learning environments were offered. The success factors in coping with the crisis were:

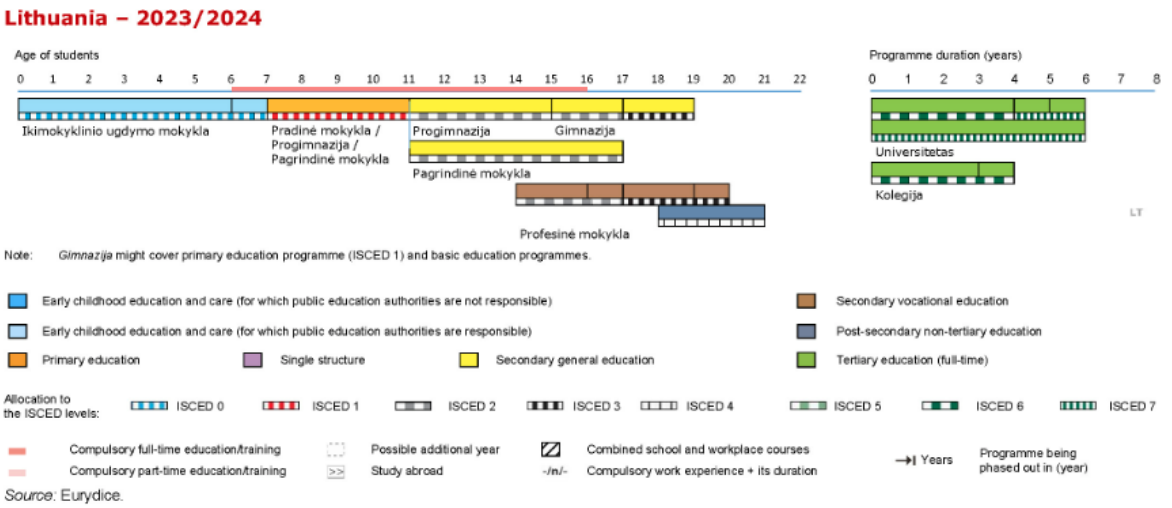
- sufficient learner and teacher digital skills, adequate digital infrastructure in VET schools and at homes;
- information and clear messages for reorganising studies;
- good governance, cooperation, partnership and information-sharing between stake



NB: ISCED-P 2011.
Source: Cedefop and ReferNet Estonia, 2022.

Lithuania

Structure of the national education system



Source: Eurydice.

Lithuania's education system is decentralized, with national institutions, municipalities, and educational institutions all responsible for the quality of education. The Seimas defines education policy at the national level, while the Government, Ministry of Education, Science and Sport, and related ministries formulate and implement education policy. Municipalities set and implement their own strategic education plans, while individual schools organize the education process. Education is publicly funded at all levels, with a shift from the'money follows the learner' principle to a basic education costs basket. The funding model for pre-school, pre-primary, and general education has been changed to a basic education costs basket. However, the current system faces challenges, including inclusive education and a lack of educational support professionals. The Ministry of Education, Science and Sport plans to change the status quo and support schools.

In 2022, 35.4% of school leavers failed the state mathematics matriculation exam, indicating a decline in students' results. The Ministry of Education, Science and Sport has prepared a plan for improving teaching and learning of mathematics for 2023-2030, aiming to develop mathematical thinking, adapt tasks and teaching tools, provide teachers with professional development opportunities, monitor the quality of teaching at the national level, and adjust curricula. The large network of educational institutions and the low prestige of the teaching profession make it difficult to attract new and motivated school heads. The Ministry is preparing measures to encourage school heads to apply and renew the corps of school principals.

Early childhood education and care	Pre-school and pre-primary education. In Lithuania, early childhood education and care is composed of pre-school (ikimokyklinis ugdymas) and pre-primary (priešmokyklinis ugdymas) education and is attributed as non-formal education. Pre-school education is not compulsory, but can be requested at the discretion of the parents, and is based on a pre-school curriculum. Pre-school education is available for children from birth to pre-primary education. So that the child can prepare for the successful completion of the primary education curriculum, pre-primary

	education groups are set up. Attendance is compulsory for pre-primary education when a child turns 5 years of age by 30 April of any given calendar year. Pre-school and pre-primary education can be offered at pre-primary classes in ECEC settings at general education schools. It can be provided by licensed freelance teachers or other education providers in accordance with legislation. Pre-school and pre-primary educational institutions fall under the authority of local governments.
Primary and basic education	Children must start attending primary schools when they turn 7 years of age during any given calendar year. Education is compulsory until the age of 16. Primary and lower secondary education is free of charge in public educational institutions. Primary education lasts for 4 years. Its purpose is to provide children with the fundamentals of learning, literature, and social and cultural skills. It is delivered by primary schools (pradinė mokykla, grades 1 to 4), pre-gymnasiums (progimnazija, grades 1 to 8) or multifunctional school centres (daugiafunkcis centras, an institution that provides early childhood education and care, education from grades 1 to 12, and other formal and non-formal education, including cultural and social services). Lower secondary education lasts for 6 years and is also compulsory. Children usually enter lower secondary education when they are 10 or 11 years of age. It is delivered by pre-gymnasiums, lower secondary education schools (pagrindinė mokykla, a lower secondary education school and general education institution providing education for grades 5 to 10), gymnasiums (gimnazija, a general education institution that provides education for grades 9 to 12), school-multifunctional centres and VET schools. Education is compulsory until 16 years of age, at that time the learner will usually have finished the course of lower secondary education (10 grades).
Upper-secondary and VET	The two-year upper secondary curriculum is implemented by gymnasiums. VET schools along with a VET curriculum may provide the basis for the last two years of the lower secondary curriculum and/or upper secondary curriculum. VET curriculum is delivered in bespoke VET schools and other institutions. Students are typically aged from 17 to 19 and the curriculum lasts from 1 to 2 years. VET can be organized in school or apprenticeship formats.
Higher education	Higher education comprises two types of institutions: universities (*universitetas*) and colleges (*kolegija*). Learners can begin their higher education after gaining an upper secondary education. The degree structure follows a three-cycle structure: Bachelor's, Master's and Doctoral-level studies. The first cycle of studies (Bachelor's) usually lasts for four academic years, the second cycle (Master's) two years and the third cycle (Doctoral) another four years. In 2018, short-cycle studies were introduced into the higher education system. These studies are intended for the acquisition of the Lithuanian qualification framework's Level V qualification (ISCED 5). VET schools together with colleges can provide joint short-cycle studies after coordination with the Ministry of Education, Science and Sport. legislation to implement short-cycle studies is being prepared.

Adult Learning

- CVET programmes (ISCED 2-4)
- Non-formal vocational programmes

VET in Lithuania

The Ministry of Education and Science is the main body responsible for shaping and implementing vocational education and training (VET) policy. The Ministry of Economy participates in human resources development and VET policy. The Government Strategic Analysis Centre (STRATA) ensures the monitoring framework for VET and higher education, research and innovation, and human resources planning. It also forecasts needs for new qualifications.

VET is offered from lower- to post-secondary education (ISCED levels 2 to 4). To acquire a VET qualification, learners take a specified exam, after which a VET diploma is awarded. Programmes are modularised; the minimum duration is 30 credits acquired in a half year. Lower secondary level VET programmes (up to three years, ISCED 252 and 254) lead to qualifications at EQF level 2. They are open to learners over 14 and training is mandatory until age 16. Those without completed lower secondary education can study VET along with general education.

At upper secondary level:

- programmes with duration of up to two years lead to a VET qualification at EQF level 3 (ISCED 352) and prepare students for entering working life;
- three-year programmes lead to a VET qualification at EQF level 4 (ISCED 354) and a matura diploma giving access to higher education and post-secondary programmes (ISCED 454). To receive a matura diploma a learner must take at least two matura exams. Graduates who apply to higher education ISCED 645 and ISCED 655 programmes in the same field of studies are awarded additional entrance points.

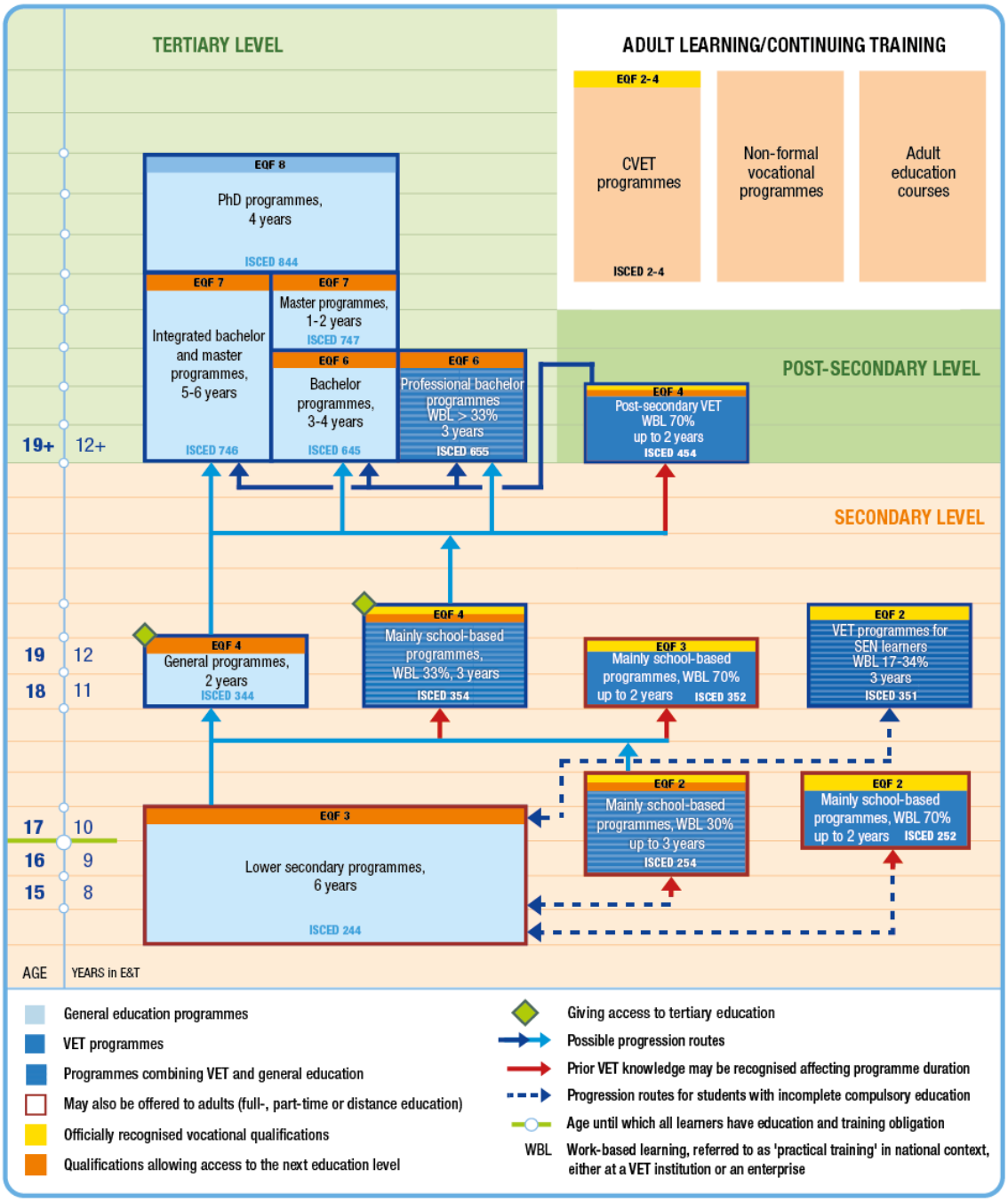
Post-secondary level VET programmes (up to two years, ISCED 454) lead to a VET qualification at EQF level 4. Six EQF level 5 VET programmes delivered jointly by VET institutions and colleges are being piloted in 2020. Higher education college studies lead to a professional bachelor degree (ISCED 655) in three years. Implementation of EQF level 5 short-cycle programmes is being legislated. Formal continuing VET (CVET) is for learners who want to improve an existing qualification or acquire a new one. It follows the same curricula as IVET with exception of short (less than six months) programmes aimed at acquiring a competence needed to do jobs specified in regulations. Non-formal VET programmes must follow a specified template and be registered in the Register of study, training programmes and qualifications. Although VET is school-based, work-based learning (WBL) is a significant part. It takes place in school settings, with at least 110 to 220 hours period (90 to 180 hours for CVET) at the end of programme to be spent in a company. 42 sectoral practical training centres offer quality practical training environments. Progressing implementation of apprenticeship is a national priority and policy initiatives are in process. Qualification exams are detached from the training process and are carried out by accredited institutions. Social partners, enterprises and employers' associations may apply for accreditation. Social partners participate in developing new qualifications, standards and VET programmes. The 2018 VET law boosted the role of sectoral professional committees in shaping VET qualifications and planning future apprentice intake.

