

# Alpine Space Project AlpGov2

How to strengthen the resilience of SMEs  
in the Alpine Space?  
The role of digitalisation and clusters

Interreg Alpine Space Programme - Alpine Space Programme  
(alpine-space.eu)

The activity is one of the preparatory actions for the implementation of strategic initiatives among those foreseen by the Interreg 2014-2020 Alpine Space project AlpGov2 - "Enhancing the Governance Mechanisms of the European Strategy for the Alpine Region".



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# **INTRODUCTION AND METHODOLOGICAL NOTE**



# EUSALP

EUSALP, the European Strategy for the Alpine Space, is one of the four macro-regional strategies of the European Union. The strategy provides a political framework for the states and regions located along the Alpine strip to address and find joint solutions to challenges and to make the best use of common potential and opportunities.

The European strategy, under the approval of the European Council, is coordinated and monitored by the European Commission (DG Regions) and implemented through EU funds (Interreg Alpine Space Programme, Interact, ARPAF, ...).

The implementation of the action programme is carried out through the work of nine action groups (AGs), executive bodies, composed of experts from all participating countries and from public, private and voluntary organizations. Within the AGs, various subgroups work on specific topics and tasks.

The strategy covers seven countries, including five EU Member States (Austria, France, Germany, Italy and Slovenia) and two non-EU countries (Liechtenstein and Switzerland), with a total of 48 regions.



## The EUSALP space in numbers (2018, excluding Liechtenstein)

### **Area**

498.441 km<sup>2</sup>

### **Population**

82,5 millions

### **Population density**

165,6 inhab/km<sup>2</sup>

### **GVA of the manufacturing sector \***

21,7%

### **Enterprises in the manufacturing sector \***

9,7%

### **Manufacturing employment \***

17,7%

\* (% of total activity)



Unterfranken

Oberfranken

Mittelfranken

Oberpfalz

Karlsruhe Stuttgart

Niederbayern

Niederösterreich

Freiburg

Tübingen

Schwaben

Oberbayern

Oberösterreich

Burgenland

Franche-Comté

Vorarlberg

Tirol

Salzburg

Steiermark

Schweiz/Suisse/Svizzera

Provincia Autonoma di Bolzano/Bozen

Kärnten

oes

Valle d'Aosta/Vallée d'Aoste

Provincia Autonoma di Trento

Vzhodna Slovenija  
Zahodna Slovenija

Lombardia

Veneto

Piemonte

Liguria

Alpes-Côte d'Azur

# EUSALP IS BASED ON THREE THEMATIC POLICY AREAS AND ONE TRANSVERSAL POLICY AREA

## GOVERNANCE including institutional capacity

### OBJECTIVE

A sound macro-regional governance model for the Region to improve cooperation and the coordination of action

## ECONOMIC GROWTH AND INNOVATION

### OBJECTIVE

Fair access to job opportunities, building on the high competitiveness of the Region

### PRIORITIES

1. Developing innovation and research capacity and transfer into practice
2. Improving and developing support for enterprises
3. Promoting high levels of employment, with the aim of ensuring full employment in the Region

## MOBILITY AND CONNECTIVITY

### OBJECTIVE

Sustainable internal and external accessibility for all

### PRIORITIES

1. Better overall transport system in terms of sustainability and quality
2. Improve sustainable accessibility for all Alpine Areas
3. A better connected society in the region

## ENVIRONMENT AND ENERGY

### OBJECTIVE

A more inclusive environmental framework for all and renewable and reliable energy solutions for the future

### PRIORITIES

1. Reinforcing natural and cultural resources as assets of high quality living area
2. Building further on the position of the Alpine Region as world-class in terms of energy efficiency and sustainable production of renewable energy
3. Alpine risk management including risk dialogue, to tackle potential threats, such as those of climate change

### ▶ AG1

Lombardy Region - University of Milan Unimont  
**Research & innovation**

### ▶ AG2

Auvergne-Rhône-Alpes Region & Piedmont Region  
**Economic development**

### ▶ AG3

Autonomous Province of Trento & Regional Agency of Trentino Sviluppo  
**Labour market, education and training**

### ▶ AG4

European Region Tyrol-South Tyrol-Trentino & Provence-Alpes-Côte d'Azur Region  
**Mobility**

### ▶ AG5

Autonomous Region of Valle d'Aosta & Swiss Association for Mountain Regions (SAB)  
**Connectivity & Accessibility**

### ▶ AG6

Permanent Secretariat of the Alpine Convention & Regional Government of Carinthia  
**Natural resources**

### ▶ AG7

Bavarian State Ministry of the Environment and Consumer Protection & Institute of the Republic of Slovenia for Nature Conservation  
**Ecological connectivity**

### ▶ AG8

Austrian Federal Ministry of Agriculture, Regions and Tourism & Bavarian State Ministry of the Environment and Consumer Protection  
**Risk governance**

### ▶ AG9

Agency for Energy South Tyrol - CasaClima & Auvergne-Rhône-Alpes Environment Regional Agency  
**Energy efficiency and renewable energy**

This infographic has been adapted by EStà from: [https://www.alpine-region.eu/sites/default/files/uploads/page/276/attachments/what\\_is\\_eusalp-infographic.pdf](https://www.alpine-region.eu/sites/default/files/uploads/page/276/attachments/what_is_eusalp-infographic.pdf)



# AlpGov2 project

The study is one of the preparatory actions for the implementation of strategic initiatives among those foreseen by the Interreg 2014-2020 Alpine Space project AlpGov2 - "Enhancing the Governance Mechanisms of the European Strategy for the Alpine Region", of which the Lombardy Region is the lead partner. The activity is in particular related to the transversal initiatives coordinated by EUSALP Action Group 2 "Increasing the economic potential of strategic sectors" Digital Industry Subgroup.

The Alpine Space programme is a European transnational cooperation programme for the Alpine region. It provides a framework to facilitate the cooperation between economic, social and environmental key players in the Alpine countries, as well as between various institutional levels such as: academia, administration, business and innovation sector, NGOs, associations and policy making.

The programme is financed through the European Regional Development Fund (ERDF) as well as through national public and private co-funding of the Partner States. In the current programming period, 2021-2027, the programme is investing €107 million in projects through which key actors develop shared solutions for prevalent Alpine issues.

There are two main lines of action used in the action programme to develop transnational solutions for transnational challenges of the Alpine region:

1. Fostering cooperation between the organizations that can tackle these challenges;
2. Co-financing cooperation projects to up to 75% via the European Regional Development Fund (ERDF).

There are four priorities in the Alpine Space Programme:

1. Climate resilient and green Alpine region
2. Carbon neutral and resource sensitive Alpine region
3. Innovation and digitalisation supporting a green Alpine region
4. Cooperatively managed and developed Alpine region

## ALPINE SPACE Programme



European transnational cooperation programme for the Alpine region



**FRAMEWORK**  
to facilitate cooperation between **economic, social and environmental key players**



between various institutional levels



### Priority 1 CLIMATE RESILIENT AND GREEN ALPINE REGION

Promoting climate change adaptation and disaster risk prevention, and resilience, taking into account eco-system based approaches

Enhancing protection and preservation of nature, biodiversity and green infrastructure, including urban areas, and reducing all forms of pollution



### Priority 2 CARBON NEUTRAL AND RESOURCE SENSITIVE ALPINE REGION

Promoting energy efficiency and reducing greenhouse gas emissions

Promoting the transition to a circular and resource efficient economy

AlpGov 2 is part of the actions for priority 4 of the Alpine Space Programme and involves all the AGs of EUSALP.

The project aims at strengthening governance structures and mechanisms within the Alpine Space to reinforce the Common Strategy and push it towards a more integrated perspective in the main regional development and cohesion policies. Thanks to the integrated approach involving all relevant actors and stakeholders in the project, AlpGov2 considers all the themes of the EUSALP action plan, ensuring a broad knowledge transfer between the different fields of action.



**Priority 3  
INNOVATION AND DIGITALISATION  
SUPPORTING  
A GREEN ALPINE REGION**

Developing and enhancing research and innovation capacities and the uptake of advanced technologies

Reaping the benefits of digitalisation for citizens, companies, research organisations and public authorities



**Priority 4  
COOPERATIVELY MANAGED  
AND DEVELOPED ALPINE REGION**

Enhance institutional capacity of public authorities and stakeholders to implement macro-regional strategies and sea-basin strategies, as well as other territorial strategies

# Worktop

The study was carried out through the adoption of a mixed survey methodology: on the one hand, a detailed analysis at sectoral and regional level of the main macroeconomic and digitisation-related indicators, and on the other hand, a qualitative survey that collected the main indications related to the theme of resilience from some enterprises and the main stakeholders of the project.

The activities of the first phase of the project were cross-cutting. EStà collected and processed macroeconomic data (EuroStat sources, European Commission) in order to provide a mapping of the EUSALP regions by means of a set of simple and composite indicators allowing a comparative assessment of the picture and the dynamics of the geo-economic areas in general, and of the specific production sectors identified. In addition, we proposed a 'geographical update' in EUSALP of the European Commission's Resilience Dashboard: for this purpose, some indicators were selected from the thematic areas social and economic, green, digital and geopolitical.

Furthermore, the data and information collected through the stakeholder interviews provide specific and detailed insights into the existing system resources in EUSALP. The results of the SMART SMEs and CIRCULAR 4.0 projects, as well as some in-depth questions to stakeholders, were elaborated and integrated into the results of the project.

In the second phase of the project, EStà constructed a questionnaire to investigate vulnerabilities (causes and adaptation/overcoming tools) and practices in the area of digitalisation and circular economy for SMEs. The questionnaire was jointly validated internally and submitted to the various stakeholders who provided important suggestions for improvement. The questionnaire was then translated into the various languages of origin of the EUSALP regions (Italian, French, German, Slovenian, English) in order to facilitate its completion by enterprises. The results of the questionnaire make it possible to draw assessments that can be supplemented with analysis and mapping at macro level.

## MIXED SURVEY METHODOLOGY



In the next phase of the project, EStà interviewed stakeholders from the EUSALP world, in line with the multi-sectoral and multi-governance nature of the AlpGov2 project: this action was of fundamental importance to access the activities carried out by the various AGs of the project. At this stage, EStà gathered information about the functioning of the relationship system within EUSALP, its potential and critical areas. In general, clusters and technological innovation centres (university or trade association) are given considerable weight. The interviewees, unable to indicate company addresses directly, provided contacts of clusters or networks of enterprises working more closely with SMEs in the territory. The latter were contacted, interviewed and integrated into the process of dissemination and administration of the questionnaire. The record of the interviews constitutes a central part of the report.

The questionnaire, administered via the "Google Forms" tool, was addressed via clusters to companies in: Italy, Switzerland, Austria, Germany, Slovenia and France.

The thematic areas of the interviews and the structure of the questionnaire for companies will be discussed together with the results in the following chapters.

As a final step, following the replies to the questionnaire, some companies were contacted and interviewed in order to further investigate some central elements resulting from the answers sent. In this sense, the dialogue with entrepreneurs allowed us to collect and systematise some good practices adopted at an organisational level to respond to the pandemic crisis and the innovative tools used in the area of digitalisation and the circular economy.

▼  
the dialogue with entrepreneurs allowed us to collect and systematise some good practices adopted at an organisational level to respond to the pandemic crisis and the innovative tools used in the area of digitalisation and the circular economy



# Methodological note and reading guide

The macro-mapping of the economic and social system of the Alpine Space that follows in the next pages has been constructed according to a thorough methodology. The reading of the indicators allows the identification of vulnerabilities and potentials affecting economic activities operating in the Alpine Space, at a comparative level between territories and between economic activities. Furthermore, in this work the theme of digitalisation is deepened through the territorial reading of the Regional Innovation Index (RII). The choice of this indicator comes from a careful analysis of the results of the Alpine Region Preparatory Action Fund (ARPAF) project "SMART SMEs". Among the indicators presented in the project to measure the level of digital maturity of SMEs in natural fibre-based value chains, the RIS (Regional Innovation Scoreboard) was chosen for two main reasons: the in-depth level of detail with respect to Alpine Space regions and the effectiveness of the scoreboard in synthesising multiple indicators. In addition, the vulnerability matrix presents a synthesis of two indicators relating to employment dynamics and enterprise size in order to propose an assessment of the elasticity of manufacturing sectors in responding to change.

The second section of the report investigates the concept of resilience for small and medium-sized enterprises by means of two tools: on the one hand, a brief analysis of the available literature with an in-depth look at the concept of "organisational resilience" and, on the other hand, through the application at regional level of the Resilience Dashboard developed by the European Commission.

Finally, this paper will present the main indications proposed by the interviewed stakeholders and the results of the questionnaires to SMEs in some

## INDICATORS



identification of vulnerabilities and potentials affecting economic activities operating in the Alpine Space



between territories



between economic activities

## THEME OF INNOVATION



territorial reading of the Regional Innovation Index for the in-depth level of detail with respect to Alpine Space regions and the effectiveness of the scoreboard in synthesising multiple indicators

## VULNERABILITY MATRIX



synthesis of two indicators relating to employment dynamics and enterprise size in order to propose an assessment of the elasticity of manufacturing sectors in responding to change

regions: in this case, the theme of resilience and the role of clusters in strengthening the entrepreneurial fabric of the Alpine Space, in view of circular economy and innovation, are the central points of the study. In addition, interviews with some of the entrepreneurs who responded to the questionnaire allow us to delve into five topics that are of strong interest in strengthening resilience. For the construction of the set of socio-economic indicators, data from the Eurostat SBS (Structural Business Statistics) survey were used. The manufacturing sectors considered are:

<b>NACE REV2 NAME</b>	<b>NACE REV2 CODE</b>
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	C16
Manufacture of chemicals and chemical products	C20
Manufacture of rubber and plastic products	C22
Manufacture of basic metals, manufacture of fabricated metal products, except machinery and equipment, manufacture of computer, electronic and optical products, manufacture of electrical equipment, manufacture of machinery and equipment n.e.c., manufacture of motor vehicles, trailers and semi-trailers, manufacture of other transport equipment, repair and installation of machinery and equipment	C24-30, C33

The four SBS variables considered on a regional and sectoral scale are: local units, labour costs, persons employed, employment growth rate. For the gross value added data, spatially disaggregated data on total manufacturing activities were used. For the population data, the number of persons having their usual residence in a given area on 1 January was

## RESILIENCE



a brief analysis of the available literature with an in-depth look at the concept of "organisational resilience"



application at regional level of the Resilience Dashboard developed by the European Commission

## INTERVIEWS



main indications proposed by the interviewed stakeholders and the results of the questionnaires to SMEs in some regions

chosen. The analyses carried out in the following paragraphs refer to the pre-pandemic economic and social situation: it has been decided not to integrate the surveys of the year 2020 in order to purify the observation of the distorting effect that the crisis produced by the Covid 19 pandemic had on economic, employment and statistical variables in general. The last year taken into consideration is therefore 2018 because for many NUTS2 regions, data for 2019 is not available. As mentioned above, the socio-economic indicators produced for the mapping of the EUSALP area were developed for each territorial unit of the NUTS2 classification. In particular, the regions of the entire Alpine Space were chosen, which in many cases correspond to the entire territory of a country (Austria, Slovenia and Switzerland). For Switzerland, the figure used is aggregated at national level as there is no regional breakdown in EUROSTAT. The indicators using the amount of value added produced (indicators 5 and 6) have been constructed by referring to a different calculation method for value added at regional and national level: for the former, which covers all manufacturing activities as a whole, value added is calculated at basic prices, for the latter, i.e. for the different production sectors, value added is calculated at factor costs. It was necessary to refer to values with different calculation methods in order to propose an analysis of the dynamics of added value at regional and sectoral disaggregated levels.

The socio-economic indicators are presented in groups of two indicators in order to juxtapose assessments using similar reference data. The group of the first two indicators presents the map of the population of the EUSALP area, because in both indicators reference is made to this data. Subsequently, a snapshot of the situation as of 2018 for each indicator was developed (map and graphical representation). This is followed by two infographics describing the value of the indicator for each of the three years considered and the variation of the figure over the period 2011-2018. The second group of indicators initially presents the map of the distribution of employed people in the Alpine Space regions. In particular, for indicator four, the representation changes: the map and the infographic show the change in the number of employed people during the period under consideration. The third group of indicators presents

## DATA



pre-pandemic economic and social situation



2018 because for many NUTS2 regions, data for 2019 is not available

## GROUPS OF TWO INDICATORS



juxtapose assessments using similar reference data

### ▶ MAPS

1. populations
2. employed in EUSALP manufacturing
3. value added in the manufactory sector

- ▶ DATA VISUALIZATION  
 snapshot of 2018/  
 value in 2011/2015/2018/  
 variation 2011-2018

the map of the area showing the distribution of the added value of the manufacturing industry and the following infographics focus on the regional and national level on the evolution of the indicators in the different manufacturing sectors. The data on value added, labour costs and employment at national and sectoral level of indicators five and six refer to the total of the regions in each country and not only to the regions within the EUSALP area.







# **SOCIO-ECONOMIC INDICATORS OF THE ALPINE SPACE**

# INDICATOR 1

**Numerator: number of local units**

**Denominator: resident population**

**Unit of measurement: local units per 10,000 inhabitants**

# INDICATOR 2

**Numerator: number of employees**

**Denominator: resident population**

**Unit of measurement: employment units per 10,000 inhabitants**

Indicator 1 and indicator 2 allow us to understand how the different economic activities that are the object of our analysis are distributed over the Alpine Space territory.