Distinctive features of VET

Initial VET (IVET) is centralised and highly regulated by the State. Continuing VET (CVET) is delivered by IVET and other training providers, public or private organisations. Following the new VET Law (2018), individuals can acquire two VET qualifications free of charge; for others, CVET programmes are offered for a fee, except for the unemployed and those at risk of unemployment whose training is supported from European social fund (ESF) projects. A voucher system allows the unemployed to choose the training provider. The provision of training is based on contracts between the local public employment service, the unemployed and, if applicable, the enterprise (which undertakes to employ the person after the training for at least six months). Due to the demographic decline in the young population, the number of young IVET learners has decreased by 21.5% over six years. The share of adults in formal (C)VET programmes is steadily increasing, especially for ISCED level 4 programmes; in 2019 42% of all IVET and 69% of CVET learners were adults aged 25 to 64. From 2002, VET curricula in Lithuania have been competence-based, with clearly defined learning outcomes. Since 2018, sectoral qualification standards are being developed for all economic sectors. Based on these standards, VET programmes are being gradually redesigned into modular programmes consisting of mandatory and optional modules. Modularisation allows learners to acquire a VET qualification by taking individual modules and choosing the most acceptable way and pace of learning.

Challenges and policy responses

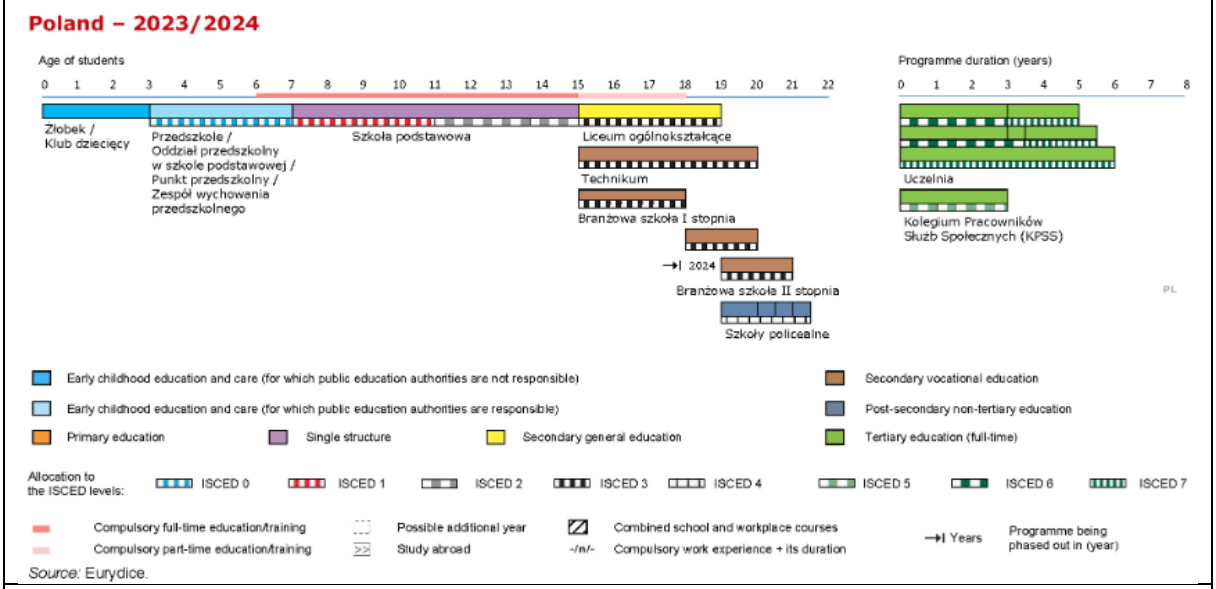
Skills forecasts up to 2030 predict a significant loss of the labour force in the country, especially among those with medium-level qualifications. At the same time, it is expected that 51% of job openings will require medium-level qualifications. Reviewing the human resources development policy is key to guaranteeing labour force productivity and economic competitiveness. The challenge remains to encourage participation in VET among young learners. To increase VET flexibility and attractiveness, from 2020 learners in the last four years of secondary (general) education (grades 9 to 12) can enrol in individual vocational modules offered in programmes delivered by VET institutions. Learners wishing to continue in the vocational stream may have their acquired competences recognised, thus shortening the duration of studies. From 2019, the governance bodies of VET institutions include representatives from municipalities and businesses. Reforming VET institution networks and using their resources 49VET in Lithuania's education and training system more effectively remains a policy priority. VET institutions (those with fewer than 200 students are being merged) should be reduced to 57 by the end of 2020 (73 in 2016). Participation in lifelong learning remains low (7% in 2019). The national goal is to increase it to 12% by 2022. Ministries of Education and Science, Social Security and Labour and Economy plan various adult training opportunities for key competences development, with training of the (un)employed jointly funded by ESF. Measures foreseen include VET and lifelong learning promotional campaigns and strengthening career guidance services. Participation in apprenticeship is low and needs better cooperation between VET institutions and companies through apprenticeship pilot projects in VET institutions, plus reimbursement of apprentice salaries. Reforming VET management, financing schemes, competences evaluation and recognition, and quality assurance mechanisms are included in policy priorities to raise the prestige of VET among all stakeholders.



NB: ISCED-P 2011.
Source: Cedefop and ReferNet Lithuania, 2022.

Poland

Structure of the National Education System



Source: Eurydice.

The Polish education system has undergone significant changes since the collapse of the communist regime in 1989. Key features include a combination of centralized governance and decentralized school administration, as well as an external examination system for students at the end of compulsory education. These exams are high-stakes and influence the choice of a student's educational or vocational path. Teachers' status is defined by separate legislation, such as the Teacher's Charter, which outlines rules of admission, duties, remuneration, and dismissal.

The public education sector dominates over private schools, with most students enrolled in public higher education institutions (HEIs). The 2017-2023 transformation resulted in a new school structure including 8-year primary schools, 4-year general secondary schools, 5-year technical secondary schools, 3-year Stage I sectoral vocational school, 2-year Stage II sectoral vocational school, 3-year special school preparing for employment, and post-secondary schools.

- Compulsory education in Poland lasts for 9 years, comprising the last year of pre-school education and 8 years of primary school education. Full-time compulsory schooling and part-time compulsory education are defined in Polish educational legislation, with full-time compulsory schooling requiring pupils aged 7-15 years to attend school, and part-time compulsory education requiring pupils up to 18 years to continue education in some form. This can be implemented in school settings or non-school settings, such as vocational training offered by employers.

Early school education and care	Institutions for children aged 0-3 years: crèche (żłobek) kids club (klub dziecięcy). Attending a crèche is not obligatory, crèches are not part of education system as they are supervised by the Ministry of Family and Social Policy. Institutions for children aged 3-6 years: nursery school (przedszkole) pre-school class in a primary school (oddział przedszkolny w szkole podstawowej) pre-school unit (zespół wychowania przedszkolnego)

	pre-school centre (punkt przedszkolny). Pre-school education is optional for 3-, 4- and 5-year-old children and obligatory for 6-year-olds. Every 3-, 4- and 5-year-old has an entitlement to a place in a pre-primary setting in his/her community.
Primary education	*Single structure education (ISCED 1 and 2)* *8-year primary school (single structure education) is compulsory for all pupils who are usually aged 7-15.* *It includes two stages:* *grades 1-3 (early school education)* *grades 4-8 (teaching by subject).* *At the end of grade 8 of primary school pupils take a compulsory external examination. The results of the exam together with end of school achievement influence admission to secondary schools.*
Lower and upper secondary education	Although this stage of education is not compulsory (or in fact compulsory part-time up to the age of 18) a vast majority of students continues education in secondary schools. The reformed structure of secondary education (ISCED 3) includes the following types of schools: 4-year general secondary school (liceum ogólnokształcące) 5-year technical secondary school (technikum) 3-year Stage I sectoral vocational school (branżowa szkoła I stopnia) 2-year Stage II sectoral vocational school (branżowa szkoła II stopnia). Examinations Graduates of general secondary schools and technical secondary schools may take the external secondary school leaving examination (egzamin maturalny) to obtain the Matura certificate, which gives access to higher education. This possibility is also open to graduates of the new Stage II sectoral vocational school. Students of vocational schools - sectoral vocational schools and technical secondary schools - may take exams confirming vocational qualifications (old formula) or vocational examinations (new formula) in a given occupation during the course of study or upon completion of school to receive a diploma confirming their vocational qualifications/ vocational diploma.
Post-secondary education	Post-secondary education is considered to be a part of secondary education. Post-secondary schools (szkoła policealna) are intended for graduates of general secondary schools who wish to obtain a diploma confirming vocational qualifications/vocational diploma. The schools offer courses lasting from 1 to 2.5 years. The students of post-secondary schools and students of sectoral vocational schools and technical secondary schools take vocational exams of the same type.
Higher education	There are two types of Higher Education Institutions: university-type (uczelnia akademicka) non-university-type (uczelnia zawodowa). They both offer first- and second-cycle programmes as well as long-cycle Master's degree programmes while only university-type HEIs can offer

	third-cycle programmes (doctoral studies) and are authorized to award doctoral degrees. Non-university-type HEIs, on the other hand, offer specialist, practical type of training programmes. Studies are organized in the form of full-time (studia stacjonarne) or part-time (studia niestacjonarne) programmes. First-cycle programmes lead to two types of degrees: licencjat (equivalent of Bachelor's degree) - 3-4 year programmes inżynier (equivalent of Bachelor's degree) - 3.5-4 year programmes. Holders of the Bachelor's degree can enter second-cycle programmes, which take 1.5-2 years depending on the area of study. Only several fields of study offer long-cycle Master's degree programmes that last for 4-6 years. First-cycle, second-cycle and long-cycle Master's programmes end with a diploma examination and students who have passed it are granted a relevant degree. The Master's degree (magister or its equivalent) entitles its holder to practice a given profession and provides access to third-cycle studies. They are organised in HEIs or research and development institutions other than HEIs and last for 3-4 years.
Adult education	Adult education is open to adults who wish to complete school education on primary and secondary level or acquire new vocational qualifications and skills for professional or personal reasons. It is organised, in school and non-school settings, by: • continuing education institutions • practical training institutions • in-service training centres • HEIs as non-degree postgraduate programmes. Training is offered also to the unemployed and to certain categories of people searching for a job

VET in Poland

Vocational education and training (VET) has three governance levels: national (ministries), regional (school superintendents, mainly in pedagogical supervision) and county (governing schools). The Ministry of Education and Science is in charge of secondary and higher VET, supported by other ministries responsible for particular occupations. Social partners advise policy-makers on necessary changes in VET. Since September 2017, the Polish education system has been undergoing substantial restructuring, to be finalised in the 2022/23 school year. VET is provided mainly in school-based upper secondary and post-secondary programmes. Upper secondary programmes combine general and vocational education.

Learners can acquire vocational qualifications in:

- three-year first stage sectoral programmes (branżowe szkoły I stopnia, ISCED 353) leading to a vocational qualification diploma for a single-qualification occupation (after passing State vocational examinations). Graduates can enrol in the second year of general upper secondary programmes for adults or in a second stage sectoral programme;
- two-year second stage sectoral programmes (branżowe szkoły II stopnia, ISCED 354), launched in the 2020/21 school year. These further develop the vocational qualifications attained in first stage sectoral programmes. General education is provided in full-time day or evening classes, or extramurally. Graduates can acquire an upper secondary school leaving certificate (matura) providing access to tertiary education;
- five-year vocational programmes (technika, ISCED 354) leading to a vocational qualification diploma for occupations consisting of two qualifications after passing State vocational

examinations. Graduates can acquire an upper secondary school leaving certificate (matura) giving access to tertiary education;

- three-year special job training programmes (szkoły specjalne przysposabiające do pracy, ISCED 243) for special education needs (SEN) learners leading to a job training certificate;
- work preparation classes for SEN learners aged 15 and above already in primary school (oddziały przysposabiające do pracy).

At the post-secondary non-tertiary level, vocational qualifications are acquired in one- to two-and-a-half-year school-based programmes (szkoły policealne, ISCED 453). College programmes of social work (kolegium pracowników służb społecznych – ISCED 554) are part of tertiary education. They combine school-based learning and in-company training leading to a diploma at EQF level 5. Learners should hold a matura certificate. Work-based learning (WBL) is compulsory for all VET-oriented programmes. It takes place in school workshops, continuing education centres, vocational training centres or can be organised partially or fully by an employer, including apprenticeships. A distinctive form is on-the-job-training (traineeship) lasting 4 to 12 weeks, depending on the occupation; this is compulsory for upper secondary vocational, post-secondary and second stage sectoral programmes.

Adult learning and CVET

Adult learning, continuing and out-of-school VET are available in continuing education centres, practical training centres, further training and professional development centres, and initial

VET schools, offering:

- vocational qualification courses based on curricula for a qualification in a given occupation; learners can take the State vocational examination and obtain a vocational qualification certificate;
- vocational skills courses based on the VET core curriculum, including learning outcomes for a qualification or common learning outcomes for all occupations;
- minimum 30-hour general skills courses based on the general education curriculum;
- theoretical courses for juvenile employees.

Since 2016, curriculum-based qualifications attained in courses offered by training companies and other non-formal education institutions can be included in the integrated qualifications register.

Distinctive features of VET

The key features of Polish VET are:

- flexibility allowing changing pathways at any point;
- classification of occupations, updated by various stakeholders in line with labour market needs. Each occupation consists of one to two qualifications that can be attained through IVET and CVET programmes, and is linked to a core curriculum. A VET qualification diploma can be issued only when all qualifications required for an occupation are obtained (via State vocational examinations) together with a school leaving certificate;
- autonomy of VET schools in developing core curriculum-based programmes, easily modified for labour market needs;
- uniform, centrally organised external vocational examinations;
- vocational qualification courses allowing adults to acquire qualifications;
- validation of non-formal and informal learning via extramural examinations+

Challenges and policy responses

The main challenges for VET are:

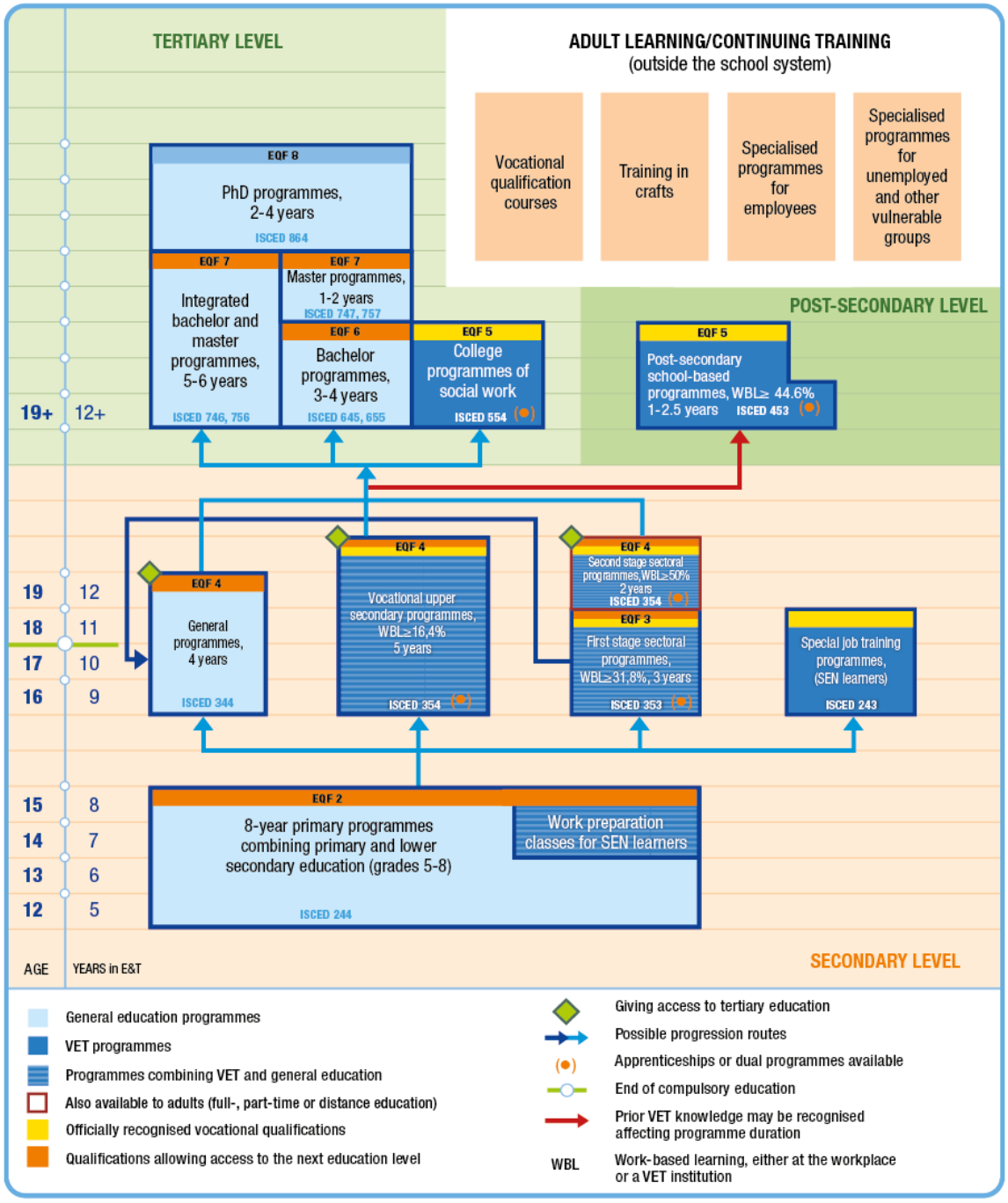
- raising the attractiveness of VET in society;
- increasing employer engagement in practical training, identifying and forecasting labour market needs for skills and qualifications, reviewing VET curricula;
- improving VET teachers' qualifications and competences;
- encouraging lifelong learning among adult learners;
- encouraging sustainable cooperation between VET schools and higher education institutions to transfer good practices in teaching, training and developing teachers' competences;
- ensuring high quality guidance and counselling for all age groups; 59VET in Poland's education and training system
- providing high quality infrastructure for VET schools to ensure teaching and training in line with labour market needs;
- further developing training programmes.

New measures introduced in November 2018 strengthen mechanisms involving employers in VET and systematically adapting VET to labour market needs, particularly in such areas as:

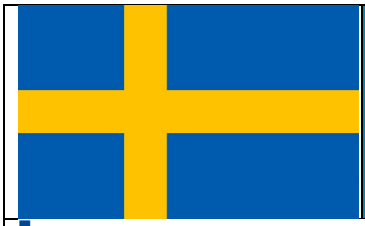
- practical training and teacher professional development in enterprises via 40-hour workplace training cycles;
- expanding work-based learning in VET;
- annual forecasts of the demand for employees in VET occupations;
- directing more funds to high demand occupations;
- strengthening quality assurance;
- enhancing the accreditation system for CVET providers;
- organising shorter forms of vocational courses for adult learners;
- introducing the student apprenticeship (staż uczniowski) for learners in vocational upper secondary and first-stage sectoral programmes who are not juvenile workers;
- building a monitoring system to track the educational and professional trajectory of graduates.

Several other education ministry initiatives address the main challenges for VET:

- enabling non-statutory CVET qualifications to be included in the integrated qualifications register;
- strengthening school guidance and counselling;
- introducing new VET core curricula developed by the public sector, the Centre for Education Development (ORE), employers and stakeholders;
- setting-up new sector skills councils giving a voice to stakeholders regarding competence demands;
- launching the national Integrated skills strategy, developed and adopted in 2019 covering all education levels, and providing coherent policies on skills development;
- identifying VET professions having particular significance for national culture and heritage

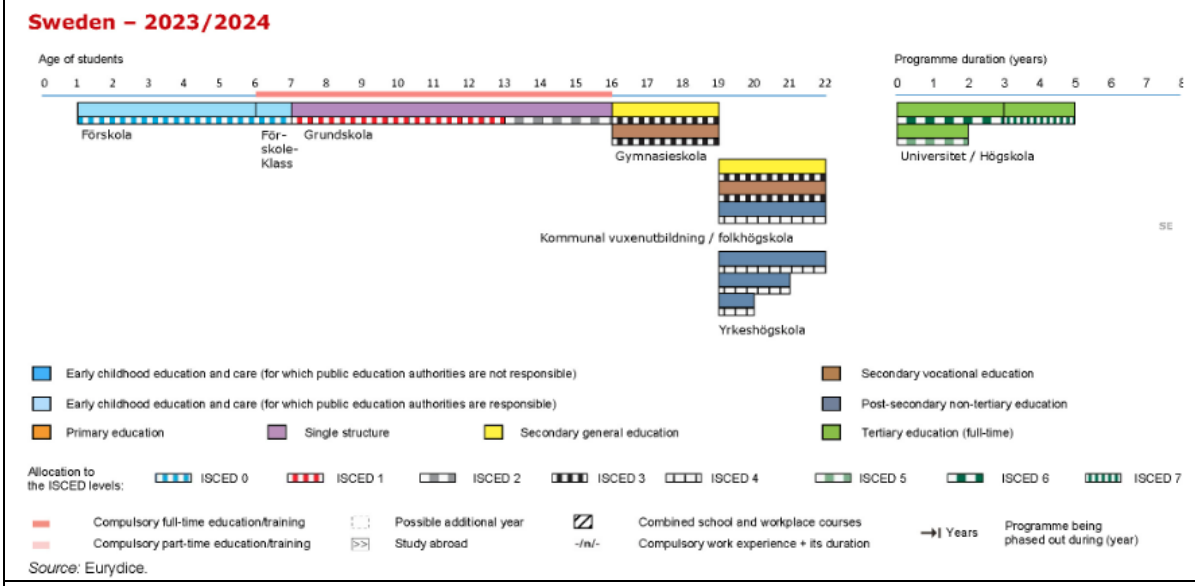


NB: ISCED-P 2011.
Source: Cedefop and ReferNet Poland, 2022.



Sweden

Structure of the National Education System



Source: Eurydice.

Sweden has a decentralized education system, with almost half of the population participating in organized education.

All education, from preschool to higher education, is free of charge. The government has the overall responsibility and sets the framework for education at all levels. Municipalities organize education in preschool, preschool class, compulsory school, upper secondary school, municipal adult education, Swedish tuition for immigrants, and leisure-time centers. The majority of school funding comes from municipal tax revenues, including grant-aided independent schools.

Higher education is provided by state universities, state university colleges, and private institutions, some of which receive state subsidies. Higher vocational education is provided by state universities, state university colleges, municipalities, county councils, and independent education providers. The Swedish National Agency for Higher Vocational Education calls for applications from education providers to be part of Swedish higher vocational education, valid for 2-5 education rounds.

Focus on Lifelong Learning

An overall aim of the education system in Sweden is to strengthen the students' foundations for lifelong learning. This is for example expressed through the curricula for compulsory and upper secondary school.

Sweden has a comprehensive system of adult education consisting of municipal and liberal adult education (folkbildning). Higher education and higher vocational education are free of charge and Swedish citizens are entitled to post-secondary student aid (studiemedel) until the year they turn 60. The study support system is equal for all and principally granted independently of parents' or family's financial situation.

The Teaching Profession

The current teacher education programmes in Sweden include four different professional degrees:

- a degree in preschool education
- a degree in primary school education
- a degree in subject education
- a degree in vocational education

The teaching profession has for many years struggled with declining status. The government has during the last years initiated several reforms to improve the status of the teaching profession and to increase the number of applicants to the teacher education programmes.

Preschool class and compulsory school	The preschool class (förskoleklass) is since 2018 compulsory for all children from the year that they turn six. The Compulsory school (grundskola) then begins at the age of seven and ends at the age of 16. Preschool (förskola) is heavily subsidised and available from about the age of one. More than 90 percent of the children attend preschool.
Upper secondary school	Upper secondary school (gymnasieskola) consists of 18 national programmes and five introductory programmes (introduktionsprogram) for students who are not eligible for a national programme. Among the national programmes, there are 12 vocational programmes (yrkesprogram) and six higher education preparatory programmes (högskoleförberedande program). Students usually start upper secondary school at the age of 16 and complete their upper secondary studies at the age of 19. Students that have not completed upper secondary school are able to attend municipal adult education (kommunal vuxenutbildning, Komvux) or folk high schools (folkhögskola). Students that have completed upper secondary school are, depending on their choice of upper secondary national programme and courses within the framework of individual options, also able to apply for universities (universitet), university colleges (högskola) and/or higher vocational education (yrkeshögskola).
Higher education	Mainly as a result of the Bologna process, higher education in Sweden follows a three-cycle structure. First and second cycle education is referred to as undergraduate education and the third cycle as postgraduate education.

VET in Sweden

Swedish vocational education and training (VET) starts after compulsory education and includes programmes at upper secondary, post-secondary and tertiary levels. To enrol in upper secondary VET programmes, learners need a sufficient number of passing grades in a lower secondary programme. Four bridging programmes offer an alternative pathway to gain access rights for upper secondary programmes. They do not lead to any VET qualification but learning outcomes might be recognised if they continue an upper secondary VET programme or ease their access to the labour market as semi-skilled workers. Depending on student goal and performance, they usually last from one to three years. Upper secondary VET programmes are three-year programmes leading to an upper secondary vocational diploma at EQF level 4. Each programme can be followed through two pathways: school-based and apprenticeship. Both pathways incorporate mandatory training at the workplace; in school-based programmes the overall share of work-based learning is at least 15%; in apprenticeship the minimum is 50%. Overall, there are 12 such VET programmes focusing on different occupational fields. Graduates having sufficient passing grades in particular modules (such as Swedish, English and mathematics) can access higher vocational education. Higher one- or two-year VET programmes are offered at post-secondary and tertiary levels, leading to a diploma (EQF 5) or advanced diploma (EQF 6) in higher vocational education. Programmes combine school-based learning with training at the workplace; the programme leading to the advanced diploma needs to contain a minimum of 25% of workplace training.