The density of economic units (Ind1) thus refers to the number of local units of enterprises per 10,000 inhabitants. In particular, indicator 1 represents in a synthetic way the result of the ratio between the number of local units for each manufacturing sector and the number of the resident population on 1 January of each year in each region. In order to obtain a measure of density, it was decided to use the measure of resident population and not the measure of total regional surface area for two reasons in particular: firstly, to try to overcome the difficulties linked to the heterogeneity in terms of surface area of the NUTS2 regions and secondly, to represent the relationship existing in the territory between enterprises and inhabitants, and therefore between economic activity and territory. This element is central to the overall approach of the study and represents one of the main indications that were provided by the various stakeholders interviewed in the previous months, expert connoisseurs of EUSALP dynamics: the Alpine territory not only structures the value chains in EUSALP, but the dissemination of good practices of digitalisation and circular economy, passing through small and medium-sized enterprises in the various regions, potentially exploits the existing interregional connections between clusters, between information and training centres, between business networks, and more generally between people.

The second indicator proposed reproduces the method and aims used for indicator 1. This indicator analyses the ratio of those employed in a given sector to the population of each region. The aim is, therefore, to observe how and with what intensity the inhabitants of a specific territory participate in the labour market and thus in the structuring of the various value chains. Employment density is an indicator of the absolute productive specialisation of each area.

Stuttgart 4.126.688

Tübingen 1.846.280

Karlsruhe 2.795.783

Freiburg 2.254.674

Franche-Comté 1.179.070

Bourgogne 1.628.737

Schwaben  
1.873.368

Auvergne 1.368.536

Switzerland  
8.484.130

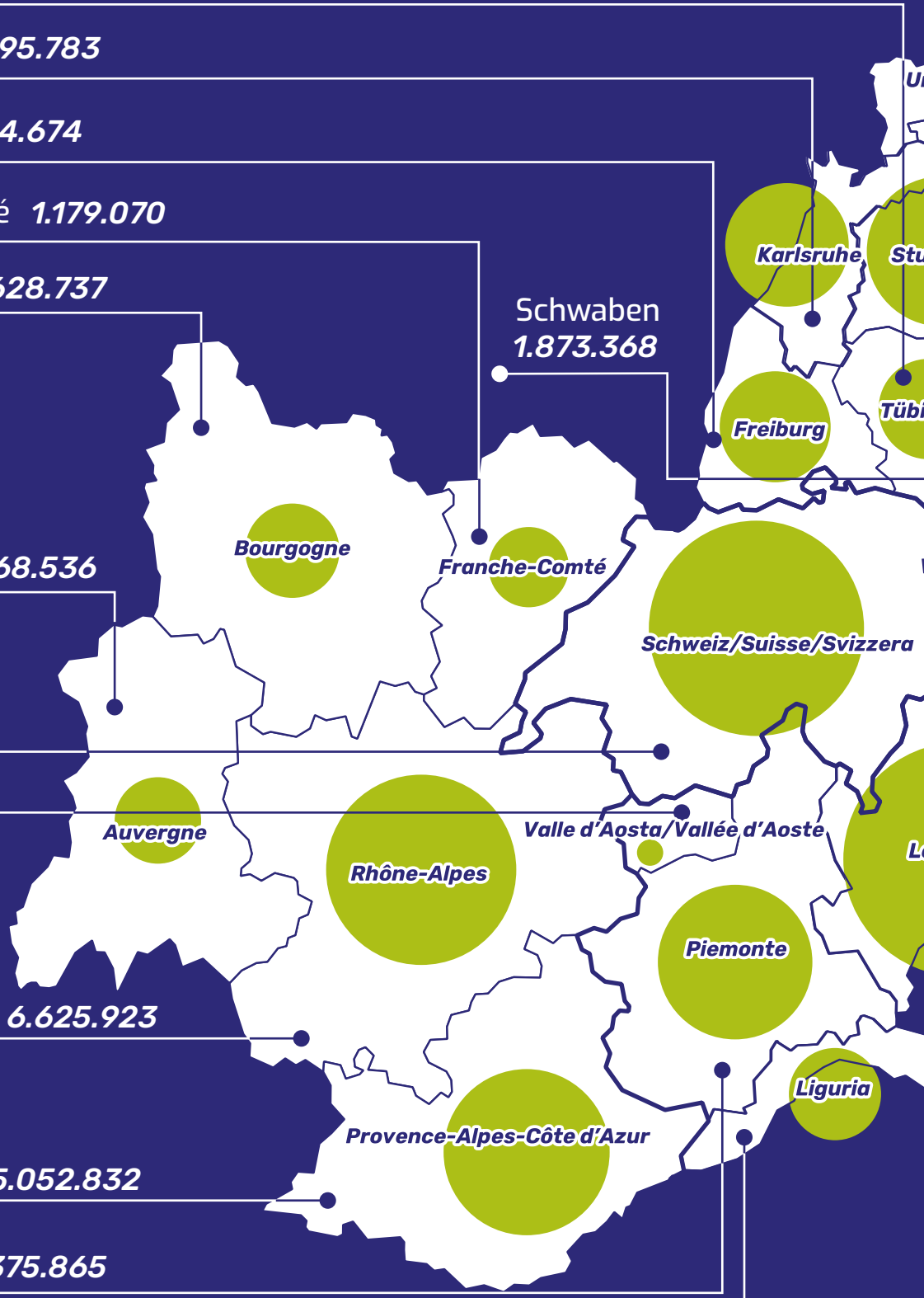
Valle d'Aosta  
126.202

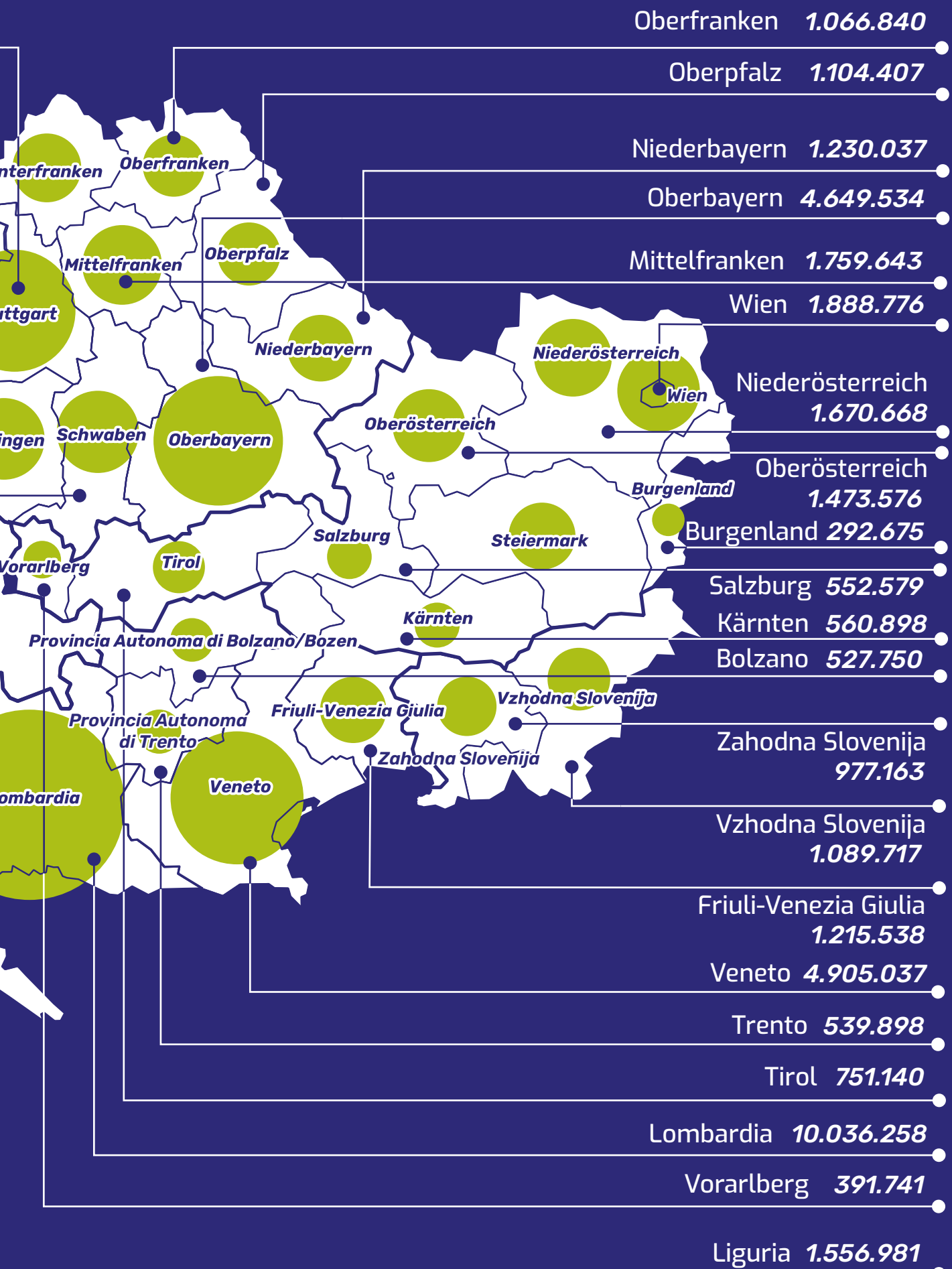
Rhône-Alpes 6.625.923

Provence-  
Alpes-  
Côte d'Azur 5.052.832

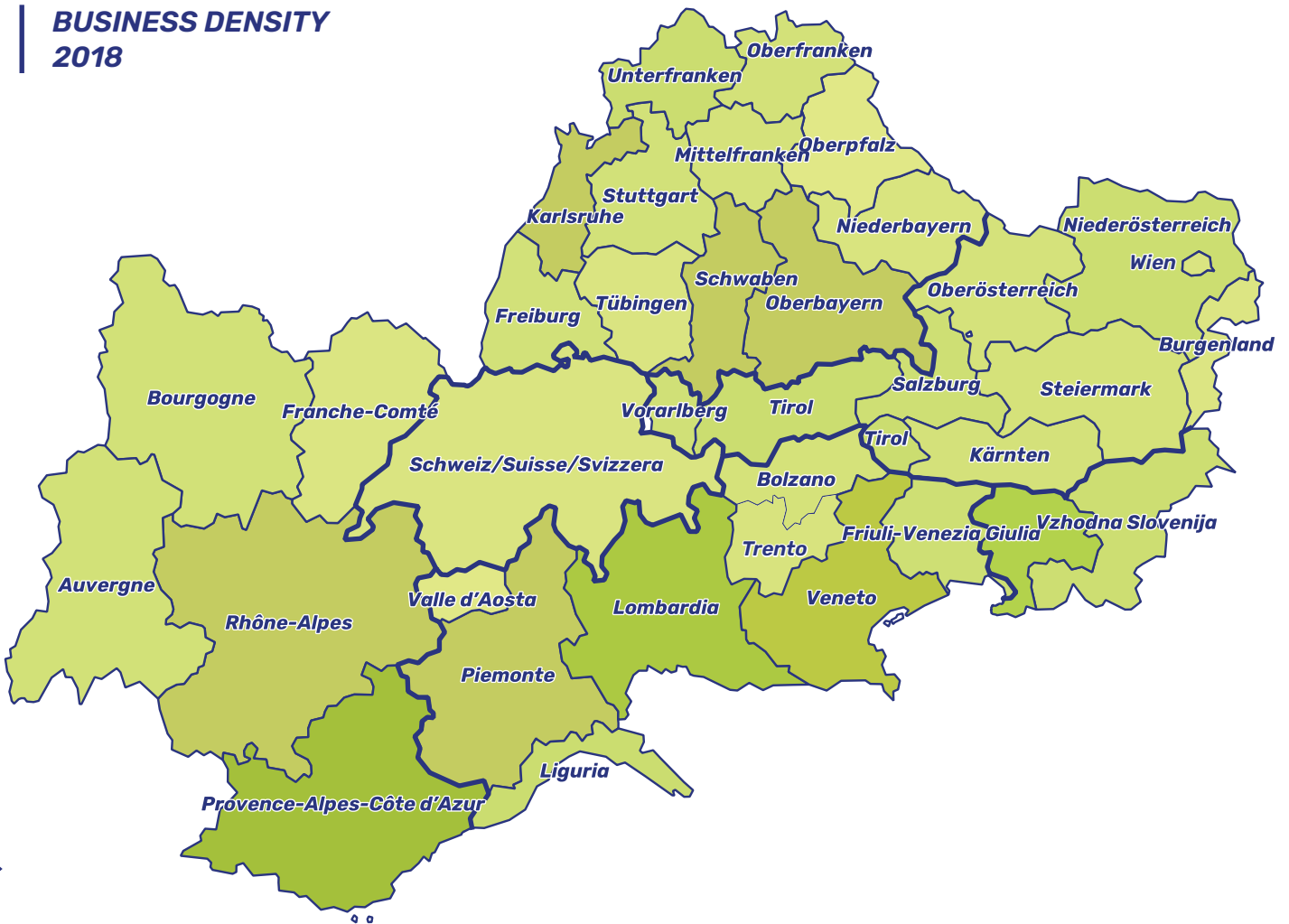
Piemonte 4.375.865

# EUSALP AREA POPULATION 2018





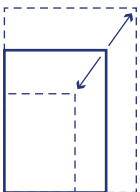
## BUSINESS DENSITY 2018



22

## CHEMISTRY

### How to read these data visualizations



The **size** of each square depends on the size of the indicator: a larger square corresponds to a higher indicator value.

The **colour** of each square corresponds to the colour of each region in the map.

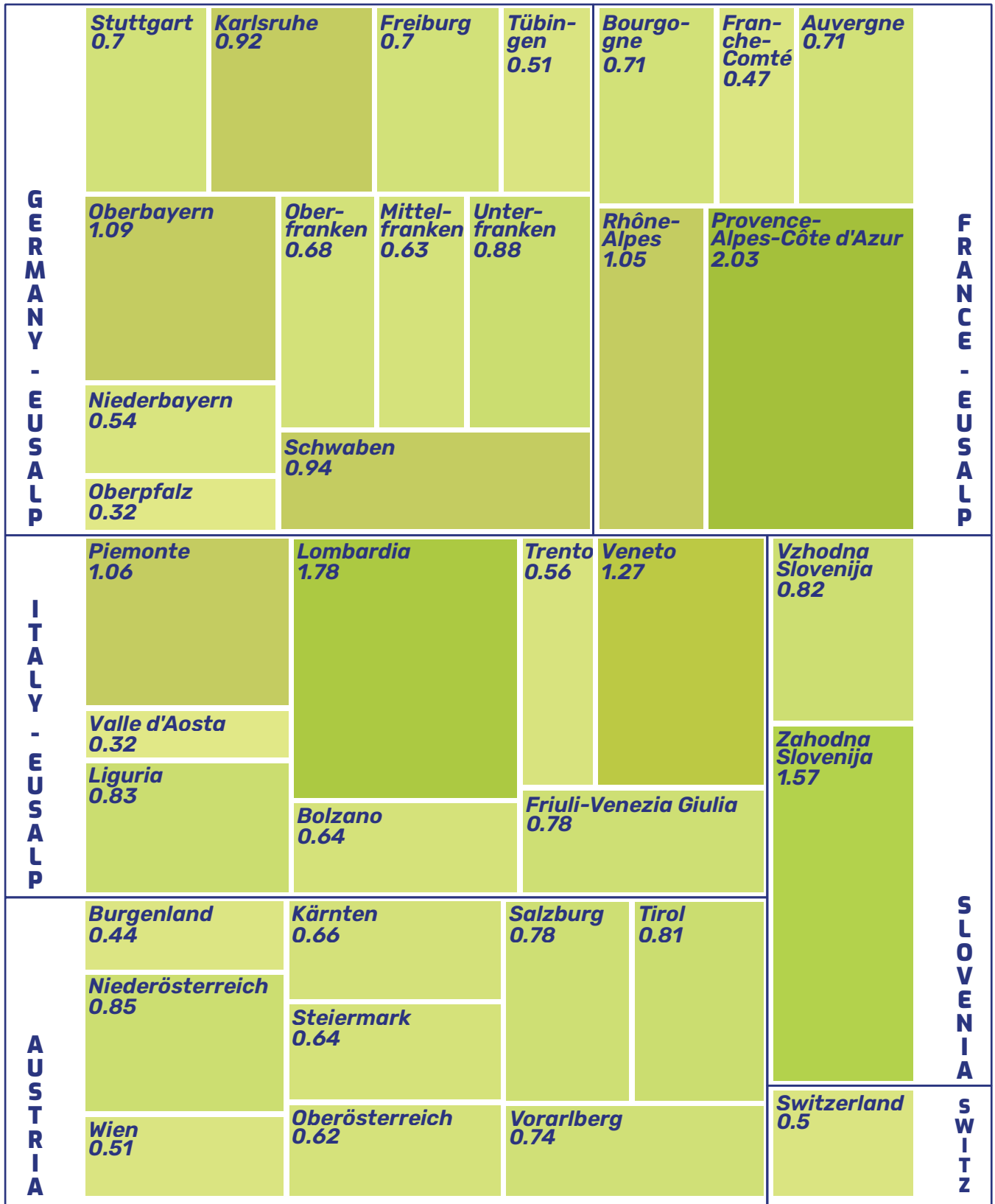
The **intensity** of the colour changes depending on the size of the indicator: a darker colour corresponds to a higher value of the indicator.

With regard to the chemical sector, the highest density of companies in 2018, at country level, is in the Italian regions: in particular, in Lombardy there are on average almost two companies in the chemical sector for every 10,000 inhabitants (down from 2011). The single region where there is the highest concentration of industries in the sector is Provence-Alpes-Côte d'Azur, with more than two enterprises per 10,000 inhabitants. With more than one enterprise per 10 thousand inhabitants, the regions of Zahodna Slovenija (1.57 enterprises), Veneto (1.27 enterprises), Oberbayern (1.09 enterprises), Piedmont (1.06 enterprises) and Rhône Alpes (1.05 enterprises) follow.