Governance The Swedish government has overall responsibility for the education system and sets the policy framework at all education levels. Goals and learning outcomes are defined centrally but with decentralised implementation. The Ministry of Education and Research is responsible for most education fields, including upper secondary schools, adult education, and higher VET. Steering documents regulating upper secondary school and municipal adult education are drawn up by the government and by the Swedish National Agency for Education (Skolverket). There is a national programme council for each vocational programme; these advise and support Skolverket regarding adaptation, development and modernisation of vocational education. The Swedish Agency for Higher Vocational Education (MYH) is in charge of higher VET, approving and financing training providers who then cooperate with the world of work to develop and deliver programmes. Training providers can be run by municipalities, counties, State or private stakeholders.

The Swedish government is responsible for the education system, setting policy frameworks at all levels. The Ministry of Education and Research handles most education fields, including upper secondary schools, adult education, and higher vocational education (VET). The Swedish National Agency for Education (Skolverket) and the government create steering documents for these fields. A national programme council advises Skolverket on vocational program adaptation, development, and modernization. The Swedish Agency for Higher Vocational Education (MYH) is responsible for higher VET, approving and financing training providers who collaborate with the world of work to develop and deliver programs.

Distinctive features of VET

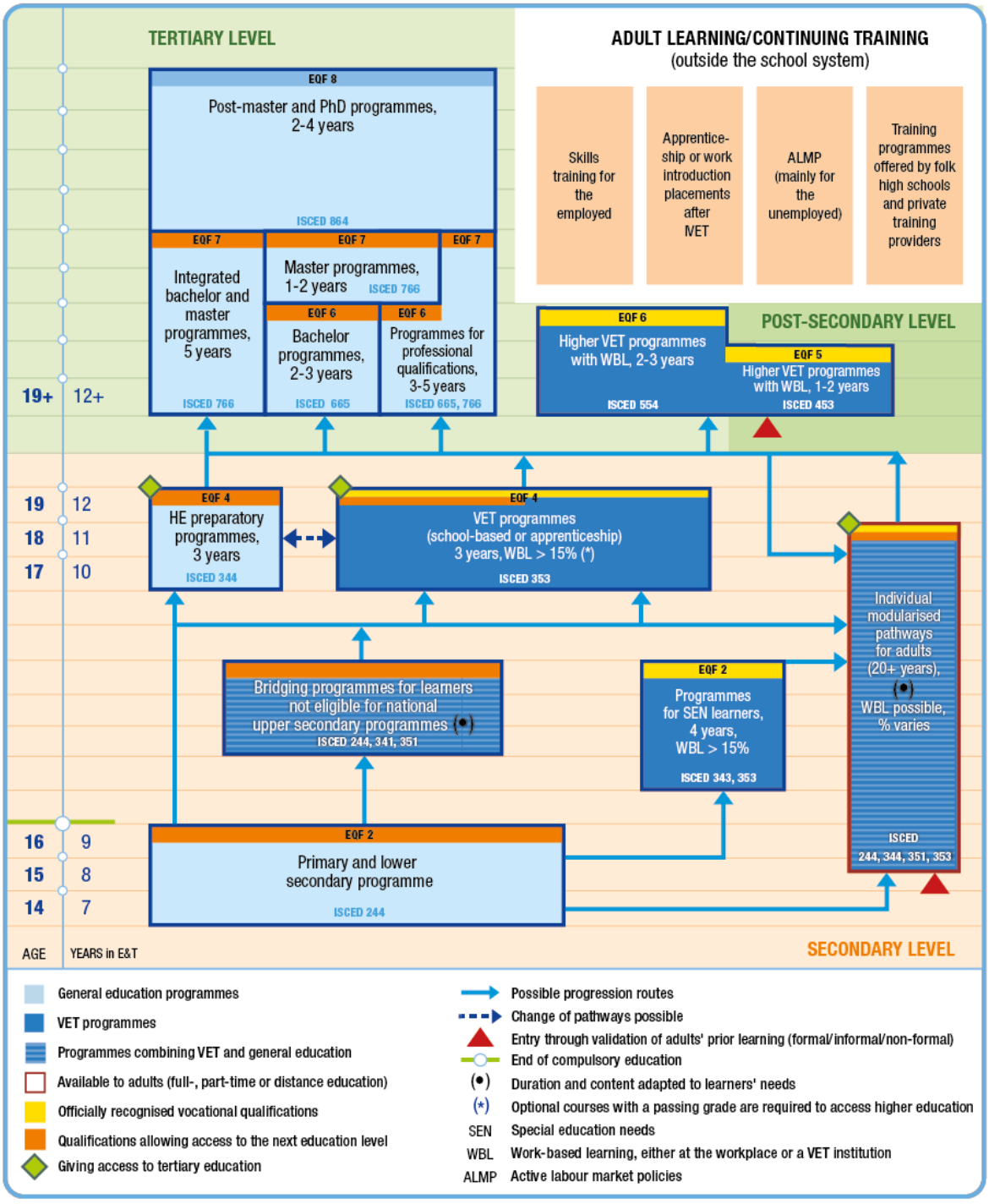
Upper secondary education in Sweden is structured in a modular manner, allowing learners to transfer courses between programs when changing study routes. Municipal adult education provides the same courses as secondary school, with some exceptions, allowing learners to build on their previous studies and gain higher education access. The system is governed by the State and funded by municipalities through a voucher system, which is decentralized and funded locally. Private and public education providers compete on a school market, with the municipality paying the voucher to the chosen provider. Validation is possible in adult education courses at both upper secondary and higher vocational levels, with education providers responsible for the process. Social partners are also involved in various councils and other levels to ensure a close link between education and the world of work.

Challenges and policy responses

Swedish VET schools are facing competition due to decentralised provision, public funding, and student choice, leading to inflated costs and risks of skill mismatch. To improve access to a comprehensive and wide range of high-quality education, proposals have been made to assign authority for planning and dimensioning of upper secondary education provision to the regions. The government has focused on strengthening the link between education and the labour market, prioritizing admission to VET for other target groups, including adults with diplomas from upper secondary higher education preparatory programs or those with tertiary degrees from other countries. More opportunities for VET are also given to adults with intellectual disabilities. The government has started consultations with social partners, the Swedish public employment service, and other relevant government agencies on measures for creating 'fast tracks' into the labour market, including Swedish language training specific to the vocational field, quicker validation of skills and competences, assessment of foreign qualifications, and supplementary training.

Adult Education

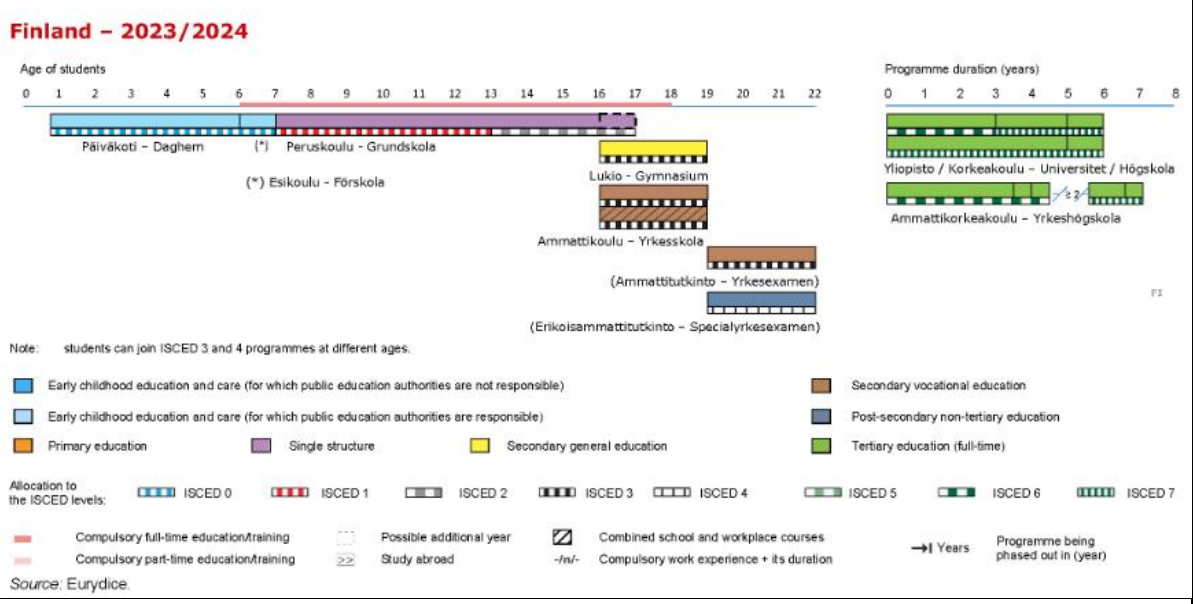
Adult education is provided in many forms and has a long tradition. In 2019, participation in lifelong learning was above 34%, making it the highest in the European Union (Eurostat). Individual modularised pathways for adults, set up according to specific required needs, are the most common way to gain a qualification in a new field or study the courses required to access higher vocational or higher general education. A range of non-formal courses and programmes is offered, financed through fees or by companies and organisations, with public grants also provided. Since 2016, non-formal qualifications and certificates can be referenced to the Swedish national qualifications framework (SeQF).



NB: ISCED-P 2011.
Source: Cedefop and ReferNet Sweden, 2022.

Finland

Structure of the national education system



Source: Eurydice.

Equity in education

A key feature of the national education culture is to ensure equal opportunities for all. Individual support measures are in place to guarantee that every pupil and student can reach their full potential. Differences between schools are small and the quality of teaching is high all around the country. The education system does not have any dead-ends which would affect an individual's learning career.
In Finland, education is publicly funded. Only 2% of pupils in compulsory education attend schools that have a private provider. Also these schools are publicly funded and they cannot have any tuition fees.
Education from pre-primary to higher education, is free. School meals and all learning materials are provided free and access in remote and sparsely populated areas is ensured through free school transport.

The education system is based on trust and responsibility

In Finland the provision of education is steered through regulations, information and funding. Local autonomy is high. Most of the funding comes from local budgets and the government transfers are not earmarked.
One of the regulations, the national core curriculum leaves room for local variations and therefore individual schools and teachers have a lot of freedom in designing their own curricula and instruction.
Also Finnish higher education institutions enjoy extensive autonomy. They are independent regarding their finances and administration. Institutions are autonomous regarding their teaching and research.
There is very little external control, such as school or textbook inspections. The first national examination takes place at the end of general upper secondary education. The most important quality assurance mechanism is the self-evaluation carried out by the education providers themselves. Nationally sample-based assessment are carried out according to an assessment plan. HE institutions are also expected to follow the quality of their operations and teaching.

Life-long learning in focus

Life-long learning is ensured by making it possible for leaners to take up studies at any stage of their lives. Education for adults is provided at all levels of education. Also informal and non-formal education is

recognised. In vocational education, for example, competence-based qualifications offer a way to demonstrate prior learning. Adult learning is very popular. Different institutions arrange a great variety of courses and programmes for adults at all levels of formal education, and the provision of liberal adult education is extensive. Adult education includes self-motivated education, staff training and labour market training. It may lead to qualifications or be related to general self-development. In 2017 over 27% of Finnish adults participated in adult education compared to an EU average of 11%. Most of this is non-formal education.	
Early childhood education and care (varhaiskasvatus)	Participation in early childhood education and care is a universal right for all children under school age, that is, aged 0-6 years. It is mainly organised in day-care institutions and so-called family day-care. There are moderate fees for families.
Pre-primary education (esiopetus)	Compulsory pre-primary education stats one year before basic education at the age of six. Municipalities have to provide pre-primary education of a minimum of 700 hours per year. Generally this is organised so that the children have half a day of pre-primary education activities and the rest of the day is early childhood education and care. Pre-primary education is entirely free for the families.
Basic education (perusopetus)	Comprehensive school education begins at the age of 7 and lasts for 9 years. It is provided in a single structure system. It includes grades 1-9. Education is free for pupils as well as learning materials, daily school meal, health and welfare services and transport from home to school if the way to school is long or dangerous.
Upper secondary education (toisen asteen koulutus) • general upper secondary education (lukiokoulutus) • vocational upper secondary education (ammatillinen koulutus)	Upper secondary education is provided by general and vocational upper secondary institutions. The general age to participate in upper secondary studies is from 16 to 19 years. In vocational upper secondary education in particular many students are older.
Higher education (korkeakoulutus) • university (yliopisto) • university of applied sciences (ammattikorkeakoulu)	Higher education is provided by universities and universities of applied sciences. The first are more academically oriented and the latter more professionally-oriented institutions. ISCED 8 level qualifications, such as doctorates can only be granted by universities.

The Ministry of Education and Culture (MoEC) is responsible for strategic and normative steering of vocational education and training (VET) and leads national development. National VET objectives and core subjects are determined by the government. Authorisations to provide VET are granted by the MoEC. They cover VET fields, number of learners, language of instruction, locations, special education tasks and other issues. VET providers may also be assigned tasks to organise labour policy education. A VET provider may be a local authority, municipal training consortium, foundation or other registered association or State-owned company. These organise training in their areas, matching provision with local labour market needs. They decide independently on how the training is carried out, the use of learning environments and pedagogical solutions. Around 42% of learners who completed basic education enrol in initial VET (IVET) immediately after; they obtain their VET qualifications at vocational institutions or through apprenticeships. Vocational qualifications are available for both young learners and adults.

There are 42 initial vocational qualifications (EQF 4), 67 further (EQF 4) and 56 specialist vocational qualifications (EQF 5). Admission to IVET programmes is based on a basic education certificate; for continuing VET (CVET: further and specialist) it is on a case-by-case basis, taking work experience into consideration. IVET suits adults without a formal qualification or those who want to change profession. CVET programmes are mainly for adults with previous work experience. Adults may benefit from study leave. Leave that is two months or longer qualifies for the adult education allowance for up to 15 months, depending on the applicant's work history. The allowance is equal to the amount of the earnings-related unemployment allowance. An initial vocational qualification requires 180 competence points (cp) comprising vocational units (compulsory and optional) and common units (communication, maths, science, citizenship and skills for working life) included in all IVET programmes. The nominal duration is three years, depending on the individual personal competence development plan. Further vocational qualifications usually require 150 cp and specialist vocational qualifications 180 cp, consisting mainly of vocational units. All include work-based learning.

The legislation does not stipulate a maximum or minimum amount on work-based learning (WBL). It is planned as part of the learner's personal competence development plan and implemented through an apprenticeship agreement (written fixed term employment contract) or a training agreement. The latter does not establish an employment relationship with the training company; learners do not receive salary and employers do not receive training compensation. WBL forms may alter within a programme: a learner may transfer from training to apprenticeship agreement when the prerequisites for concluding such an agreement are met. All VET programmes ensure eligibility for higher education studies.

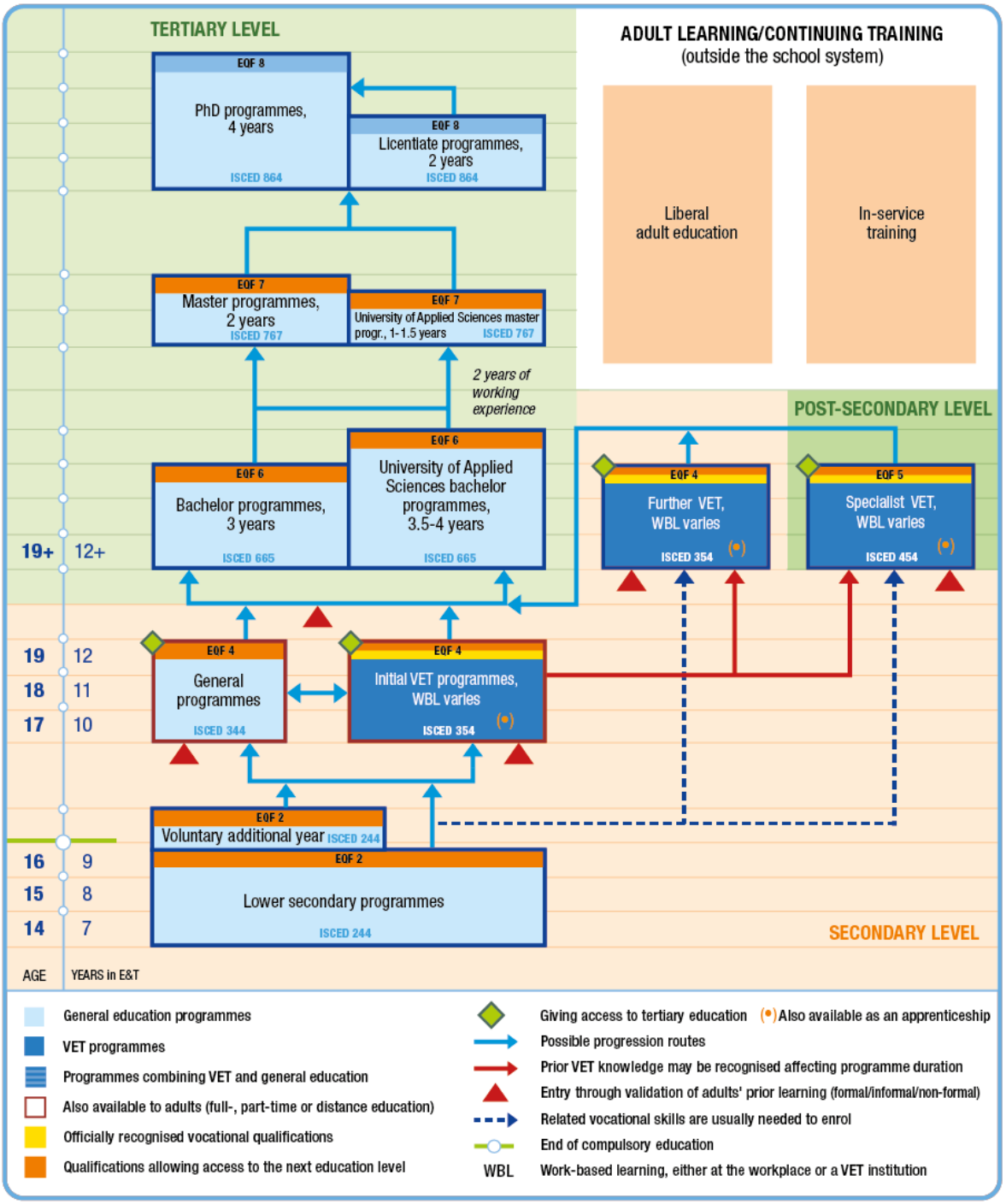
National qualifications requirements ensure standardised vocational competence and are the basis for evaluating learning outcomes. The Finnish National Agency for Education develops them in tripartite cooperation between teachers, learners and education providers, employers and employees. Representatives from enterprises contribute to developing national qualification requirements through sectoral working-life committees; they also organise and plan workplace training and competence tests, as well as assessing the tests.

Distinctive features of VET

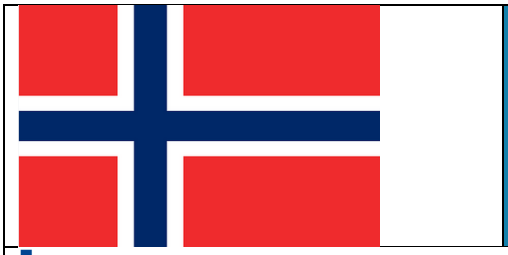
Finnish vocational education and training is competence-based and learner-oriented. A personal competence development plan is drawn up for each learner. It charts and recognises the skills previously acquired by the learner and outlines any further competences the learner needs and how they can be acquired in different learning environments. There are no final exams in VET. Once learners successfully complete their personal competence development plan, they acquire a qualification. VET supports lifelong learning and learners' development as human beings and members of society. It provides learners with the knowledge and skills necessary in further studies and promotes employment. VET is also an attractive choice. Nine out of 10 of all Finns think it is of high quality and provides skills needed for jobs. It is attractive because of its flexibility and good job and study prospects: graduates may enrol in higher education or enter the labour market. The fact that VET is developed and delivered in close cooperation with the labour market serves as a guarantee of its quality and attractiveness. Guided and goal-oriented learning at the workplace takes place in versatile learning environments, both at home and abroad, and is based on practical work tasks. VET teachers and trainers are respected professionals. A career as a VET teacher is generally considered attractive. This is reflected in the high number of learners applying for VET training programmes, which invariably exceeds intake. Recently, about 30% of eligible applicants were admitted to training.

Challenges and policy responses

Finnish VET has recently undergone the most extensive reform in almost 20 years, aiming at more efficient and flexible, competence-based and customer-oriented VET that better matches qualifications to labour market needs. The need to increase the share of WBL is one of the challenges it addresses. Further developing pedagogical thinking and practices, improving learning environments, and cooperation between workplaces and VET providers is required to achieve this objective. A sufficient number of workplaces and competent trainers, support and guidance and quality assurance are also key. The Covid-19 pandemic has complicated the organisation of WBL, especially in the service branch where it has become difficult to find workplaces for learners. VET provider own facil31VET in Finland's education and training system ities, such as school restaurants, can be utilised in this exceptional situation. Teachers' jobs include more guidance: individual study paths increase the importance of the guidance and support provided for learners. EUR 80 million has been allocated through the government programme for recruiting vocational teachers and instructors in 2020. The reform also changes how VET is financed. Since 2018, a single funding system with uniform criteria has covered all VET programmes, including CVET and apprenticeships. The financing model has gradually started to move towards performance and efficiency funding; this will increase to 20% and 10% respectively by 2022, reducing the core funding to 70% from the current 95%. Performance funding is based on the number of completed qualifications and qualification units; effectiveness funding is based on learners' access to employment, pursuit of further education and feedback from both learners and the labour market.

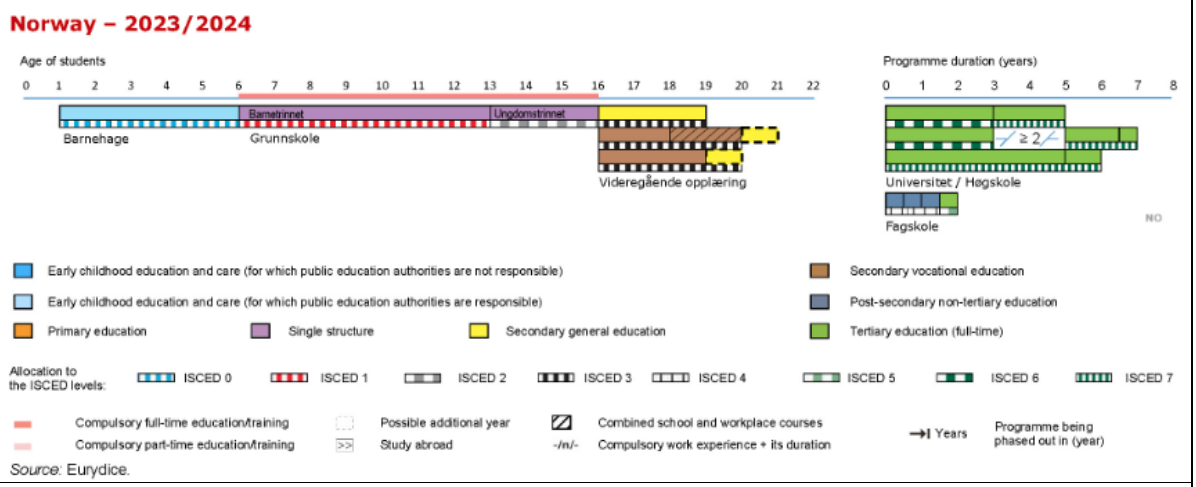


NB: ISCED-P 2011.
Source: Cedefop and ReferNet Finland, 2022.



Norway

Structure of the education system



Source: Eurydice.

Norway, a large, wealthy country, has a well-developed welfare system based on universal entitlements, resulting in low unemployment rates and impressive economic growth. Municipalities manage basic welfare services, while counties handle upper secondary education and vocational training. Norway is a full member of the European Union's education programme, Erasmus+, and Horizon2020/Horizon Europe. Education is crucial for maintaining high employment rates, fostering a productive workforce, and developing a democratic culture. The Norwegian school system is inclusive, free of charge, and ensures equal opportunities for children from different backgrounds.

Most children attend kindergarten

Parents in Norway are entitled to 12 months parental leave, of which15 weeks are reserved exclusively for the father. Each of the parents are entitled to one year of unpaid leave following the first year. Children are entitled to a place in a kindergarten from the age of one. About 50 percent of kindergartens are private, but they are government funded. Fees paid by parents are moderate and are regulated by the government.

Fees are the same for public and private institutions. Kindergartens in Norway take a holistic approach to the education and care of children under school age. Norwegian kindergartens are intended to promote well-being and enjoyment through play and learning, and to foster children's natural creativity, curiosity and develop their language and social skills. Kindergartens shall also prepare children for school. Access to kindergartens of high quality is believed to benefit the children, families and society as a whole.

Inclusive education system

Primary and lower secondary education is mandatory for all children aged 6–16, whereas upper secondary education is a statutory right. Primary and lower secondary education is founded on the principle of a unified school that provides equal and adapted education for all students. There is a common national curriculum for primary and secondary education, but within this framework the municipal and county authorities, schools and teachers can influence the implementation of education and training.
The culture and traditions of the Sami community are part of the common Norwegian and Nordic culture which both the national and the Sami curricula require that all pupils are acquainted with. In areas

defined as Sami districts, teaching is given according to the Sami curriculum. The Sami Curriculum shall ensure that Sami pupils receive high quality teaching based on their own cultural background and the Sami language.
There are very few special schools, and grade repetition is not practised.
The school day is short for the younger children, and municipalities are obliged to offer day-care facilities for children in in grades 1.–4. and for children with special needs from grades 1.–7. All municipalities are required to have a Culture school. These schools offer courses and training for children and youth in music, dance, theatre and resembling arts.
Culture schools often cooperate with day-care facilities for school children and offer courses for the children attending the day-care centres. Parents are required to pay a fee for participation in after school day-care and in culture school activities. Fees are set by the Municipality.