On the contrary, the regions where the presence of local units involved in the manufacturing of chemical products is lowest are those of the central Alpine belt: the lowest values are those of the Swiss belt (0.5 units), Franche Comté (0.47 units), Burgenland (0.44 units), Valle d'Aosta (0.32 units) and Oberpfalz (0.32 units). Regions that are close to the Alpine belt and characterized by a high coverage of mountainous territory have difficulties

**BUSINESS  
DENSITY  
2018**

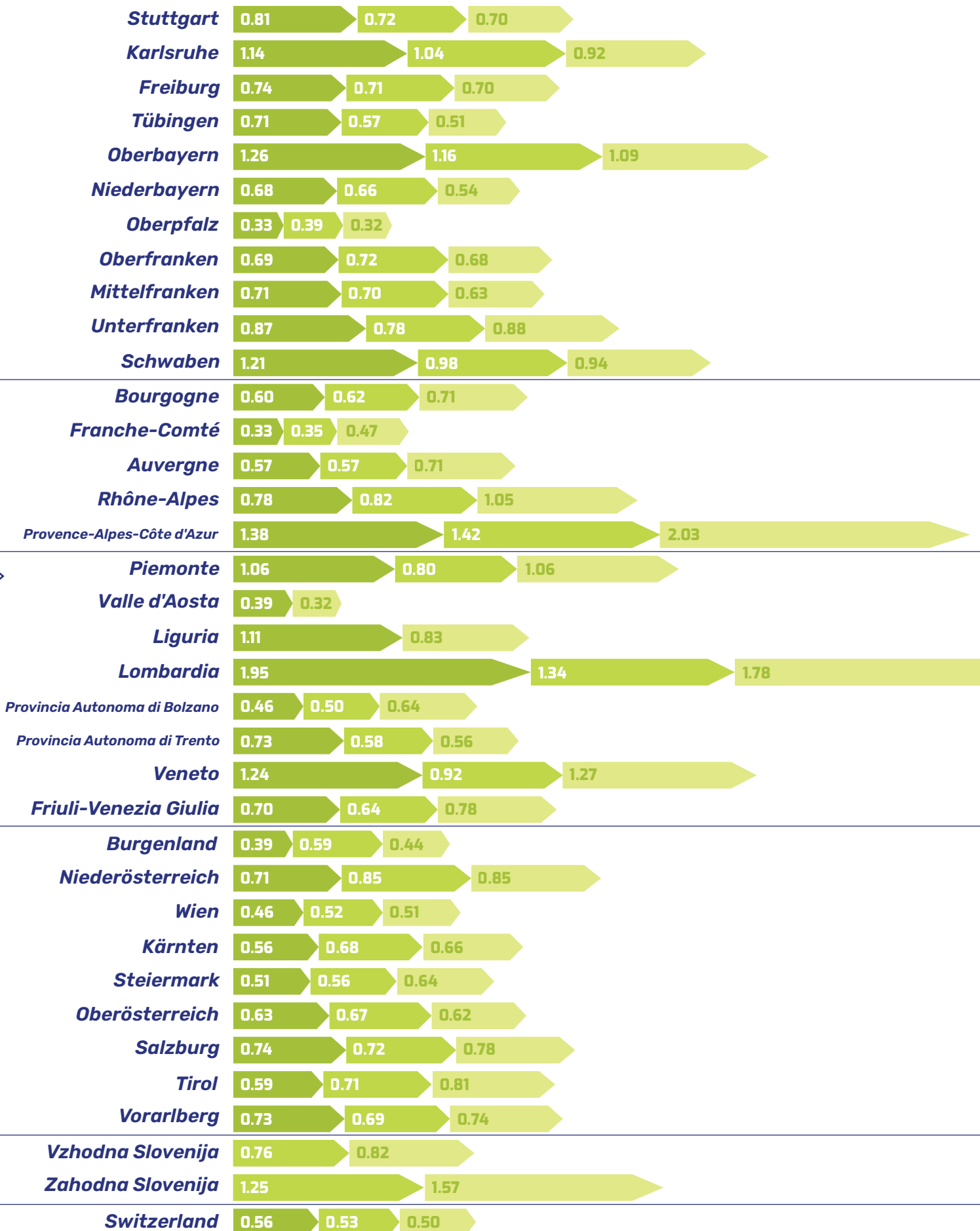
in developing this type of industry and, as we will see later, exploit the potential of their positioning in other value chains.



As a matter of graphical representation, some sizes exceed the page border.  
In this case, please refer to the value of the indicator written inside.

## REGIONAL BUSINESS DENSITY 2011 - 2015 - 2018

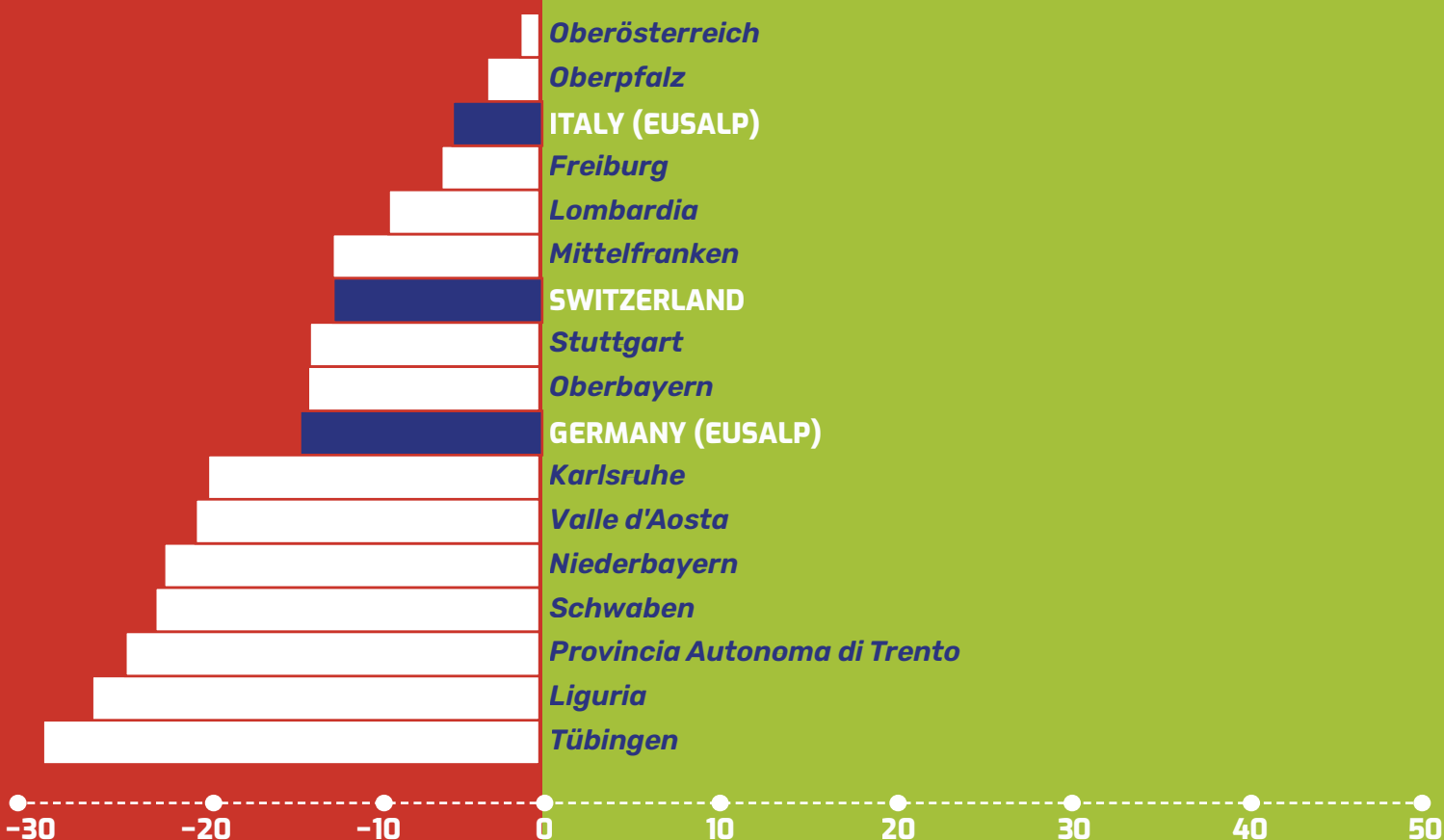
2011 2015 2018



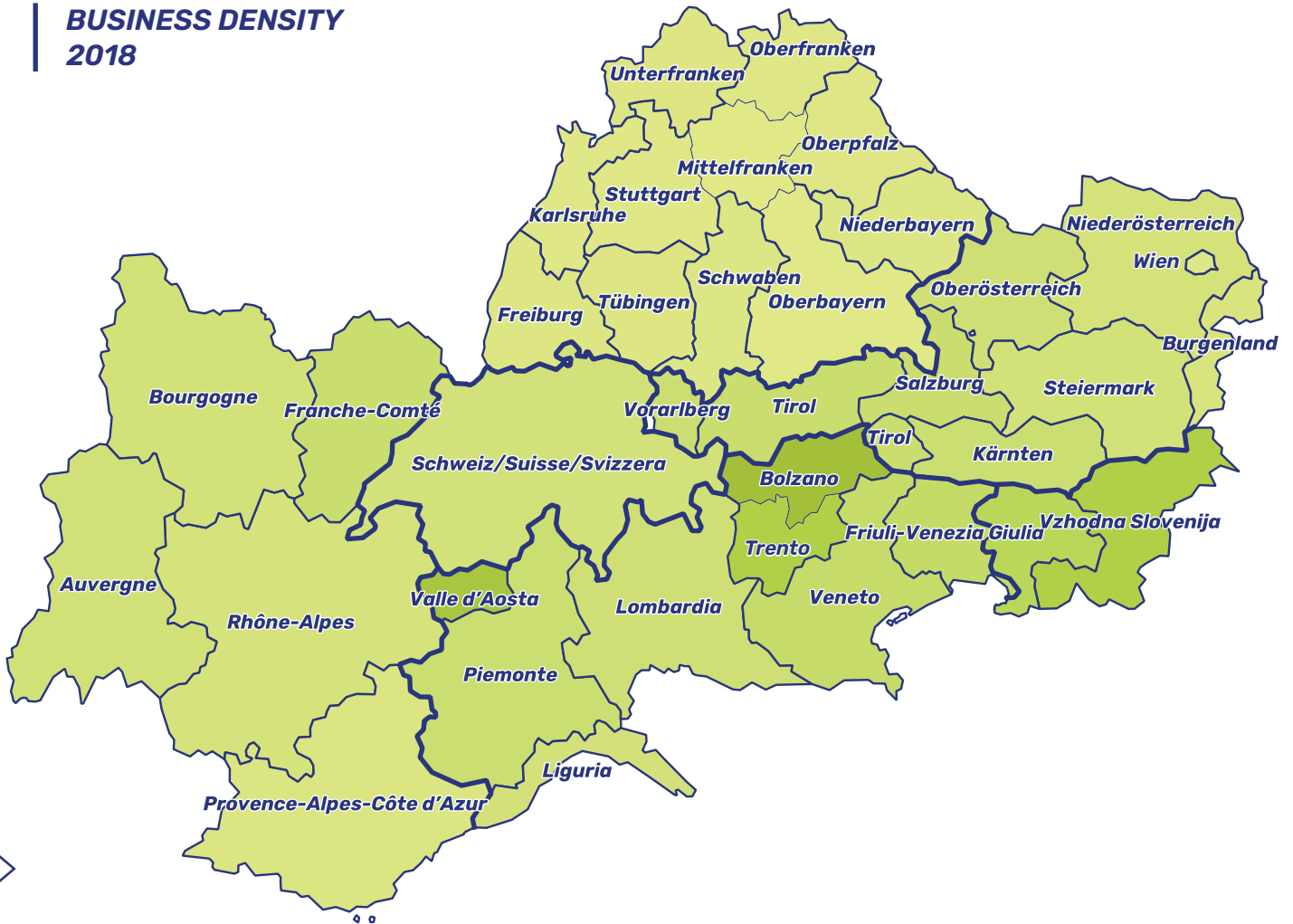


## CHANGE 2011-2018

Important changes in the Alpine business fabric can be observed between 2011 and 2018. The French regions show a very positive performance with a continuous expansion of the chemical manufacturing sector: in Provence-Alpes-Côte d'Azur, companies increased by +47.5% and in Franche-Comté by +40.4%. The Autonomous Province of Bolzano followed with a percentage change of over 40% (+40.6%). In the same period, there is also a contraction of enterprises operating in the sector in some regions: about 25% fewer enterprises in the Tübingen (-28.3%) and Liguria (-25.5%) regions. On average in the EUSALP area the sector shows an expansion in the number of enterprises (+3.9%).



## BUSINESS DENSITY 2018

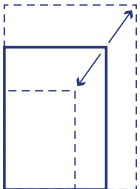


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## WOOD



### How to read these data visualizations



The **size** of each square depends on the size of the indicator: a larger square corresponds to a higher indicator value.

The **colour** of each square corresponds to the colour of each region in the map.

The **intensity of the colour** changes depending on the size of the indicator: a darker colour corresponds to a higher value of the indicator.

In 2018, there is a strong presence of wood industries in Slovenia (more than 10 units per 10,000 inhabitants): mainly in the Vzhodna Slovenija region (11.6 units). This is followed by Italy (5.4 units), with a central role for Valle d'Aosta (13.4 units) and the autonomous provinces of Bolzano and Trento (14.9 and 11.8 units respectively), and Austria (3.3 units), mainly in the regions of Salzburg (5.5 units), Kärnten (5.1 units) and Tyrol (5.4 units).

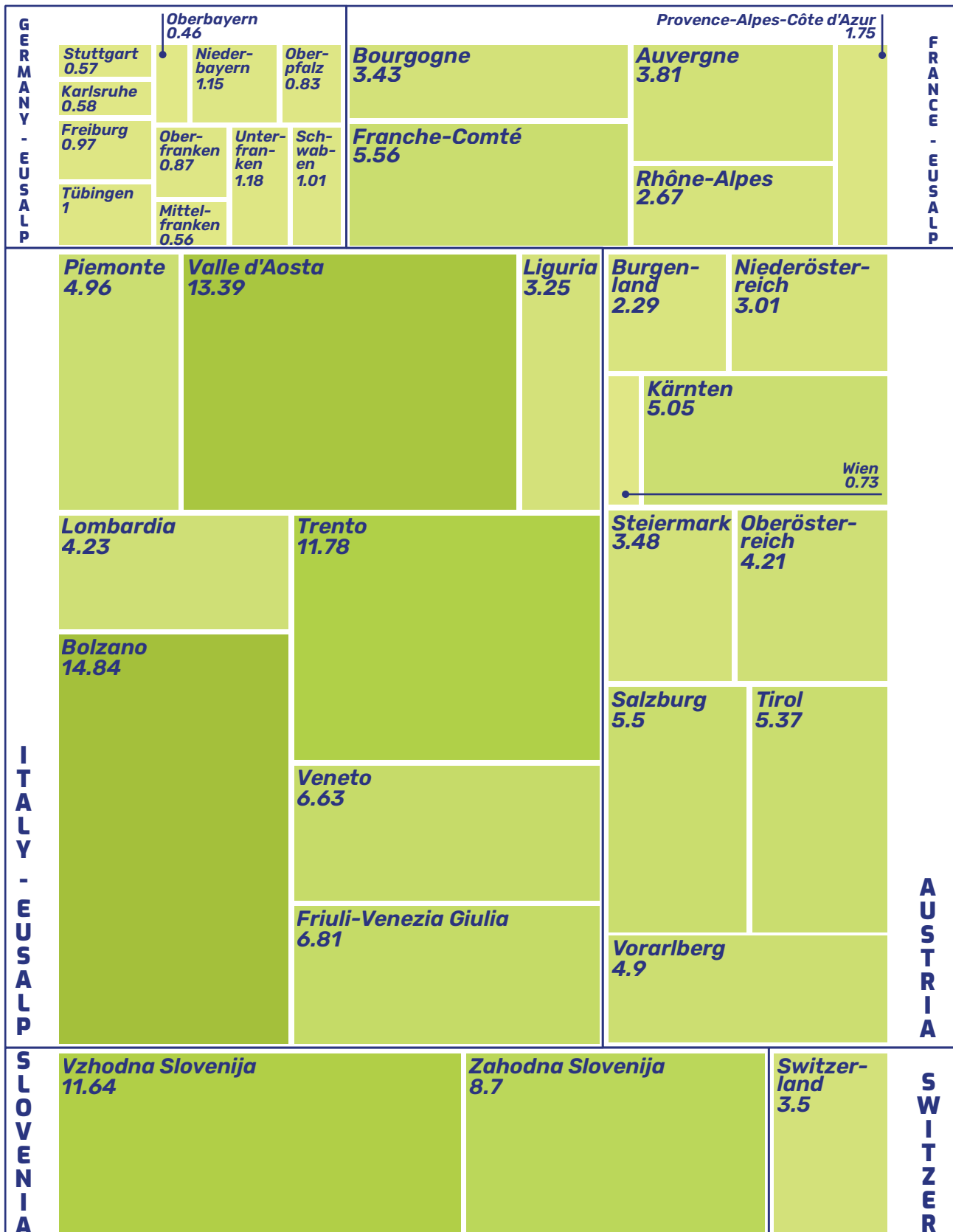
As can be seen from the graph below, wood manufacturing enterprises in the three countries of the southern and eastern EUSALP area together with Switzerland account for more than 80% of the total Alpine area.

On average in the EUSALP area there are 3.3 companies involved in wood production: the German Alpine (0.7 units) area and the French regions are far below the EUSALP data with an average of 2.8 units per 10,000 inhabitants.