Statutory right, but not duty to attend Upper Secondary Education

Pupils who have completed primary and lower secondary education are entitled to three years of upper secondary education or training. In subject curricula that set a longer period of completion than three years, the right extends to the total timeframe of the subject curriculum. There is no age limit for entering upper secondary education, but the normal starting age is immediately after lower secondary school at age 16. Adults have a right to upper secondary education if they have not already attended such education- see chapter 6. In upper secondary school the pupils can choose from five general education programmes and ten vocational education programmes. General upper secondary school last for three years, while vocational programmes normally last four years, with a few exceptions that last 4.5 years or 5 years..
Most vocational programmes consist of two years in school, followed by two years of apprenticeship. Social partners in Norway have a certain influence on the development of the content and organisation of vocational training. Vocational education and training can also provide access to higher education after a one-year bridging course.

Folk high schools

The folk high schools are liberal education schools outside the formal education system. Folk high schools do not have a curriculum or examinations. Folk high schools offer both short and long courses, maximum 10 months. The schools are free of charge and mostly recruit students from the age of 19. The students pay for board and lodging, as well as particular equipment or material when required.

Few private schools

Norway has relatively few private schools. Almost all private schools are approved by Government and are grant-aided. The main rule is that a private school must constitute a religious or pedagogical alternative, or follow an internationally recognised curriculum, in order to be approved. Government aided private schools can only charge limited fees and are not allowed to select children according to ability or other subjective criteria.

Higher education free of charge

In higher education (ISCED levels 6 to 8), the degree structure is in line with the Bologna Process, with 3-year Bachelor, 2-year Master and 3-year PhD as the main model. The post-secondary vocational colleges at ISCED levels 4 and 5 provide a variety of courses with a duration spanning from half-a-year to two years.
Due to the mere size of the country, there are relatively many higher education institutions. With the exception of a few private university colleges, all higher education institutions are publicly owned. By law, public universities and university colleges may not charge tuition fees for ordinary degree courses.

Legislation is a key to ensuring that all citizens have the same right and opportunity to take part in higher education. To further support the principle of equal opportunities, all Norwegian students are entitled to financial support (grants and loans) to cover their living costs through the State Educational Loan Fund. Foreign citizens may also, upon certain conditions, receive support for education in Norway from the State Education Loan Fund.

Lifelong learning

Lifelong learning is an important principle of Norwegian education policy. Basic skills training and validation of prior learning play a significant part in adult education policies.
Immigrants with legal permission as asylum seekers to live in Norway and their family have a right and a duty to take courses in Norwegian language and social studies for immigrants.

Compulsory education (Grunnskolen) is divided into two main stages:

- Primary School (barnetrinnet) and
- lower secondary school (ungdomstrinnet).

Upper secondary education (videregående opplæring) is not mandatory, but young people who have completed primary and lower secondary education, or the equivalent, have a right to up to four years of upper secondary education and training. Vocational education and training usually consist generally of two years in school and one year in-service training. In-service training as an apprentice at a training establishment is usually combined with productive work, so that an apprenticeship last for two years in all. A few vocational programmes deviate and last 4.5 or 5 years General studies last three years and lead to general university admissions certification. It is possible for pupils who have finished their vocational education to attend and pass a supplementary one year programme to obtain general university admissions certification.
Higher education mainly have a degree structure in line with the Bologna Process. Post-secondary vocational schools (fagskoler) cover a variety of courses of duration up to two years. Degrees from post-secondary vocational schools (fagskoler) at ISCED level 4 do not qualify for general higher education. Higher vocational education of a duration of two years at ISCED level 5 automatically gives access to higher education

VET in Norway

The Ministry of Education and Research has overall responsibility for education and training at all levels. In upper secondary vocational education and training (VET), both curricula and the VET system structure are laid down in national regulations, and providers are required to comply with them. There is cooperation on upper secondary and tertiary VET, between education and training authorities and the social partners. The regional county authorities are responsible for general education and VET provision, distributing VET financing provided by the State budget and ensuring apprenticeship placement and supervision.

All young people completing compulsory schooling have a statutory right to three years of upper secondary education. Half of them choose between 10 VET programmes. Upper secondary VET is conducted both in schools and in public and private enterprises. The county authorities must approve training establishments. The main model includes two years in school, where students also participate in practical training in workshops and enterprises, followed by two years of formalised apprenticeship (training and productive work) in enterprises. The first year of training consists of an introduction to

the vocational programme. During the second year, VET students choose specialisations and courses are more trade-specific but core general education subjects are also included. Some trades and crafts follow other models, with three years in school or one year in school followed by three years of formalised apprenticeship. In the main model, upper secondary VET (2+2) is completed with a practical-theoretical trade or journeyman examination (Fagprøve or svenneprøve) leading to an EQF level 4 qualification: a trade certificate (Fagbrev) for industrial and service trades or a journeyman certificate (Svennebrev) for traditional crafts. The 10 programme areas offer 197 different certificates. Some crafts are for three years of school-based learning, completed by a final exam and a EQF level 4 qualification. There are many possible routes to higher academic education via upper secondary VET. With a trade or journeymancertificate, the options to higher academic education are:

- via a one-year bridging course in core subjects (påbyggingsår);
- direct admission to certain specially designed bachelor programmes (Y-veien).

Options without a trade or journeyman certificate are:

- five years' experience gained in work and/or education and passing courses in core subjects (for those aged 23 or older);
- recognition of relevant formal, informal, and non-formal learning for people aged 25 or older, who do not meet general entrance requirements;
- completing the bridge course in core subjects after completing the first two years of a VET programme;
- successfully completed two years higher vocational education (EQF5).

Legal rights shape VET and contribute to making vocational skills visible. Those over 25 are entitled to upper secondary education or training, adapted to their needs and life situation. Adults also have a right to have prior learning assessed towards national curricula, which may result in exemption from parts of training. The experience-based trade certification scheme enables adults to sit a trade or journeyman examination on proof of sufficient relevant practice. The candidate must demonstrate comprehensive experience in the trade or craft, normally over a minimum of five years. VET colleges offer a wide range of vocational programmes at EQF level 5 for students with a trade or journeyman certificate. Some programmes at this level are also accessible for students with upper secondary general education. Master craftsperson programmes are for holders of a relevant trade or journeyman certificate with several years' work experience. The programmes are provided by vocational colleges (Fagskoler), both private and public, and combine general business management, marketing, and vocational theory.

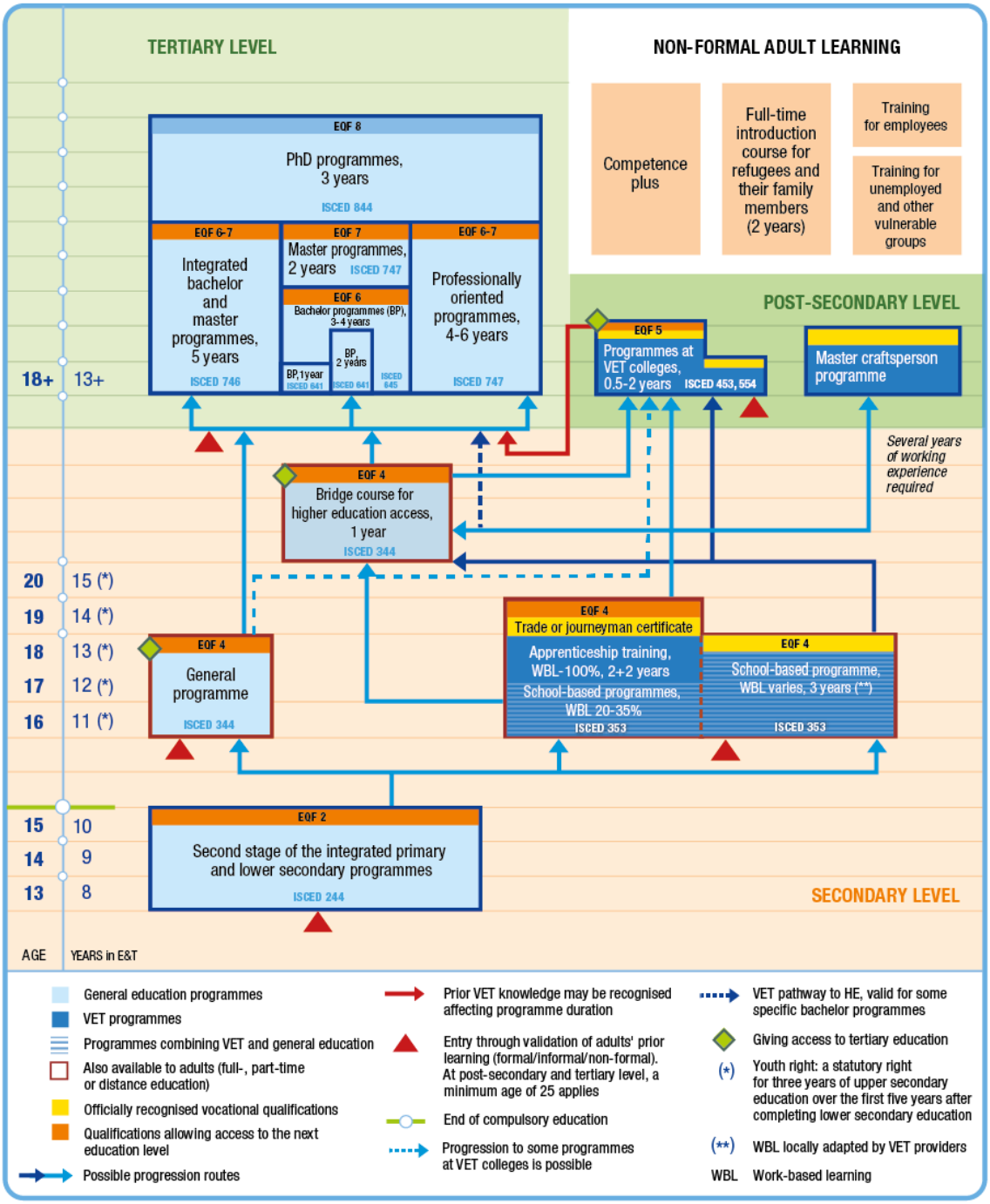
Distinctive features of VET

Norway has a long-standing tradition of close national and regional cooperation between education authorities and the social partners. National cooperation is organised in the National Council for VET (Samarbeidsrådet for yrkesopplæring, SRY), 10 vocational training councils (Faglige råd), one for each programme area, and national appeal boards (Klagenemnder). Regional cooperation involves county vocational training boards (Yrkesopplæringsnemnder) and examination boards (Prøvenemnder). Tripartite cooperation aims to ensure that training provided to Norwegian VET learners meets labour market and skill needs. It informs changes in the VET structure, curriculum development, regional structure and volume of VET provision, the framework of examinations leading to trade or journeyman certificates, and quality control at all levels. At EQF level 5, the social partners participate in the National Council for higher VET (Nasjonalt fagskoleråd). In higher education, institutions are requested to set up a consultative council for cooperation with social partners. Norway has a unified education and training system including both VET and general education as equal. Most education at upper-secondary level is provided by public schools. Young people have a right to attend upper secondary education, and most choose to do so. They also have the right to enrol in one of their top three choices. More than half of trade and journeyman certificates are awarded to people over 25.