On the whole, wood production is concentrated in areas with an important manufacturing tradition, which is certainly also linked to the management of the land and the forest ecosystem. Wood manufacturing is therefore

**BUSINESS  
DENSITY  
2018**

a manufacturing industry with a supply chain closely linked to the characteristics of the territory in which the companies are located.

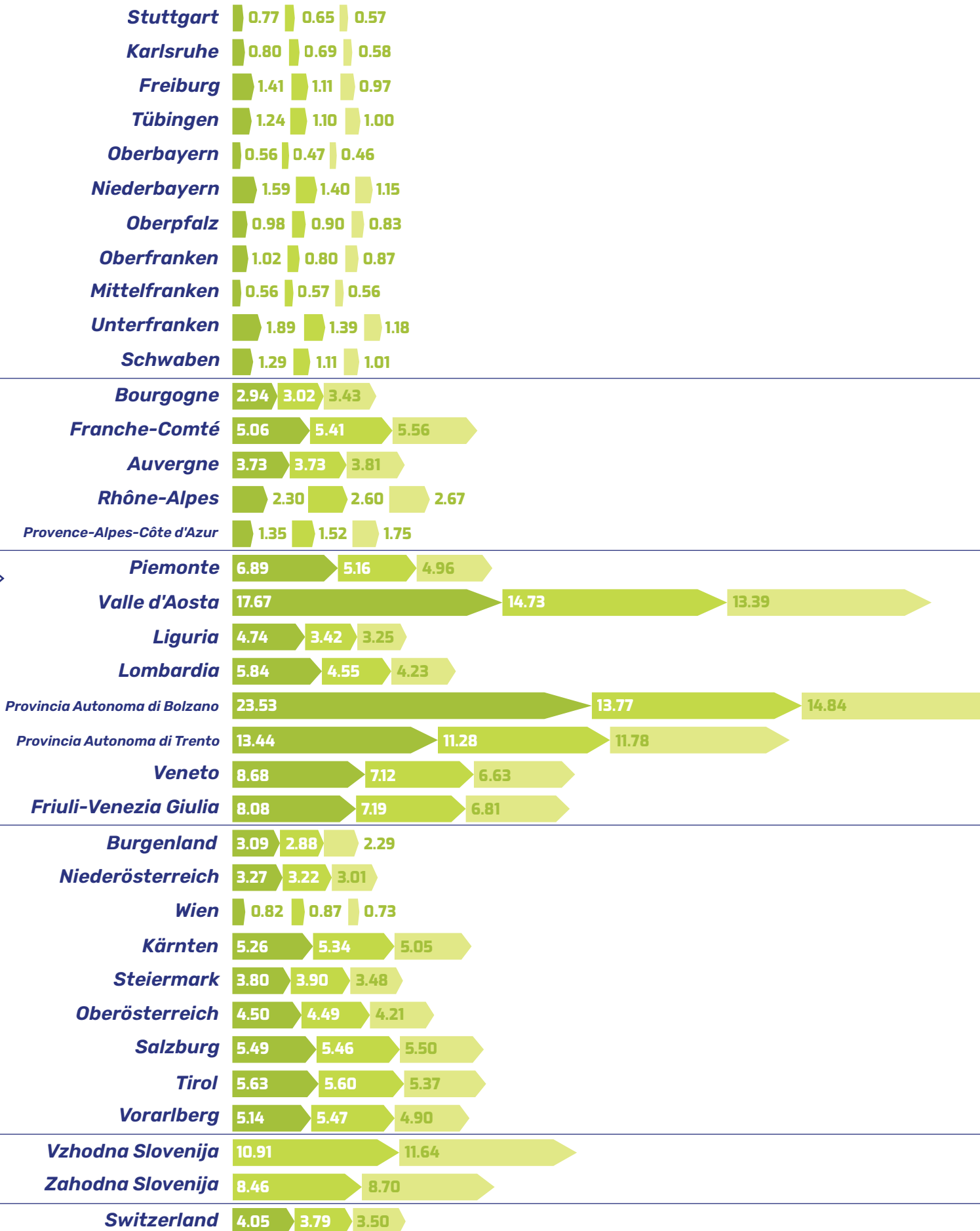


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## REGIONAL BUSINESS DENSITY 2011 - 2015 - 2018

As a matter of graphical representation, some sizes exceed the page border.  
In this case, please refer to the value of the indicator written inside.

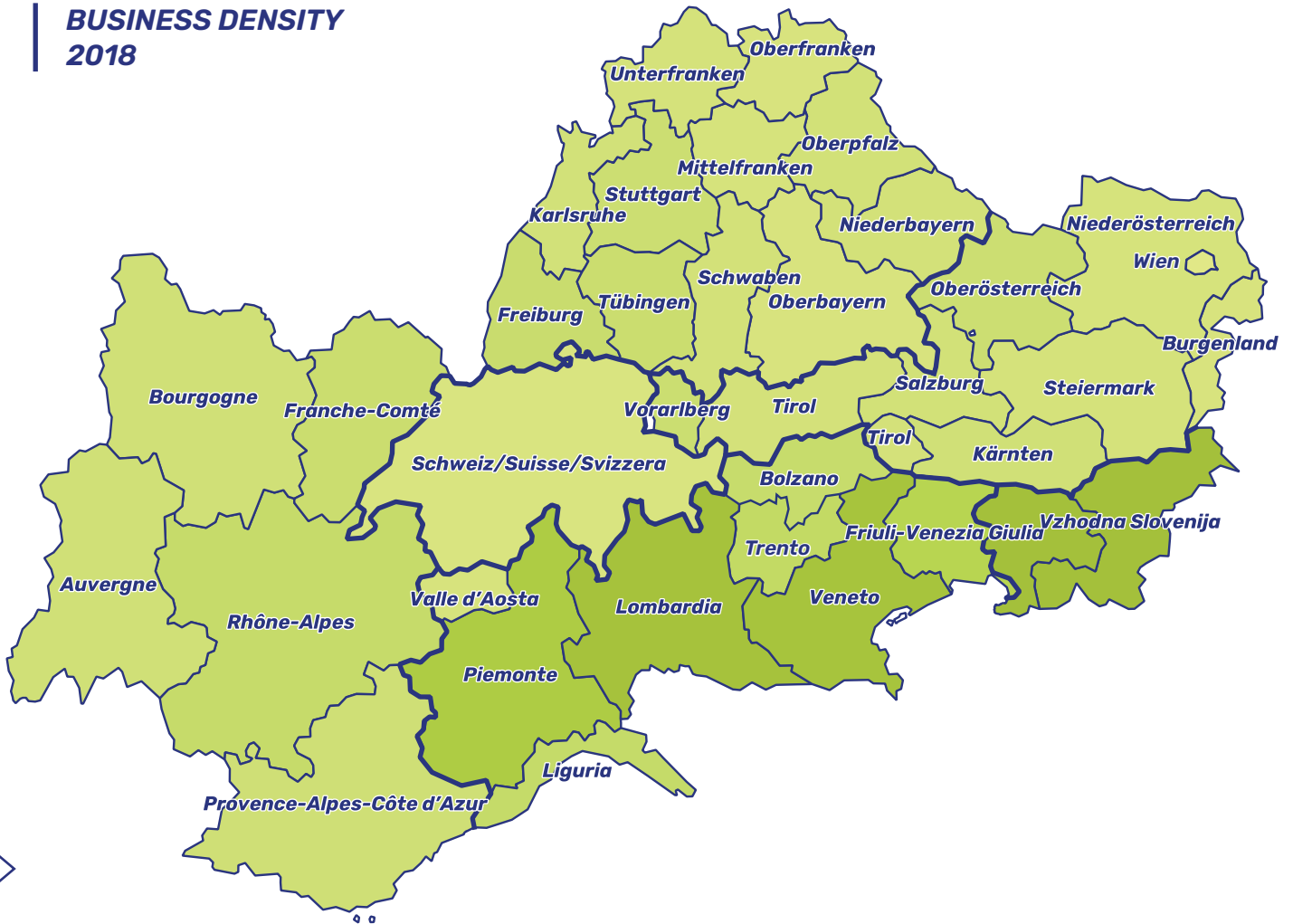
2011 2015 2018



**CHANGE**  
**2011-2018**

The graph illustrates an overall downsizing of the wood manufacturing sector: on average in the EUSALP area, companies in the sector decreased by -10.7% over the period 2011-2018. Only seven regions show positive rates of change: these are the French regions (which on average grow by +15.1%) and the Slovenian regions (which on average grow by +5.0%). Despite the fact that the Province of Bolzano still plays an important role in the structuring of the value chain of the wood industry, there has been a significant reduction in the number of active units over the period considered. In fact, the Province of Bolzano, together with the region of Unterfranken, shows a decrease rate of more than 30% (-37.0% and -37.5% respectively).





## MECHANICS AND MECHATRONICS



The regions with the highest density of companies in the mechanical-mechatronics sector in 2018 are Slovenia and Italy, the only ones with values higher than the EUSALP average.

Among the Slovenian regions, Zahodna Slovenija has a higher density than the country's average (43.2 units), while among the Italian regions, Lombardy has the highest density of companies operating in the sector (42.1 units). The pool of companies operating in the sector is much larger than in the other manufacturing sectors covered by our study: in 2018, on average in the EUSALP area for every 10,000 inhabitants resident in the various regions, there were 21.8 production units involved in the mechanical sector. These values are significantly higher than the average of the other sectors analyzed (1.1 units for chemistry, 3.3 for wood and 2.0 for plastics).

In order, France, Germany, Austria and Switzerland show values below and increasingly far from the EUSALP average.

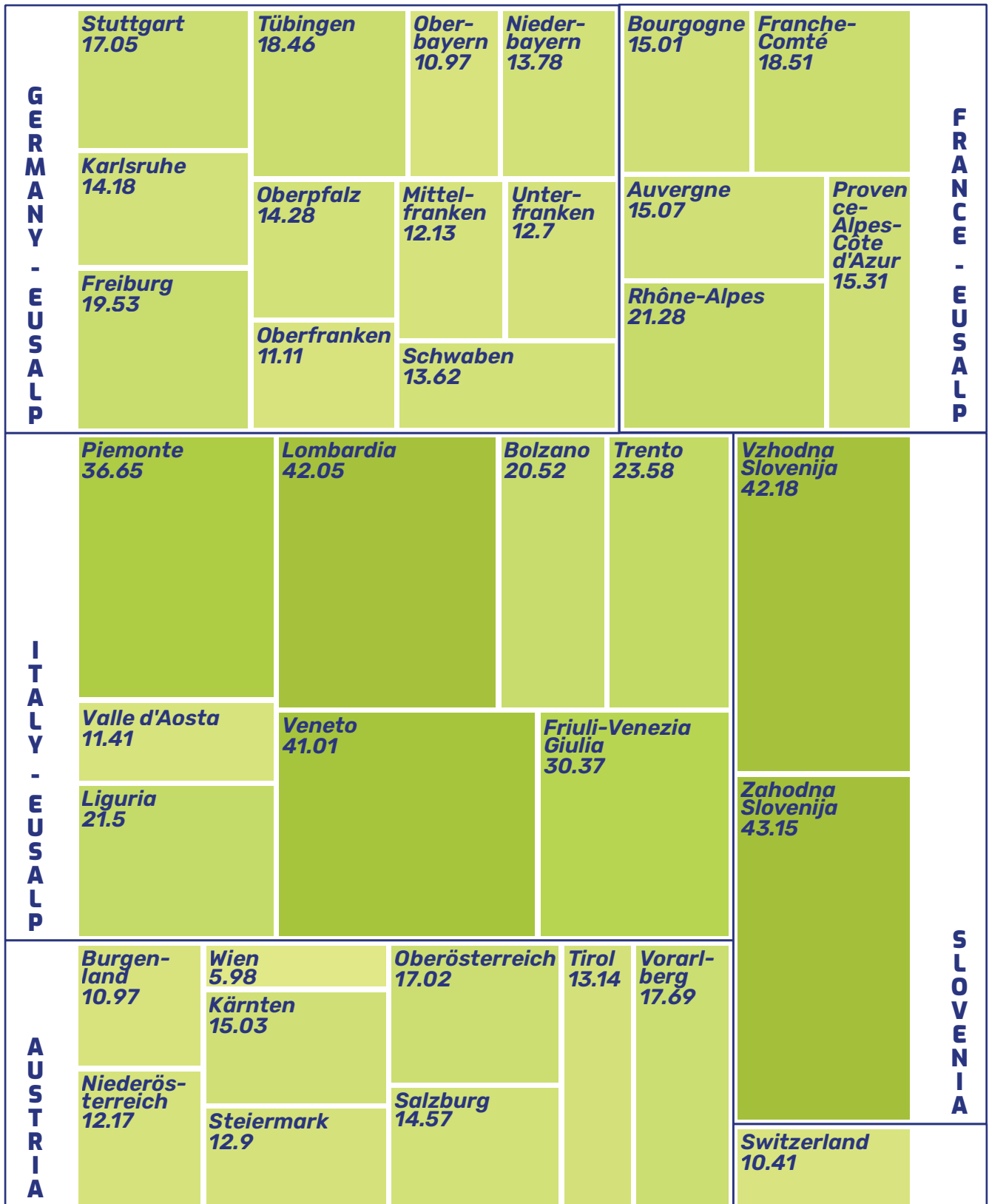
The density of the number of production units should also be read bearing in mind that a higher value of the indicator

### How to read these data visualizations

Please, look at the previous sector.

**BUSINESS  
DENSITY  
2018**

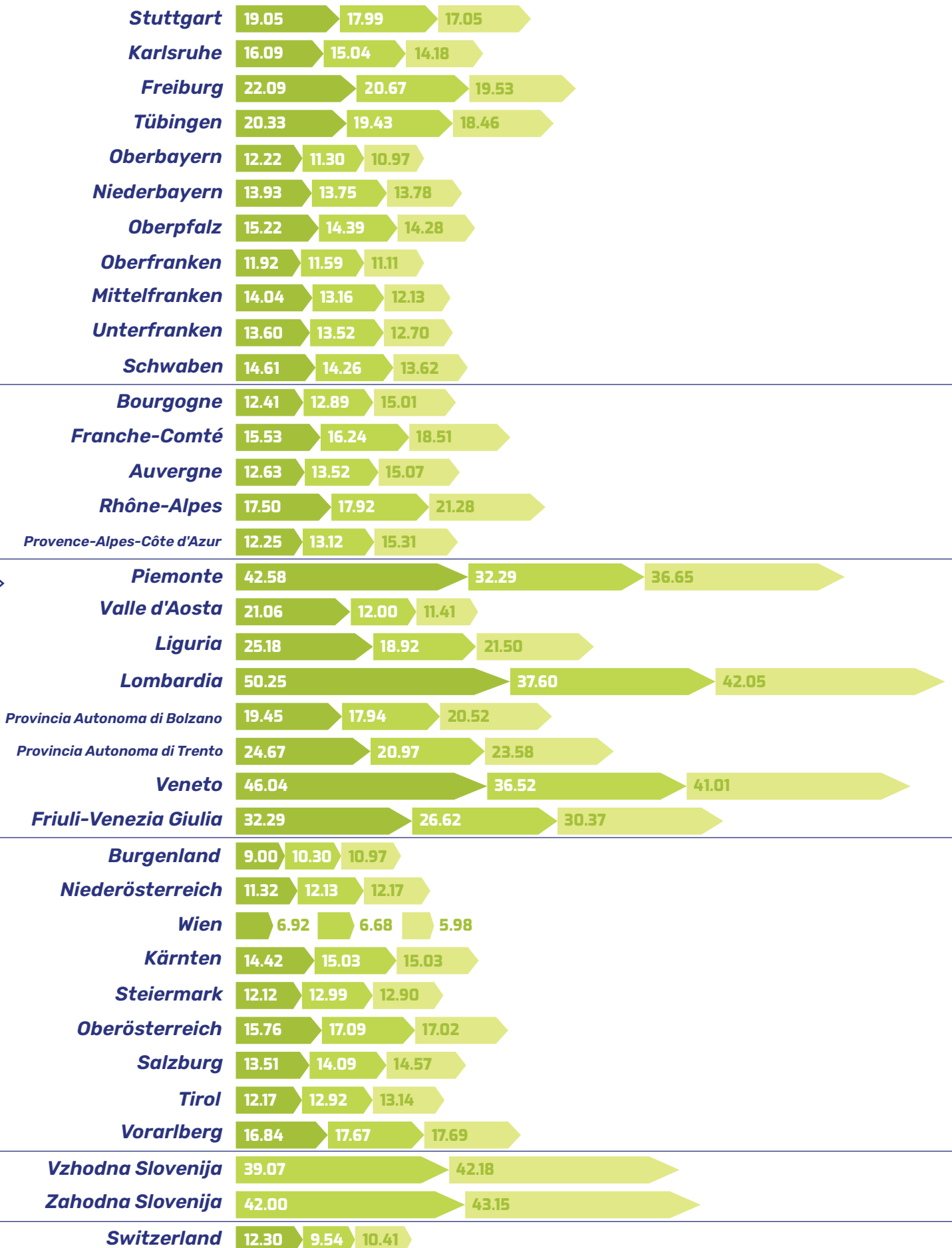
could be synonymous with a greater fragmentation of production processes and therefore with the presence of smaller enterprises. The following indicators provide a more complete picture of the situation.



**REGIONAL BUSINESS DENSITY**  
2011 - 2015 - 2018

2011 2015 2018

32

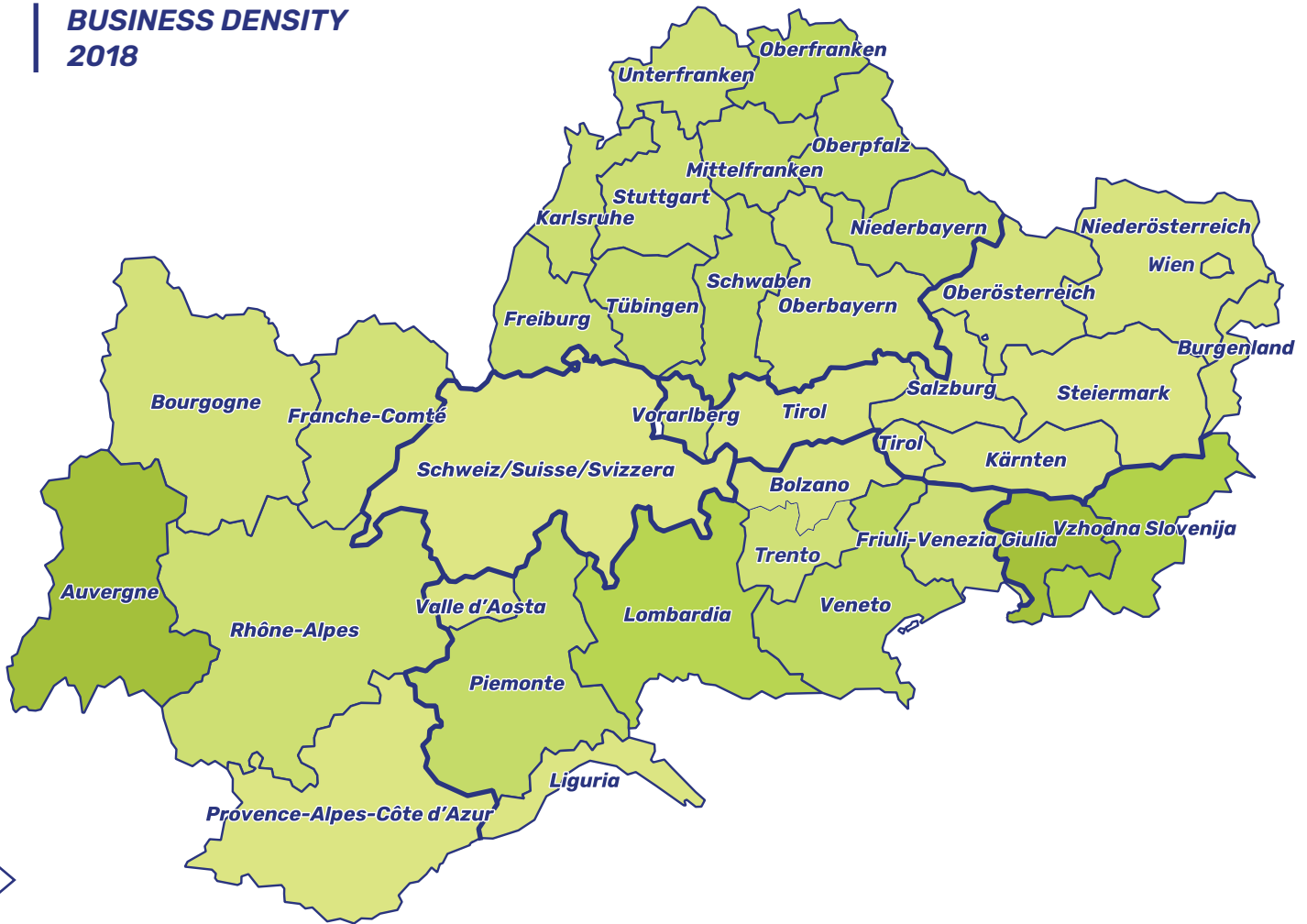




**CHANGE  
2011-2018**

Businesses in the sector showed a certain stability over the period, with both positive and negative rates of change peaking at around 20%. In the average of the EUSALP regions, production units in the sector decreased by -3.3%. In Slovenia, enterprises are growing by two per 10,000 inhabitants and in France by as much as three. Below the average macro-regional level are the regions of Germany (with the exception of Niederbayern, which decreases by -1.1%), Italy (with the exception of Bolzano, which sees its density increase by 5.5%) and Switzerland. In particular, over the period 2011-2018, the density of mechanical engineering production units in Lombardy decreased by -16.3%.

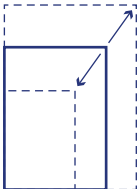




## PLASTIC



### How to read these data visualizations



The **size** of each square depends on the size of the indicator: a larger square corresponds to a higher indicator value.

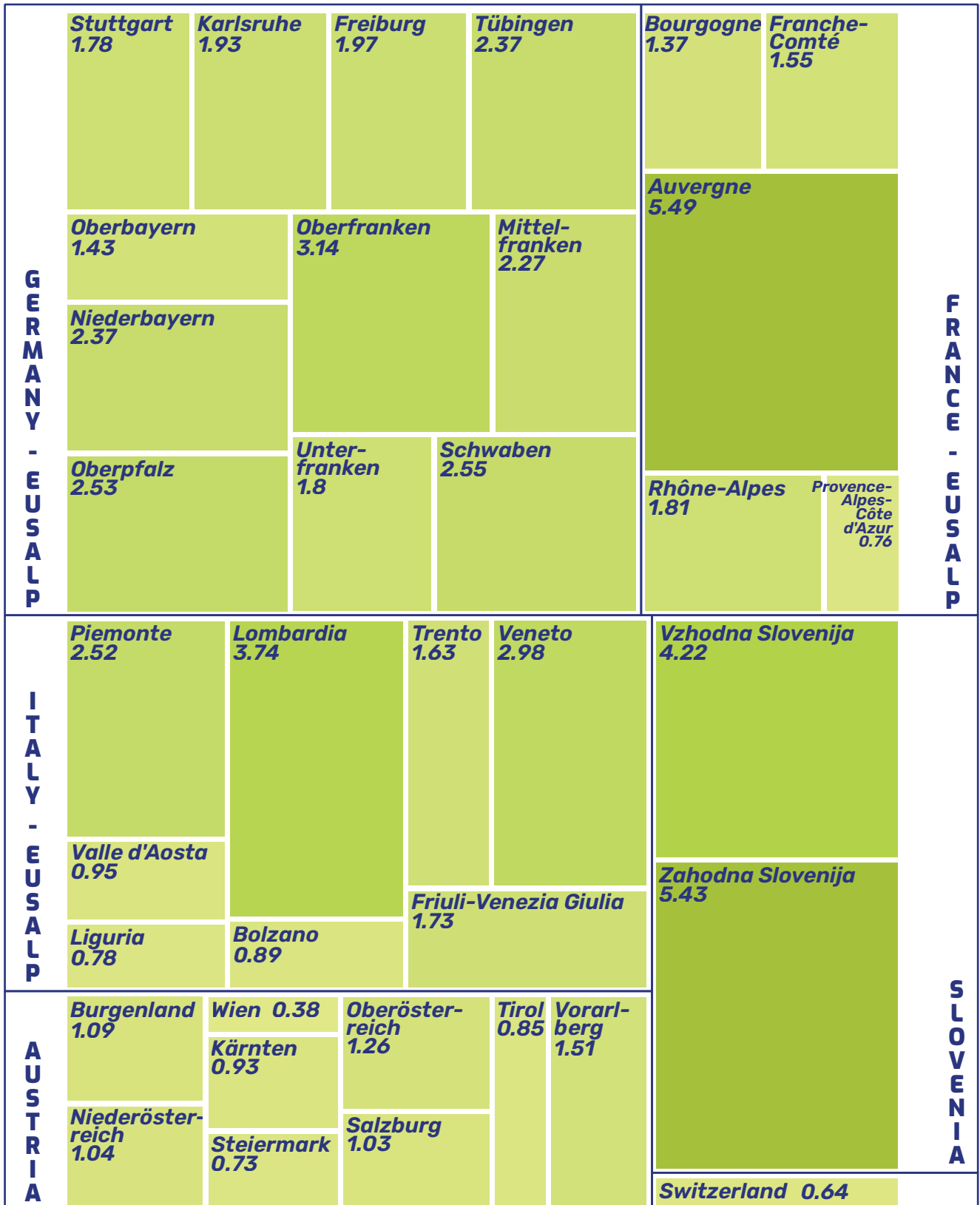
The **colour** of each square corresponds to the colour of each region in the map.

The **intensity of the colour** changes depending on the size of the indicator: a darker colour corresponds to a higher value of the indicator.

In the EUSALP area there are 2 local units per 10,000 inhabitants dealing with plastics and plastic materials production, but the distribution is very heterogeneous in the different regions. For example, in Slovenia there are twice as many local units as the Alpine Space average, while in Switzerland there are about a quarter. In 2018, only five regions in the entire Alpine region had a density of enterprises in the sector of more than 3 units per 10,000 inhabitants: in the lead is the Auvergne region with 5.5 units, followed by Zahodna Slovenija (5.4 units), Vzhodna Slovenija (4.2 units), Lombardy (3.7 units) and Oberfranken (3.1 units).

The density of enterprises is lower and far from the Alpine Space average in the Swiss regions (0.6 units) and in the Vienna region (0.4 units). No Austrian region presents a density higher than the EUSALP average, while as far as French regions are concerned, only the Auvergne region presents a density higher than the average of the Alpine area. This suggests a strong specialization of the region in the production of plastics and plastic products.

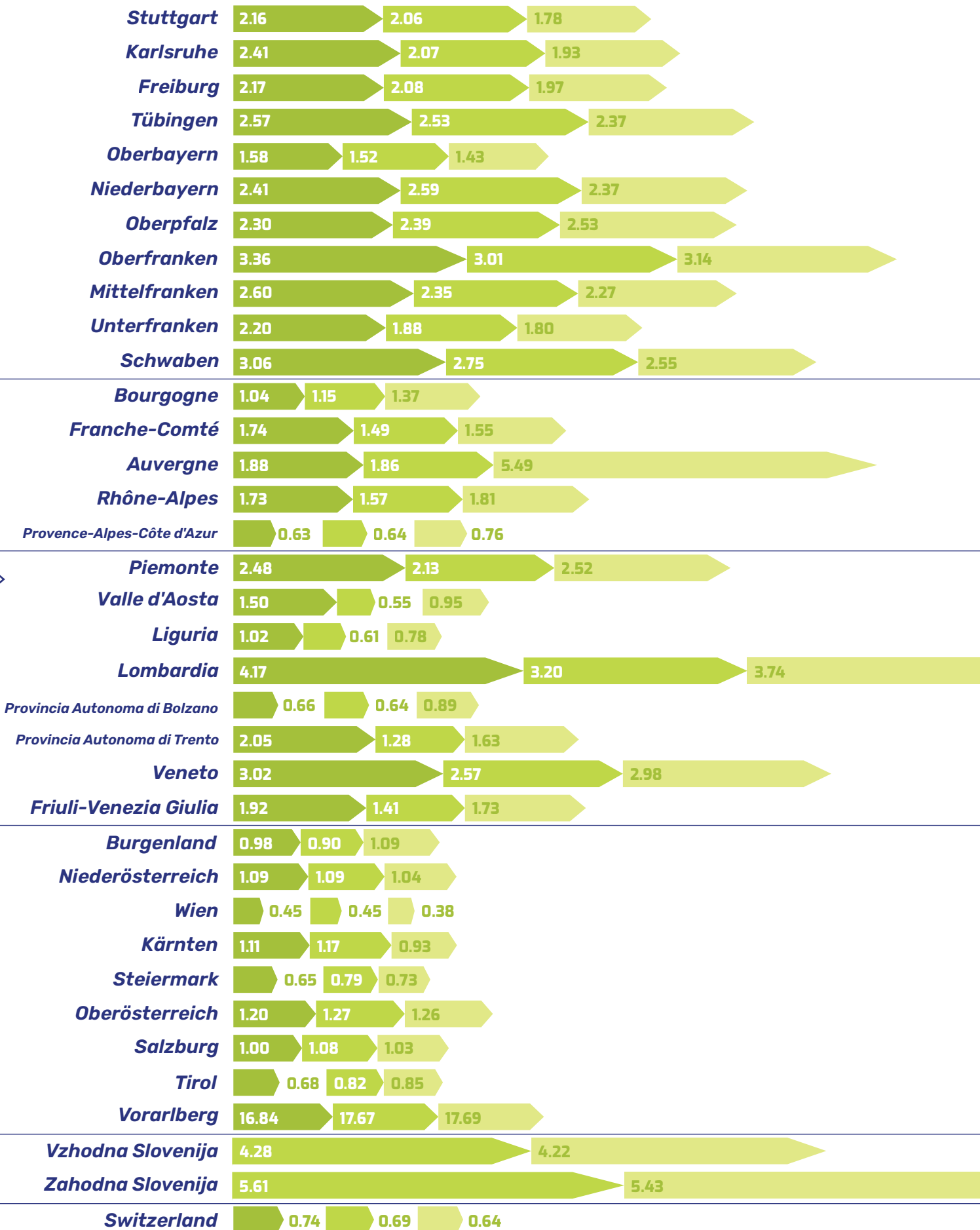
**BUSINESS  
DENSITY  
2018**



As a matter of graphical representation, some sizes exceed the page border.  
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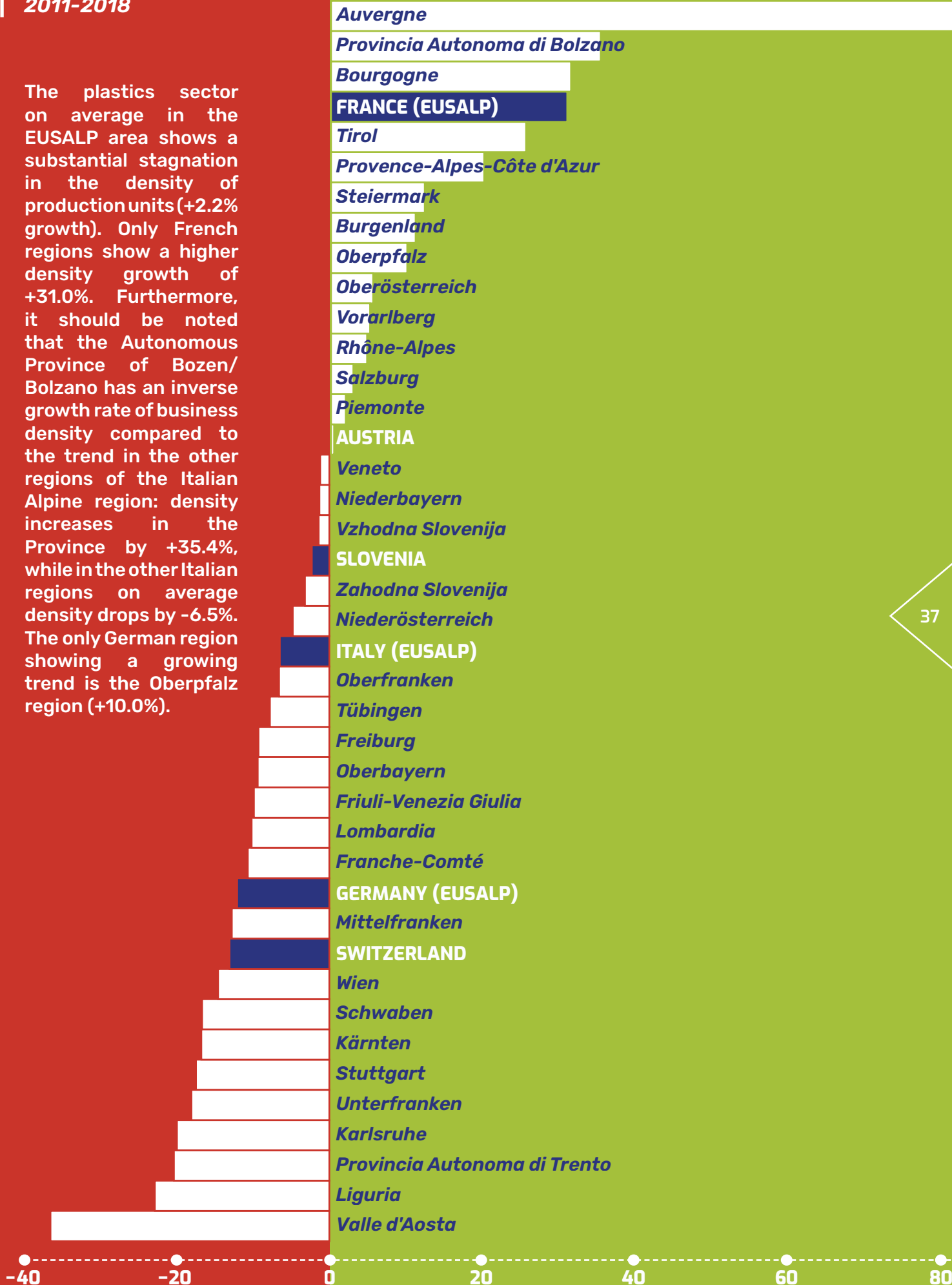
## REGIONAL BUSINESS DENSITY 2011 - 2015 - 2018