Challenges and policy responses

Skilled workers with VET qualifications will play an important role in the reorganisation of the Norwegian economy. Figures from the Confederation of Norwegian Enterprise (NHO) show that many enterprises lack such employees and consequently 57VET in Norway's education and training system lose business. Statistics Norway (SSB) estimates a shortage of almost 100 000 skilled workers in 2035. Initiatives aimed at increasing the number of students who complete their education, as well as teacher competences including digital, are in process. About 50 measures from the white paper Skilled workers for the future (Fagfolk for fremtiden) have been implemented, increasing VET attractiveness and labour market relevance. A new programme structure in upper secondary VET, including new curricula, was implemented from 2020/21. Important changes took place in 2019/20:

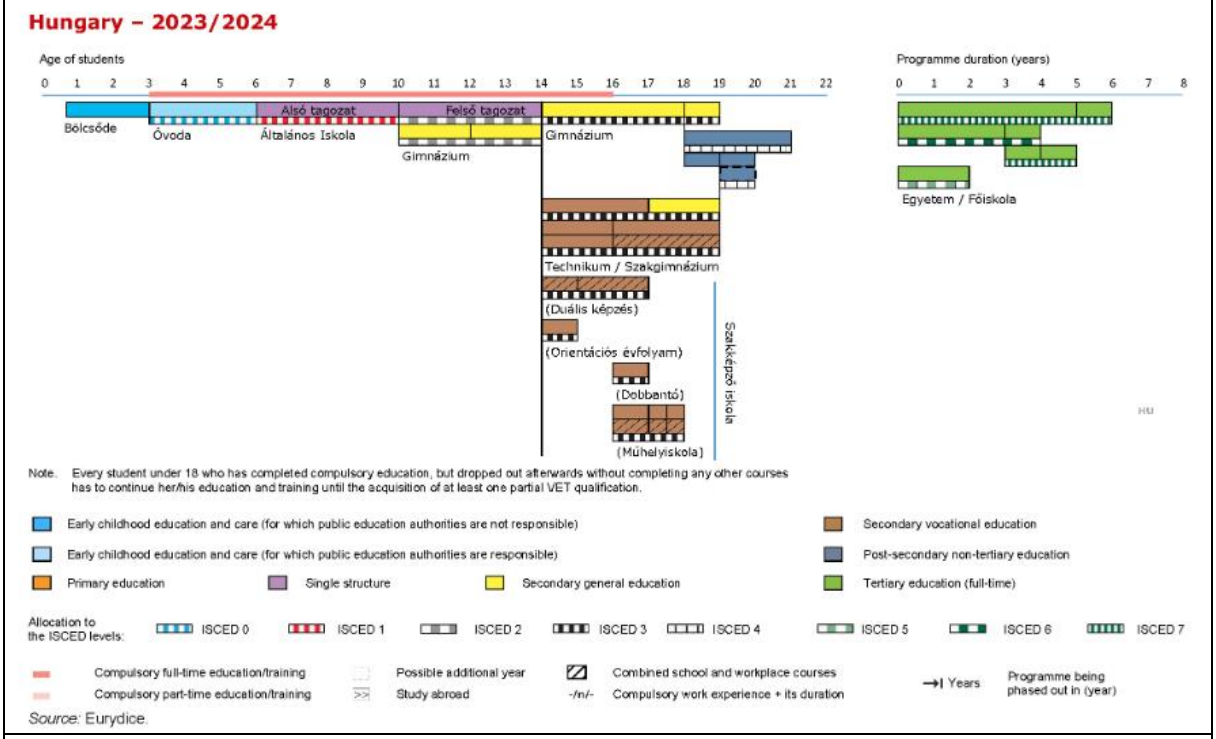
- several suggestions on changes for a better upper-secondary education, both general and VET (NOU 2019:25);
- proposal for a new Education Act for primary and upper secondary education has been presented (NOU 2019:23);
- the Government has suggested several measures to ensure education and work during Covid-19;
- it is a priority to increase the digital teaching competence and establish more study places in higher vocational education;
- a regulation for higher vocational education (EQF 5) was adopted.



NB: ISCED-P 2011.
Source: Cedefop and ReferNet Norway, 2022.

Hungary

Structure of the National Education System



Source: Eurydice

The Ministry of Interior and Ministry of Culture and Innovation oversee central educational governance in Hungary. The Ministry of Technology and Industry is responsible for adult education. VET institutions can be established and maintained by various entities, including the state, minority self-governments, churches, religious associations, and business organizations. Education and training can take place in general education, vocational education and training, higher education, and adult education. Students are assessed annually for reading, math, and science skills, and language assessments are conducted in English and German. The Educational Authority is responsible for regular evaluations of public education institutions, while the Hungarian Accreditation Committee evaluates the internal quality assurance system of higher education institutions. The proportion of early school leaving in Hungary is 12%, with the European Union's goal to reduce it to below 9% by 2030.

Levels of the Education System:

Education and training are compulsory between ages 3-16, with free completion of ISCED level 3 school programs, first two professions, preparatory years, and school workshops.

The duration of the programms:

- ISCED 0: 3 years
- ISCED 1: 4 years
- ISCED 2: 4 years
- ISCED 3: 2 to 5 years

The crèche (bőlcsöde) is the primary institution for children aged 20 weeks to 3 years, providing day care, professional specialist care, and education within the basic child welfare care system, not public education.

Early Childhood education:
The first institution that the child may attend is the crèche (bőlcsöde), whose provision is integrated in the basic child welfare care system (not public education) and undertakes the day care, the professional specialist care and the education of children aged between 20 weeks and 3 years.

Kindergarten:
The kindergarten provides institutional education for children aged 3-6 years. Kindergarten education is compulsory from the age of three.

Compulsory school education starts at the age of six, provided that they have reached the necessary level of development -required to start their school education. Compulsory schooling lasts until the end of the school year in which the student completes the age of 16.

Basic education:

Basic education in Hungary is mostly provided in 8-year basic schools (single structure) and provides a foundation of general education for the 6–14-year-olds. After that, students can continue their mainstream studies in an upper secondary institution (ISCED 3): in an upper secondary grammar school, an upper secondary vocational grammar school, a technicum and a vocational school.

The upper secondary grammar school (gimnázium):

The gimnázium provides general education, mostly for 4-years (but there are also 6- and 8- grade/year high schools) and prepares for matura/upper secondary school leaving examination. This examination is also an admission test to higher education institutions.

Upper secondary vocational grammar schools (szakgimnázium):

Szakgimnázium are educational institutions providing five year long programmes specialized in arts, pedagogy or general knowledge, in these schools general education and vocational education and training are provided in four grades/years, and only vocational education and training in the fifth year.

Technicums (technikum):

- provide general education, preparing student both for the matura examination and the vocational examination, and enables students to continue their studies in a higher education institution or to start working.
- or provide exclusively vocational education and training for student holding a matura certificate.

The number of grades to fulfil studies is included in the Register of Vocational Occupations.
Technicum may organize two year general education programme to help students obtain the matura certificate.

Vocational schools (szakképző iskolák):

- provide general education and vocational education and training required for the acquisition of a given profession, or
- prepares students for the VET exam only

The number of grades to fulfil studies is included in the Register of Vocational Occupations.

Higher education:

The institutional system of **higher education** consists of public and non-public universities and colleges, which offer bachelor's, master's and doctoral courses, as well as higher education vocational training courses. In the split training system, the 6-8 semester bachelor's degree training programme cycle is followed by the 2-4 semester master's degree training cycle. The first cycle provides degrees (baccalaureate, bachelor of science, bachelor of profession, bachelor of arts) and professional qualification. A master's degree (magister, master of science, master of profession, master of arts) and

professional qualification can be obtained in the master's programme. The training is undivided (10-12 semesters) in some study fields, so e.g. in the medical, legal, or teaching profession sectors.	
Adult education and training	• Vocational training courses offered on the training market. • Training courses for the unemployed and other vulnerable groups. • Further training of employees (compulsory CVET or courses offered by the employer.

VET in Hungary

The Ministry for Innovation and Technology governs vocational education and training (VET) and adult learning (AL), which includes vocational qualification curricula in higher education. The National Office for VET and Adult Learning ensures coordination and policy implementation, while social partners shape VET policy through participation in advisory bodies. The VET Innovation Council and sector skills councils shape proposals for aligning VET programmes and qualifications with labour market needs. The Chamber of Commerce and Industry is responsible for the registration and attestation of apprenticeship placements.

VET is available from age 14 or 15 after completion of lower secondary, offering various options such as five-year technological programmes (Technikum), three-year vocational school programs, and two- to four-year special vocational school programs for SEN learners. Graduates may enroll in any of the two VET tracks without general subjects to acquire a vocational qualification in two years.

Work-based learning is delivered in school settings or through practical training placements in companies. As of 2020/21, learners may conclude vocational employment contracts to follow both (specialized vocational) theory and practice in companies. After completion of lower secondary, those unsure of which pathway to follow can enrol in a one-year orientation program. Learners unable to finish lower secondary by the age of 16 can enroll in a basic competences development programme (Dobbantó) followed by a catch-up program delivered in school workshops (műhelyiskolai program).

The formal system is centrally governed, with 371 VET schools affiliated to 41 VET centres equipped with state-of-the-art technology. In 2020/21, 54% of the total upper second-ary population is enrolled in VET programmes. Adults can acquire up to two vocational qualifications free of charge in formal VET programmes. Legislation in force in 2020 aims to reform adult training provided outside the school system to improve its quality and flexibility.

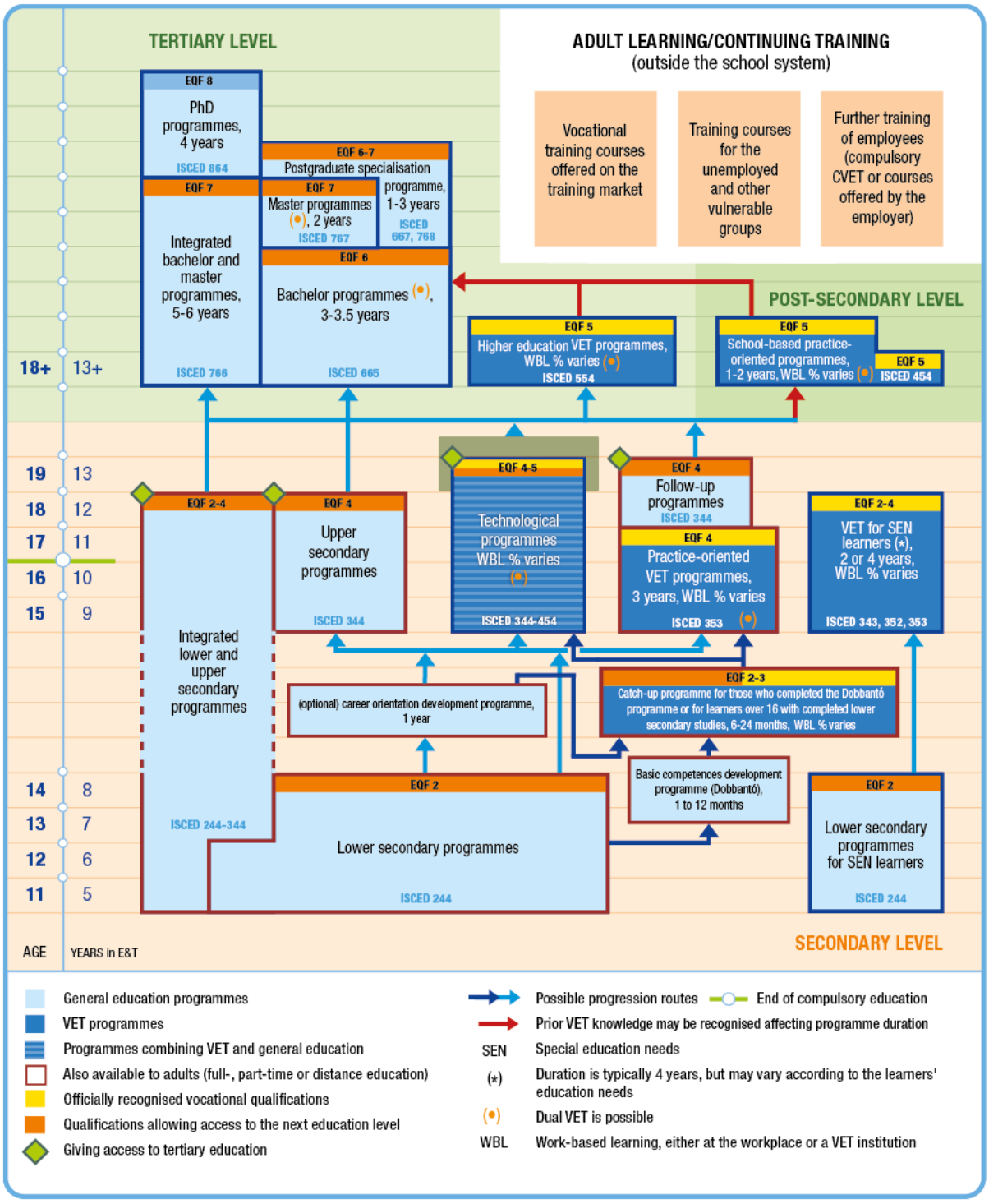
Distinctive features of VET

Based on job analysis, the national vocational qualifications register (OKJ) was revised in 2019. The new register (Szak-majegyzék) lists a reduced number of qualifications aligned with the needs of the economy in the sectors. Qualifications entitle holders to practise the occupation (HUQF/EQF levels 4 and 5) specified in respective training and learning outcomes requirements set in the register. Qualification requirements, programme curricula and local (practical training) curriculum have been shaped based on a learning outcomes approach. Former VET (OKJ) qualification pro- grammes are phasing out. Young people and adults need to pass a final examination upon completion of a formal VET programme. Currently a system of accredited vocational examination centres is being established and should be operational by 2025.

The general VET scholarship scheme is accessible by all VET learners in upper secondary schools (including during practical training periods delivered in school workshops). Learners in company placements under a vocational employment contract (szakképzési munkaszerződés) receive remuneration (60% of the minimum wage or more, depending on performance). A career starter allowance in one lump sum is given on completion of the first vocational qualification (EUR 420 to 840 depending on the results of the exam). Business organisations can compensate (reduce) the obligatory vocational contribution by providing dual VET (theory and/or practice)

Challenges and policy responses

Hungary has high shares of dropout rates, especially for men and from VET; the share of upper secondary learners with low basic skills is still below the EU 2020 benchmark. Measures to tackle early leaving include the introduction (2020) of an early warning system in the public education monitoring system (NEPTUN-KRÉTA) to detect learners mostly at risk and inform school administration. An optional orientation year is being introduced in 2020/21 to allow learners who completed lower secondary with lack of competences to receive personalised support and career guidance for further VET studies. The adoption of the new VET Act in 2019 (in force in 2020) introduced a learning outcomes approach with less prescriptive programme implementation and more freedom for VET institutions to shape implementation. It allows delivery of both theoretical and practical vocational training to take place in companies upon completion of the sectoral basic examination. The dual training form remained in place, with a prominent change in the approach and methodology of content regulation. In contrast to adult education, the challenge remains to attract young learners to upper secondary VET.