2011 2015 2018

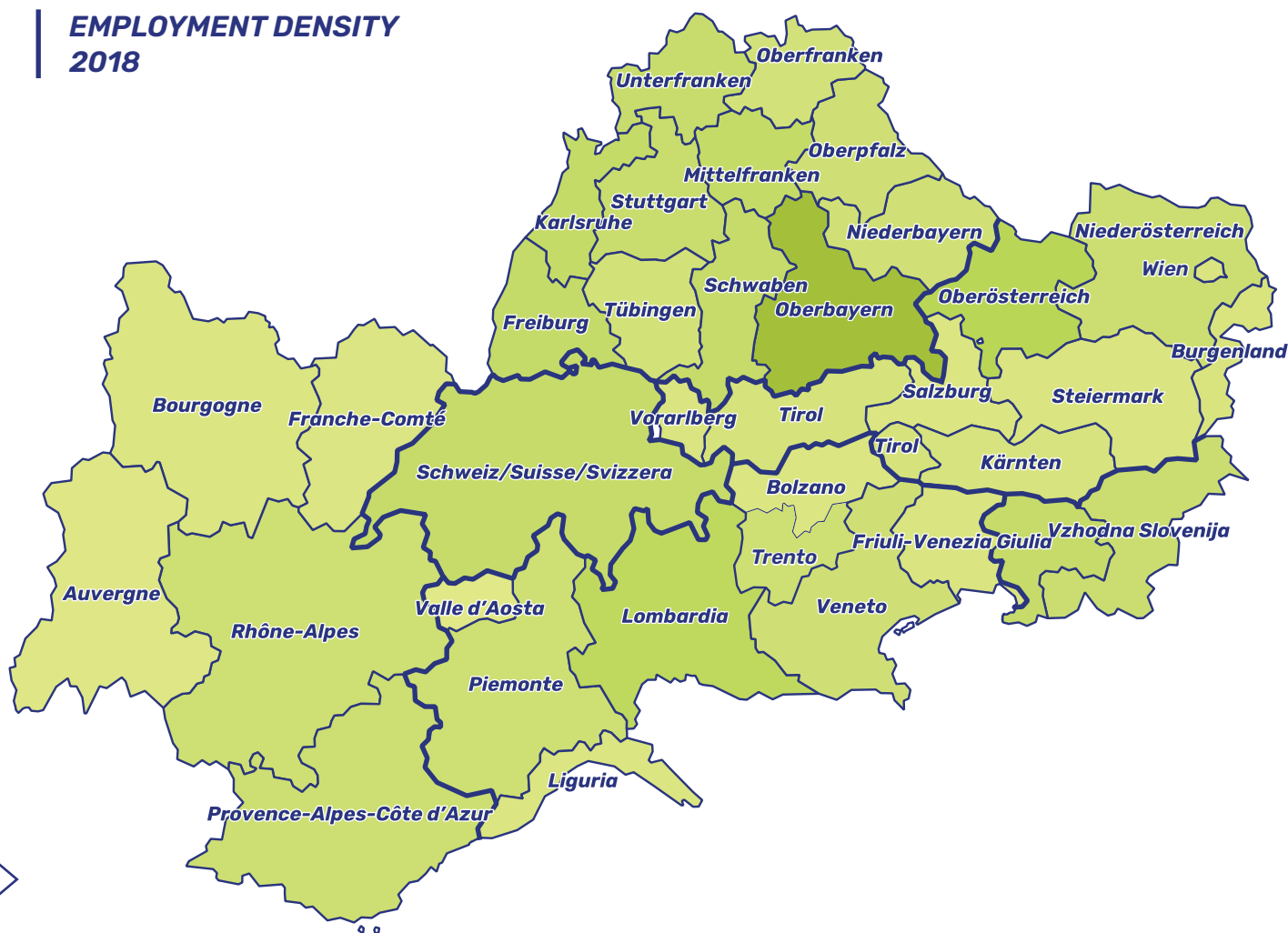


**CHANGE  
2011-2018**

The plastics sector on average in the EUSALP area shows a substantial stagnation in the density of production units (+2.2% growth). Only French regions show a higher density growth of +31.0%. Furthermore, it should be noted that the Autonomous Province of Bozen/Bolzano has an inverse growth rate of business density compared to the trend in the other regions of the Italian Alpine region: density increases in the Province by +35.4%, while in the other Italian regions on average density drops by -6.5%. The only German region showing a growing trend is the Oberpfalz region (+10.0%).



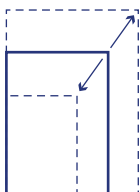
## EMPLOYMENT DENSITY 2018



38

## CHEMISTRY

### How to read these data visualizations



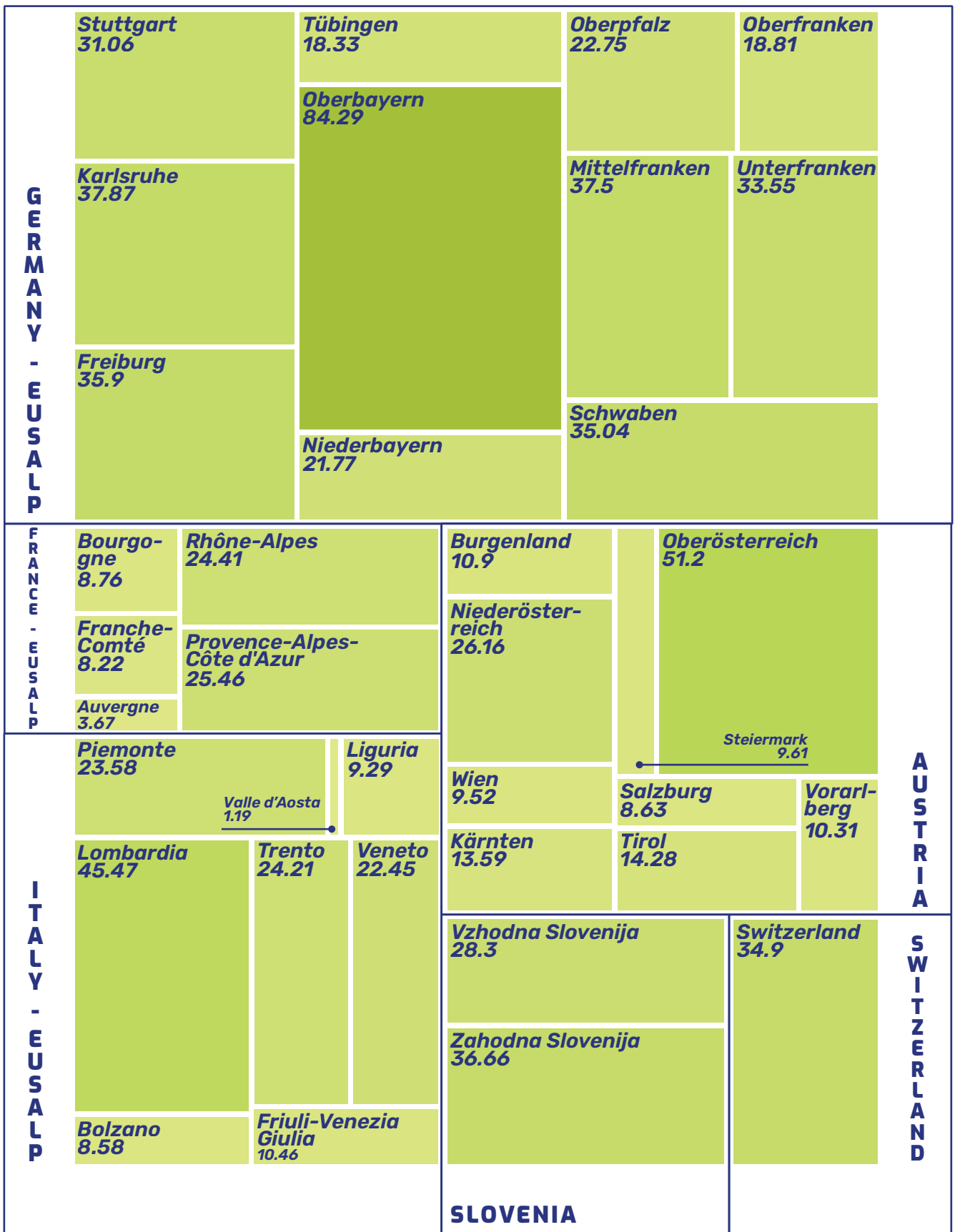
The **size** of each square depends on the size of the indicator: a larger square corresponds to a higher indicator value.

The **colour** of each square corresponds to the colour of each region in the map.

The **intensity of the colour** changes depending on the size of the indicator: a darker colour corresponds to a higher value of the indicator.

The data shown in the representation of the second indicator applied to the chemical production sector, show in 2018 higher values in the regions Oberbayern (84.3 units), Oberösterreich (51.2 units) and Lombardia (45.5 units). In 2018 in the Alpine region as a whole, more than 30 workers per 10,000 inhabitants are employed in the production activities of the analysed sector. The employment density of the chemical sector is above the average for the entire EUSALP area for most German, Swiss and Slovenian regions. Among the Italian regions, only Lombardy has a high level of employment concentration, while the other regions have much lower values than the average for the Alpine area. Moreover, no French region is above the average level of employment concentration. There is therefore a manufacturing vocation in the chemical sector of companies located in the Alpine regions of Germany, Switzerland and Slovenia, in addition to the region of Lombardy and Oberösterreich. There is also a strong lack of productive specialisation in the regions of the north-western Alpine belt including Valle d'Aosta, Auvergne, Bourgogne and Franche-Comté.

**EMPLOYMENT  
DENSITY  
2018**

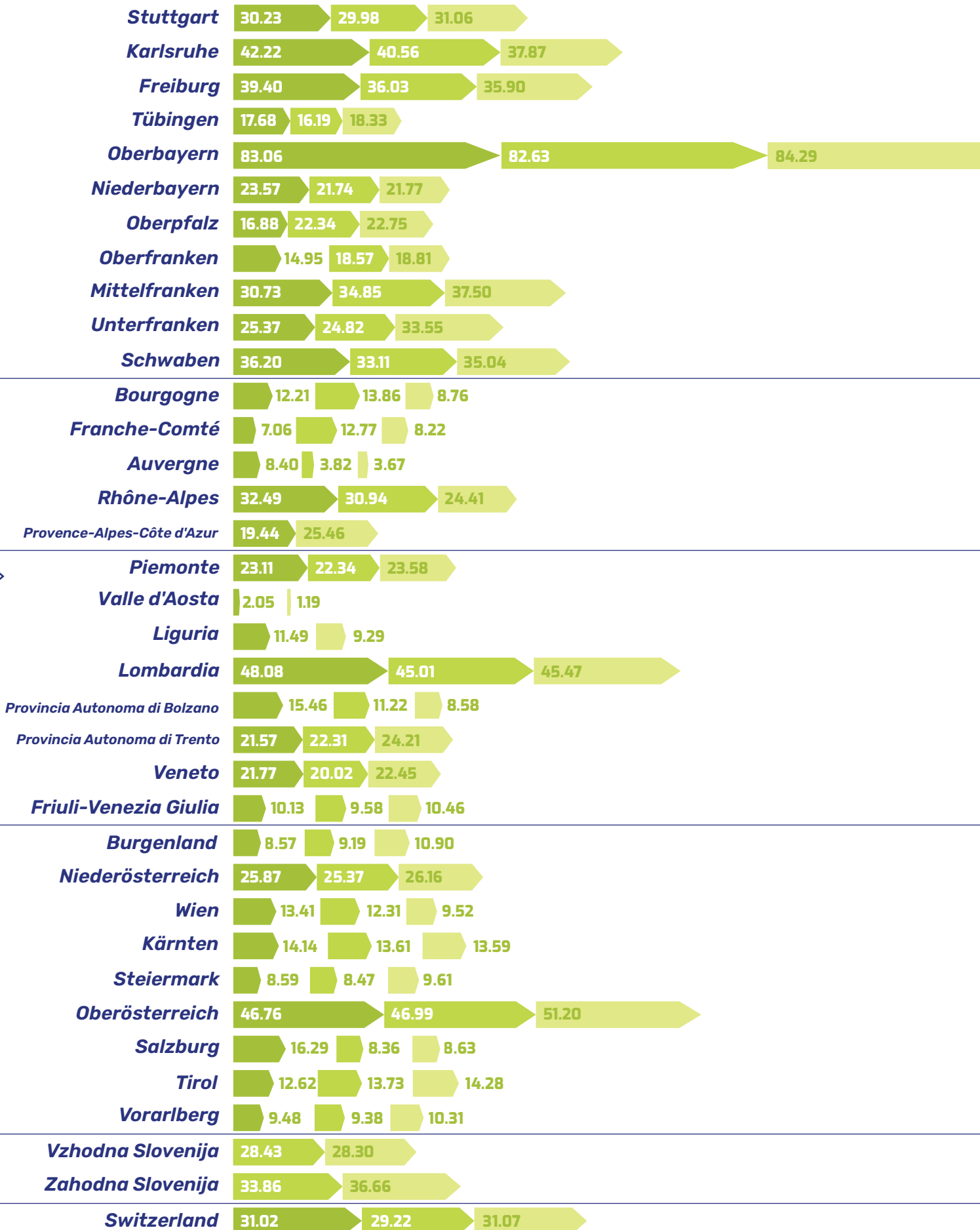


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As a matter of graphical representation, some sizes exceed the page border.  
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## REGIONAL EMPLOYMENT DENSITY 2011 - 2015 - 2018

2011 2015 2018



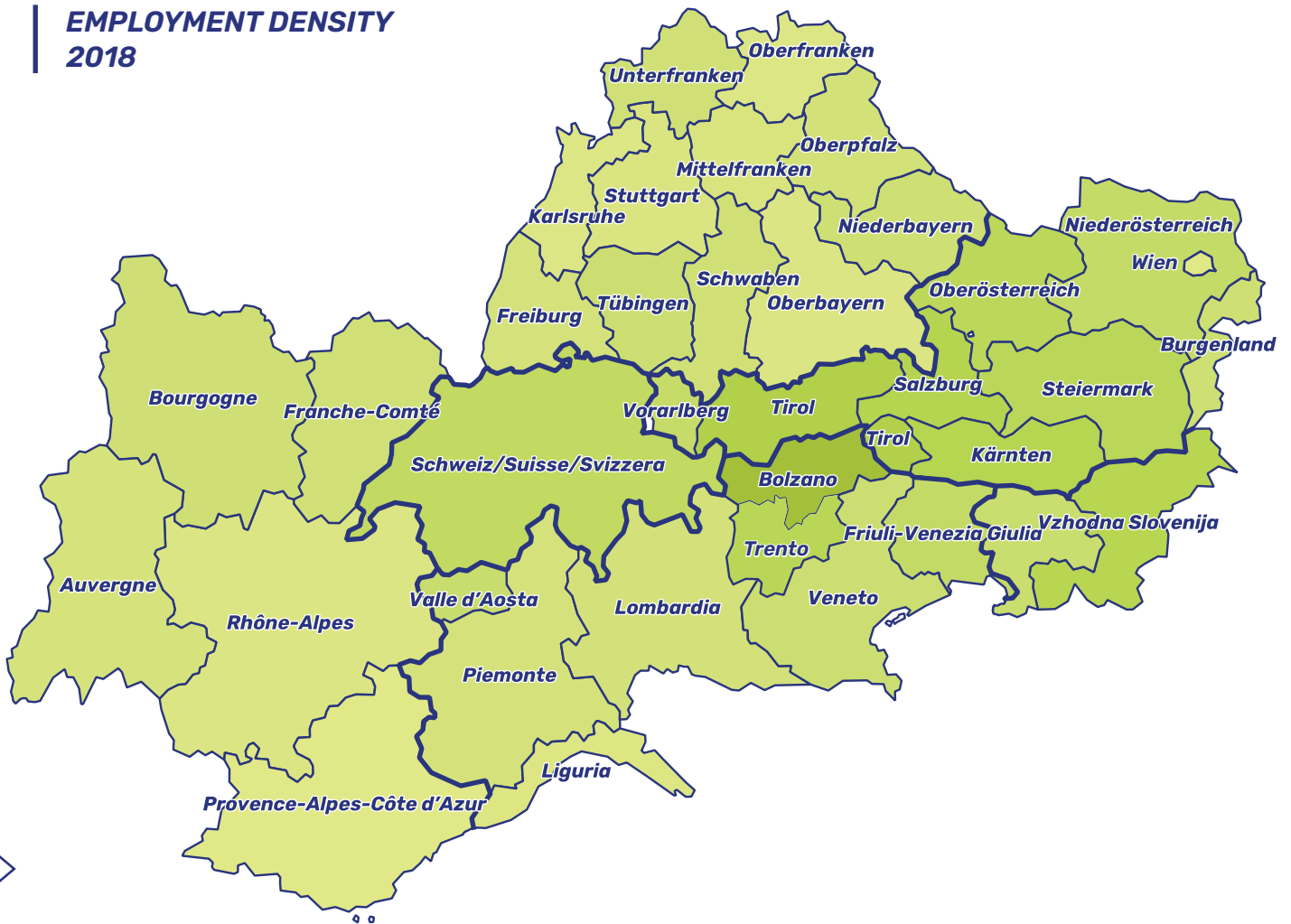


**CHANGE**  
**2011-2018**

The regions with a strong production specialisation, Oberbayern and Oberösterreich, tend to consolidate their structural characteristic: between 2011 and 2018, the density of employment in the sector increased by +1.5% and +9.5% respectively. Lombardy, on the other hand, lost percentage points in terms of employment density over the same period (-5.4%). In general, the density of chemical employment in the EUSALP area remains stable; it increases by more than 30% in the German regions of Oberpfalz and Unterfranken and in the Provence-Alpes-Côte d'Azur region.



## EMPLOYMENT DENSITY 2018

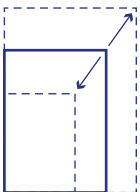


42

## WOOD



### How to read these data visualizations



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The **intensity** of the colour changes depending on the size of the indicator: a darker colour corresponds to a higher value of the indicator.

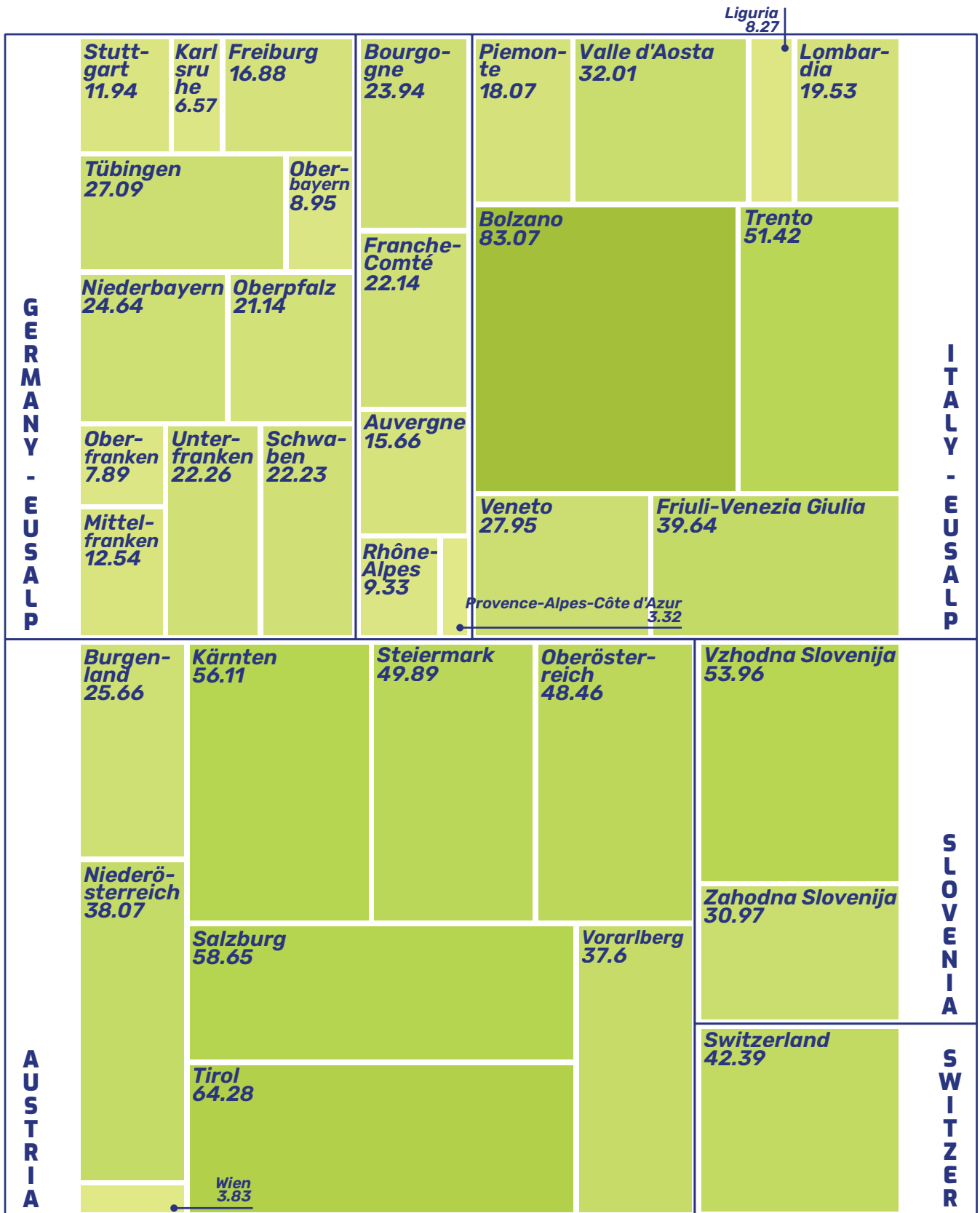
The wood sector shows an anomalous distribution of employment density compared to other sectors. From the map it is clear that production in the sector is specialised in the south-eastern part of the Alpine region, i.e. in the Italian, Austrian and Slovenian regions.

In the autonomous province of Bolzano, more than 80 employees per 10,000 inhabitants are involved in wood manufacturing, followed by the Austrian regions of Tirol, Salzburg and Kärnten, Vzhodna Slovenija and the autonomous province of Trento. All regions have an employment density of more than 50 per 10,000 inhabitants.

On average in the EUSALP area about 23 employees for every 10,000 inhabitants are employed in the wood sector, with below-average values in French regions (especially Provence), German regions (especially Oberfranken and Karlsruhe) and the Vienna city region. This confirms what was observed earlier when applying the indicator to the chemical sector and what we will observe later: regions that have a relatively low density of employees in the wood sector have a more evident

**EMPLOYMENT  
DENSITY  
2018**

productive specialisation in the other three sectors studied, which we could define as strictly manufacturing (or, in the case of Vienna, in non-manufacturing sectors such as tourism industry).

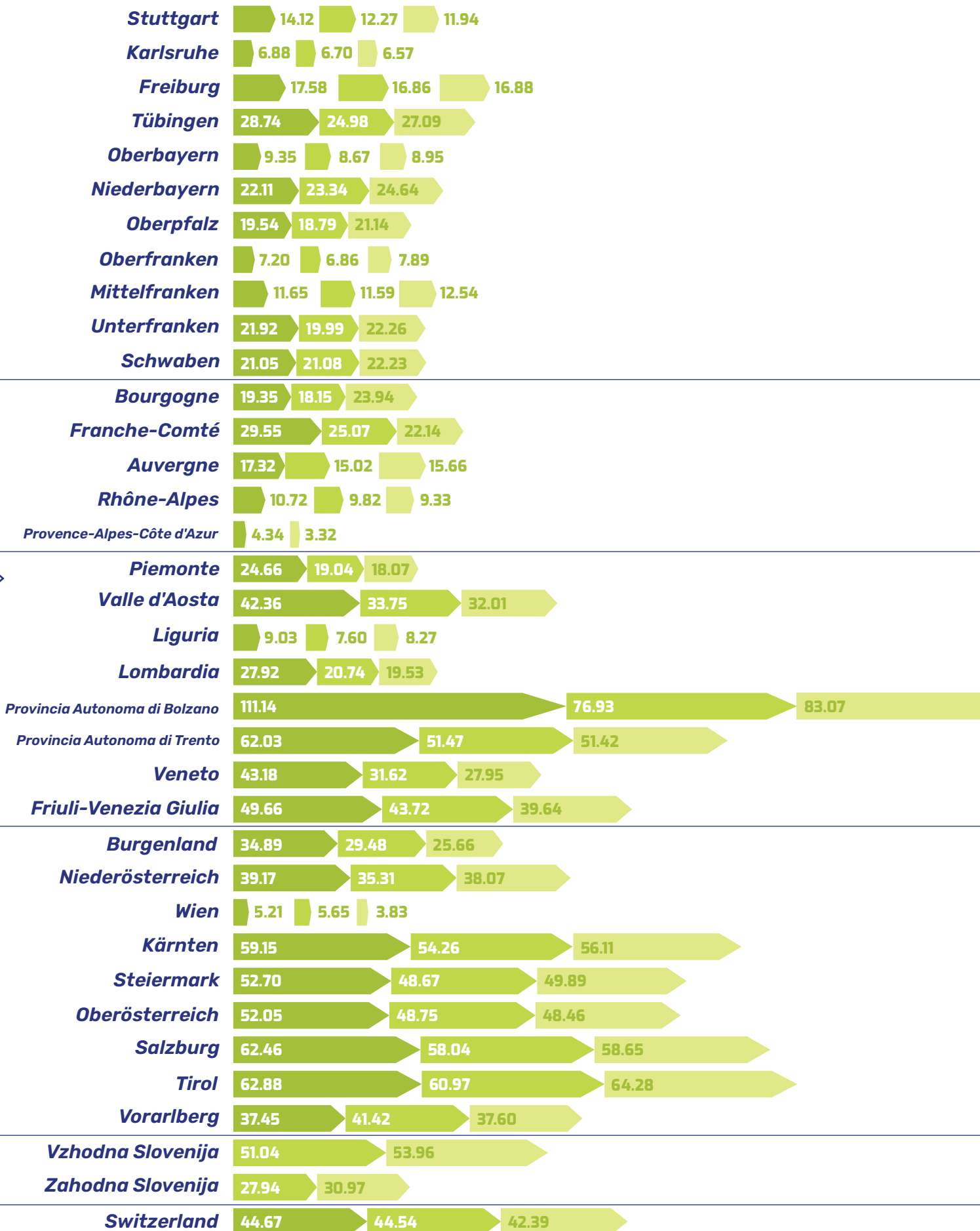


43

As a matter of graphical representation, some sizes exceed the page border.  
In this case, please refer to the value of the indicator written inside.

## REGIONAL EMPLOYMENT DENSITY 2011 - 2015 - 2018

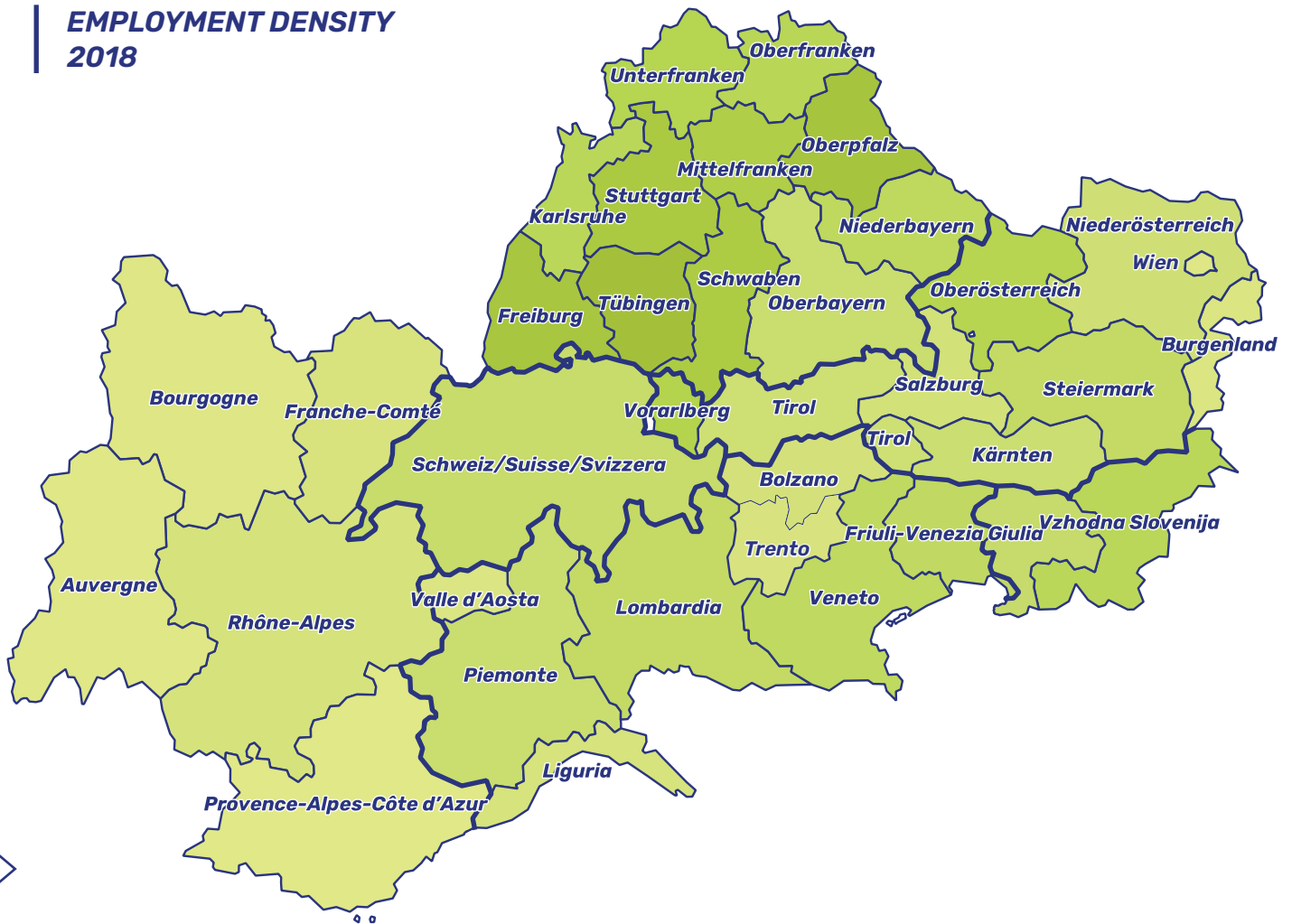
2011 2015 2018



**CHANGE**  
**2011-2018**

The most important fact that we can observe from the graphical representation of the change in the indicator over the period 2011-2018 is the actual decrease in employment density in most regions. The decrease is more intense in the Italian (especially in Veneto and Lombardy, with values above -30%), Austrian and French regions. On average in the EUSALP area, employment density in the sector falls by around 10%. The only regions bucking the trend are Bourgogne (+23.7%), Niederbayern (+11.5%) and Zahodna Slovenija (+10.8%).





## MECHANICS AND MECHATRO- NICS



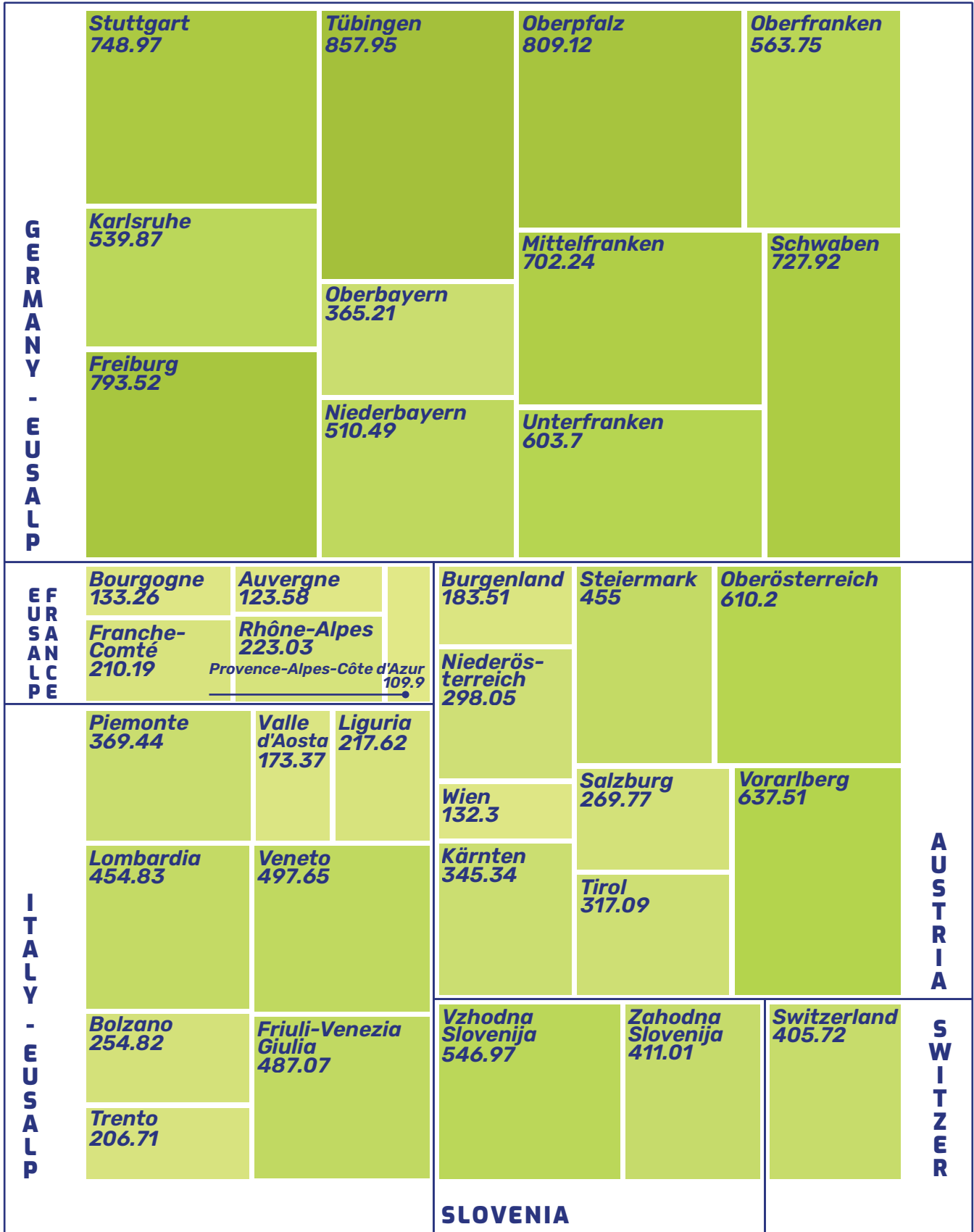
The data shown in the map highlight the highest value of the mechanical-mechatronics sector: in 2018, up from previous years, in the Alpine region as a whole more than 400 people per 10,000 inhabitants work in local units in this sector. The German regions also rank in the top six for production specialisation in the sector in relation to the other EUSALP regions, with values ranging from 700 to 800 employees per 10,000 inhabitants. This is followed by the adjacent Austrian regions of Vorarlberg and Oberösterreich. Slovenia, Italy and Switzerland have an employment density in the sector in line with the EUSALP average, i.e. around 400 employees per 10,000 inhabitants. Although two Austrian regions have a very high employment density in the sector, on average the other regions have values below the Alpine average. The French regions also show figures that are far from the trend for the whole belt: among the French regions, the Rhône-Alpes region has the highest density (223.0 jobs per 10,000 inhabitants). There is thus a high level of specialisation in the mechanics and mechatronics sector in the regions north of the Alps

### How to read these data visualizations

Please, look at the previous sector.