NB: ISCED-P 2011.
Source: Cedefop and ReferNet Hungary, 2022.

5 Synopsis of education systems[33]

The different cultures, educational systems and achievements of the various States of the Baltic Sea Region provide an excellent basis for learning from one another and with one another. The major concern is to promote this, to identify points for further development in the educational policy and develop proposals regarding the specific development and quality of education in the Baltic Sea Region. The focus of the considerations lies in the areas of the general and vocational education; university education is subsidiary and included particularly as regards the transitions and regulatory requirements.

General education

Kindergartens exist in all the countries of the Baltic Sea Region – with significant differences in the levels of care. They are open form children from 3 to 6 or 7 years of age (depending on the starting age), attendance is voluntary.

Conclusions: Learning begins at a very early age; kindergartens should be understood not as mere storage sites, but as early learning and development while playing.

Preschools exist in almost all countries, mostly they are meant for children of the last year before starting school. An exception is Estonia in which 3-7-year-olds attend preschools. In principle, the preschool attendance is voluntary. A compulsory preschool attendance exists in Latvia (for 5-6-year-olds) and in Poland in the form or the so-called zero classes, which are attended by 6-year olds who learn the basic skills in reading, writing and arithmetic.

Conclusions: *A mandatory 1-year pre-school (from 5 years) is desirable.*

The compulsory education in the Baltic States is between 9 and 10 years. It begins with the enrolment (6- or 7-year-olds). Only in Denmark there is no compulsory school attendance but the compulsory education. This allows for the attendance of the so-called free schools.

In Scandinavian countries there is an explicit guarantee of a further education after compulsory schooling. This law applies in Sweden in terms of a further 3-year education (until 18 years of age); an extension till 20 years of age is planned. In Germany and in Russia compulsory (school or vocational school) attendance applies until 18 years of age.

Conclusions: As regards the compulsory school attendance, the general educational law provides for the age of up to 18 years.

The middle school education (primary or secondary school) is in all countries between 9 and 10 years.

There are significant differences in the distribution of school time. In the Scandinavian States of Denmark, Finland, Norway and Sweden there is 9-year basic education that is uniform and without distinctions for all children. Only in Sweden there are slight differentiations concerning the last 3 years.

In other countries within the 9- or 10-year basic education there is a clearer distinction between primary, secondary and middle school. The primary school in Poland encompasses 6 years. In Germany,

[33] Hanse-Parlament, Baltic Sea Academy (July 2011), Agenda 2020: Educational Policy Strategies and Objectives for the Baltic Sea Region, http://www.bsr-quick.eu/resources/Education+Baltic+Sea+Region.pdf (May 2019)

Lithuania, Russia and Belarus, the primary school attendance is much shorter with a period of 4 years. In these countries primary school is followed by middle school education in many various forms. In Germany there is a choice between high school, junior school, secondary school and grammar school. In Poland the 6-year primary school is followed by a 3-year middle school. In Russia and Belarus, it is followed by 5-year and 6-year middle school, which despite the formal separation of basic and intermediate levels, is mostly located in one school.

The biggest difference between the school systems are the integrated and selective approaches. In the integrated school system, all 9- to 10-year students undergo school education (mostly referred to as basic education). In selective school systems, division of students takes place after the primary school. The former type of school can be found mainly in the Scandinavian countries, the latter is particularly pronounced in Germany.

Conclusions: The selective system is expected to be better targeted and specific strengths will be supported, though actually the promotion of individual strengths may only be a small-scale experience. In some countries there is an impression that all people should learn by means of the same methods. It results in strong uniformity. In selective education systems everything is strongly divided and marginalised. However, the targeted elite promotion and sustainable support of weaker students is rather limited. Nowadays, in particular Baltic States up to 20 per cent of school graduates are incapable of undergoing vocational training. They are excluded and have no chance for their whole life. However, each person has at least one strong point which can give them a good chance if it is supported within the framework of education and encouraged in the economy, can be put in the right place.

Individual support will be primarily determined by an appropriate education and appear in principle in all schools (with and without selection). Small and medium-sized enterprises demand from general education no narrow economic focus, no general vocational orientation, but the preparation for life in general. The graduates must have mastered the basic cultural techniques such as reading, writing and arithmetic well and they must have personal-social skills such as readiness to learn, openness, cooperation and motivation. But these skills and characteristics are needed not only in the economy but also they are generally required for mastering life. The acquisition of personal-social skills and learning from one another in integrated school systems is generally possible.

The secondary stage encompasses 2-3 years in all the Baltic States. In many countries there is a choice between general and vocational secondary schools, for example in Denmark, Germany, Poland and Finland. In Sweden the elements of vocational training are provided in all types of high schools to a varying extent. In the Baltic States, Russia and Belarus there are only general education schools, in which, however, an occupation-based focus of education is possible.

In the Baltic Sea countries, the secondary stage, high school is completed with the diploma entitling to a university degree; in different countries also complementary or additional entrance exams for studies are needed.

Conclusions: The various forms of pedagogy and content taught are much more important than the different school structures. Educational systems are often excessively intellectualised and become too heavy. In many areas, they only support certain unilateral ability and threaten to become a special institution which fails to educate young people in a holistic and supportive way. The general character of vocational education has to be compared to the one-sided ideal of education. Even in the general educational the intellectual, musical and manual skills are taught to the same extent. The introduction

of technology education, learning in the practical action and a holistic education is essential. Education must include all the senses. If this prerequisite is not met, there can be no real learning.

For the students and for their future career, it is advantageous when vocational elements are taught in secondary schools. In this way, interest in choosing a career can be increased also in the case of high school graduates and the learning of a profession also becomes attractive. A polytechnic focus in general education is the best approach to encourage all the young people and the people of all abilities.

Vocational education

The training duration is between 2 and 4 years. In almost all the Baltic Sea States training takes place at full-time schools. Practical elements are acquired by means of vocational practice, project works and training workshops. An exception is the dual training in Germany (about 60 per cent of vocational training courses are conducted in this way). In this case the apprentice training contract needs to be made with one or more companies; the theory can be obtained in an external state vocational school. In Denmark and Norway, there is a mixed form, and the basic training is conducted at a vocational school, and then main training takes place in enterprises. If in Germany, Denmark and Norway not enough training places are available, also here vocational training is conducted at schools with integrated practice internships. In Poland, apart from the school education, also a dual course is possible; it was introduced; however, few students actually take it into account.

Sweden, at least 15 per cent of the training must be acquired in companies; an increase of this share to 20 per cent is being discussed.

Conclusions: A significant expansion of the practical training periods in companies, a further improvement of the theoretical teaching, and better coordination between practical and theoretical training seem to improve the quality and increase the attractiveness of training which is particularly important.

Majority of the countries have no entry requirements for vocational training. Some states, however, differ in this respect: In Estonia a high school diploma is needed to pursue vocational education. In Finland job-related requirements concerning the acquired qualifications are set for each profession at different levels.

Conclusions: The introduction of uniform access conditions in the Baltic Sea Region which would be profession-specific should be examined.

In some countries, courses are offered at different levels (e.g. in Latvia and Lithuania). The lowest level is open to young people without qualifications, with duration of 1 - 2 years and provides simple professional qualifications. The middle level encompasses 2 - 3 years and provides practical and theoretical qualifications. The upper level provides advanced skills for stronger students (e.g. for high-school graduates). In Denmark and Sweden there is a guarantee that each person can obtain vocational education regardless of their previous education.

Conclusions: In particular, the crafts are destined to train young people with learning difficulties. They are willing and committed to this social problem. But craft businesses may not be the sole specialist for the training and integration of weaker students. Crafts need also the best students to a large and still increasing extent. The creation of differentiated training courses with different entry requirements and different levels of training in an open, transparent system is a priority for targeted development of professional training.

The educational systems of Russia and Belarus are in the course of a transition process. With the collapse of the Soviet Union, the previously existing structures and the close co-operation with the large companies is falling apart. Outdated curricula and equipment contribute to the loss of prestige and the level of vocational education. Russia has shown great interest in the dual system and works on the reform of the professional training, together with German partners. However, social partnerships are created gradually. In Belarus, vocational training takes place in public schools on a full-time basis.

Conclusions: As part of the Russian and Belarusian reform process, an intensive learning from the experiences of other the Baltic Sea States is possible and appropriate. The provision of information, exchange of experiences, development of partnerships and other support is suitable in a way that is also within the interest of the other the Baltic States. The cooperation in education also promotes sustainable economic cooperation.

In most countries of the Baltic Sea vocational training with a recognised qualification examination on the basis of state examination regulations will be terminated. The entitlement to pursue technically oriented courses of study is connected with it especially in Denmark, Latvia and pronounced in particular in Finland. In Sweden such a university entitlement is valid for employees being at least 25 years old and having 5 years of profess0ional experience. In exceptional cases (e.g. Estonia) vocational training is completed with a certificate of completion which is not a formal qualification.

Conclusions: In all the Baltic countries, vocational training should be completed with formal degree examinations, which are based on comparable standards and mutual recognition. The right of ruling the vocational education as well as all intermediate and final examinations should be transferred as sovereign tasks to the chambers in all Baltic Sea states. Due to its closeness to the enterprises the economic self-administration can perform these tasks in a more proper and cost-efficient way. An appreciation of the professional education with strong gender equality in higher general qualifications and a higher permeability is needed between vocational education and studies.

In the majority of the Baltic countries, training has lost much of its attractiveness; too low levels, poor quality and limited practical skills and experience are the subject of complaints. For example, in Poland only around 11 per cent of school graduated decided to pursue vocational training. In some countries (e.g. in Germany and the Scandinavian countries), efforts are intense in order to improve the situation. In Sweden the vocational schools are located exclusively on the upper secondary level. In addition to the appreciation, the vocational training and quality improvement of the theoretical instruction in particular, expansion and optimisation of practical training is pursued.

Conclusions: A major problem in all the Baltic States is the declining popularity of vocational education. For young people it is desirable to go to high school and pursue university education. Demographic trends exacerbate this problem. Craft businesses are especially affected in this case. Young people prefer a course of study or training in other sectors in the so-called "white collar" occupations. Any increase in the attractiveness and quality improvement of professional education are the overriding tasks for the promotion of crafts and SMEs within the Baltic Sea Region.

There are much differentiated systems within the framework of vocational training. In Germany, vocational training is not regulated predominantly by the state. The organisation of training and acceptance tests are is principal task of the economic self-government (chambers). In most States there are public or private systems with vocationally oriented higher educational institutions like vocational schools, technical schools, technical universities and colleges, which offer higher professional qualifications and include more or less smooth transitions to universities and colleges.

Conclusions: Vocational training should in the first place be the responsibility of the business and economic authorities and it should be regulated by the state in a very limited way. Very important, however, are the quality improvements, greater transparency, smooth transition to general education and study, as well as mutual recognition of qualifications based on comparable standards. The work of the EU on the creation of a European education system within the Baltic Sea Region with the European Qualifications Framework (EQF) and Credit System (ECVET) could be a good basis for the creation of innovative, non-bureaucratic systems with high quality.

In most of the Baltic Sea States within the framework of the pronounced harmonisation of European educational systems, the introduction of Bachelor and Master Degrees is already at an advanced stage. The Bachelor can be obtained only 3-4 years of studies; on the basis of it, a 1-2-year scientific study takes place, which is completed with a Master's degree. In addition to this, promotion is also possible.

In a number of countries already the completed high-school education is an entitlement to enrol for studies at a university or college. In some States (e.g. Denmark, Germany, Finland, Latvia and Sweden) the system is more permeable; it focuses on the universities and colleges, as well as individuals with specific professional training or further education or vocational qualifications with several years of professional experience.

In Finland, Russia and Belarus the universities conduct entrance examinations. In the case of failing these exams, there is, however, still the possibility to study in Russia and Belarus but it is necessary to pay a tuition fee.

In some countries it is possible to apply to a non-scientific university or academy after graduating a vocational school. However, these are not university or college studies with recognised academic qualifications, but training courses which are situated between vocational training and studies.

Conclusions: In connection with the far-reaching reforms under the Bologna process and the widespread introduction of the Bachelor and Master's degrees, Bachelor courses should be much more practice-oriented and offered as a dual system.

The vocational further education with high permeability and flexible transitions for the study will gain an increasing importance and needs to be established as a separate training area. Also here the Baltic Sea Region can perform the pioneering role with its innovative and business-related concepts.