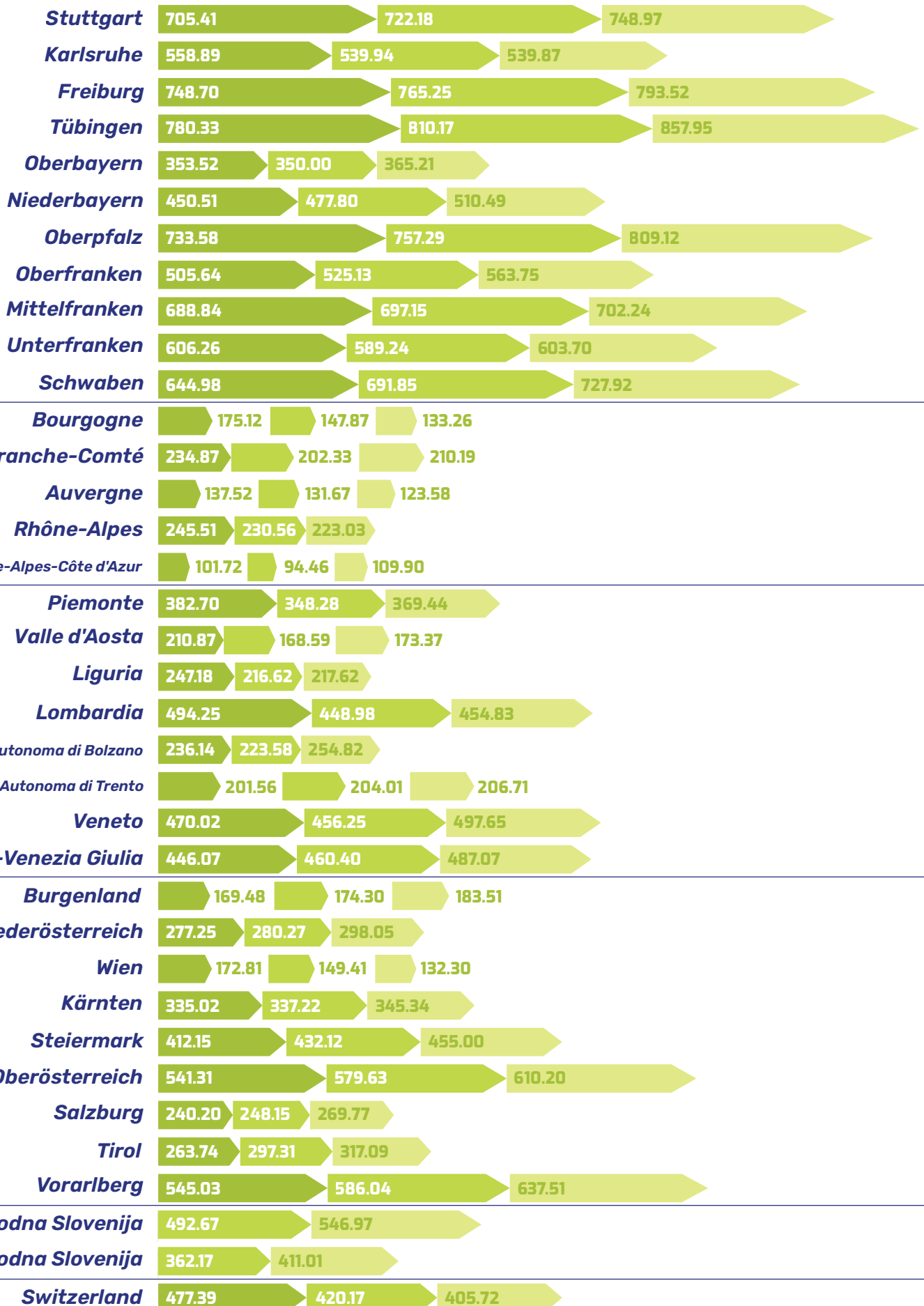
**EMPLOYMENT  
DENSITY  
2018**

(Austria and Germany), a medium level of specialisation in the south-east (Switzerland, Italy, Slovenia) and a lower level of specialisation in the west (France) or in regions with other manufacturing vocations (Wien, Valle d'Aosta, Burgenland).



**REGIONAL EMPLOYMENT DENSITY  
2011 - 2015 - 2018**

2011 2015 2018



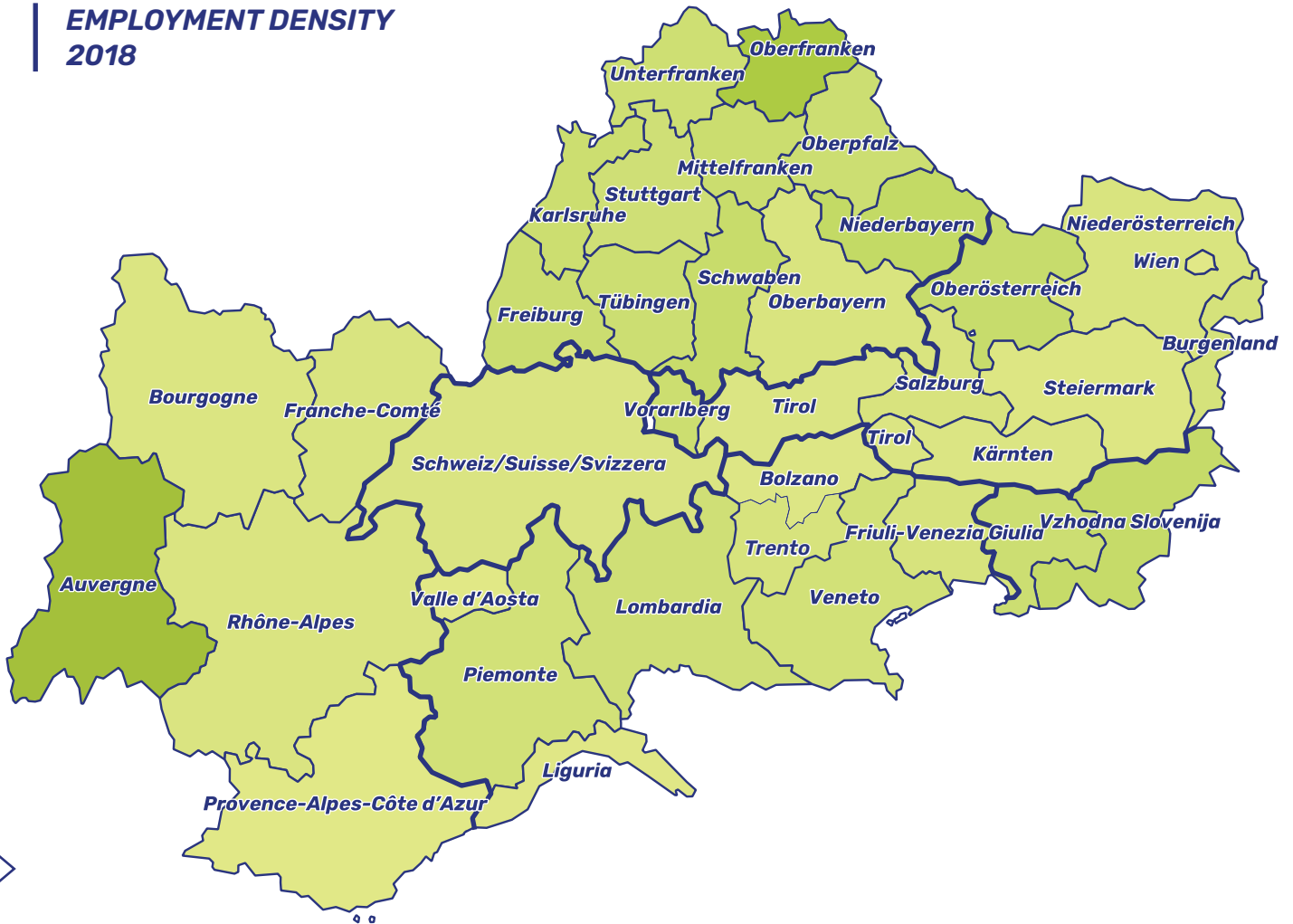


**CHANGE**  
**2011-2018**

The graph shows a substantial upward trend in employment density in the sector in most of the regions considered. The regions with the highest growth rates are Tirol and Vorarlberg with values around +20%. The remaining Austrian and German regions are followed by Zahodna Slovenija (+13.5%). The only regions with positive rates of change apart from Germany, Austria and Slovenia are Friuli Venezia Giulia (+9.2%), Provence-Alpes-Côte d'Azur (+8.0%), Provincia Autonoma di Bolzano (+7.9%), Veneto (+5.9%) and Trento (+2.6%). Switzerland shows a severe decline in employment density (-15.0%), as does Lombardy (-8.0%).



## EMPLOYMENT DENSITY 2018

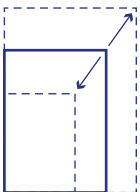


50

## PLASTIC



### How to read these data visualizations



The **size** of each square depends on the size of the indicator: a larger square corresponds to a higher indicator value.

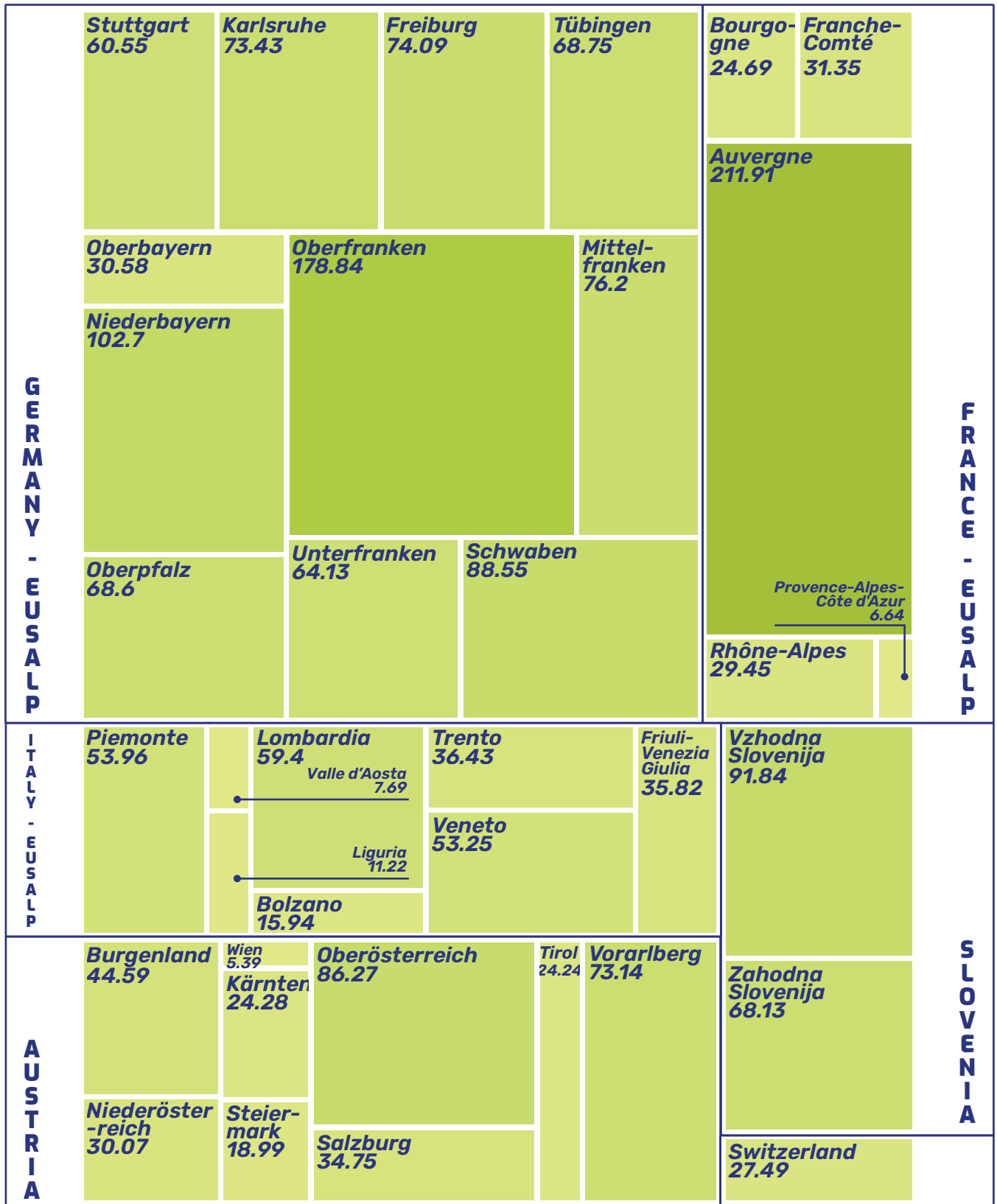
The **colour** of each square corresponds to the colour of each region in the map.

The **intensity** of the colour changes depending on the size of the indicator: a darker colour corresponds to a higher value of the indicator.

We can say that the plastics manufacturing industry in the Alpine context develops at the extreme limits of the EUSALP area as shown in the map. In the West, there is clearly a very strong production specialisation in the sector in the Auvergne region (also corresponding to the high density of local units), which employs more than 200 units per 10,000 inhabitants in plastic production companies. In the east, the two north-eastern German regions of Oberfranken (178.8 units) and Niederbayern (102.7 units) and the Vzhodna Slovenija region (91.8 units) follow.

On average, in the EUSALP area, around 50 employees per 10,000 inhabitants are involved in plastics manufacturing in 2018. The Italian regions show values in line with the average for the entire Alpine region (Lombardy is in the lead with about 60 employees per 10,000 inhabitants, followed by Piedmont and Veneto). Below average are the French, Austrian and Swiss regions (especially Provence and the Vienna City Region).

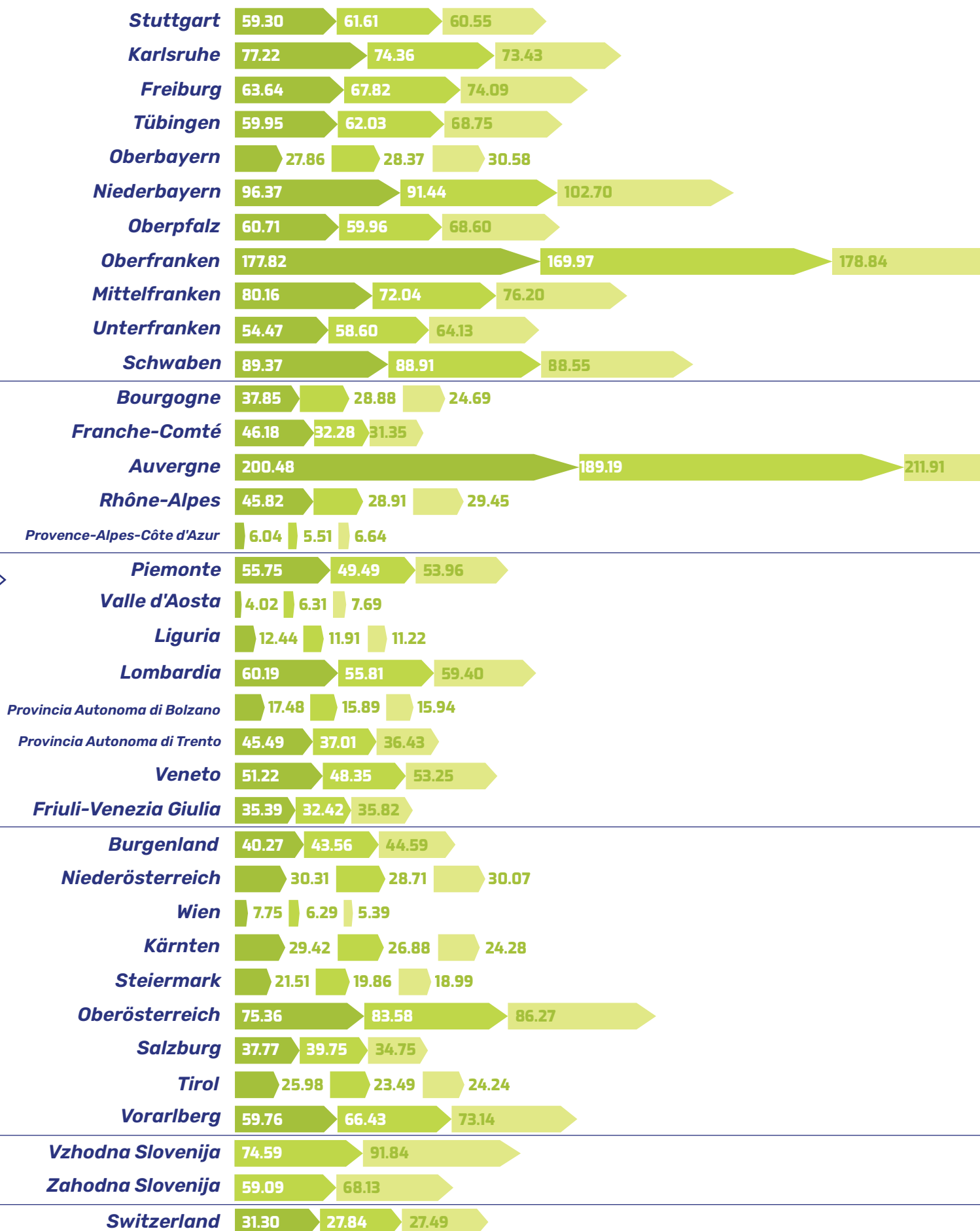
**EMPLOYMENT  
DENSITY  
2018**



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## REGIONAL EMPLOYMENT DENSITY 2011 - 2015 - 2018

2011 2015 2018



**CHANGE**  
**2011-2018**

The graph shows an almost parallel change in the sector's employment density: indeed, in the average of the EUSALP area, employment density remains almost unchanged (+1.4%) over the period 2011-2018. On the other hand, there is exponential growth in the Valle d'Aosta region (+91.0%), followed by Vzhodna Slovenija and Vorarlberg. The Swiss and French regions show a decrease in employment density of more than 10%.



# **SOCIO-ECONOMIC INDICATORS OF THE ALPINE SPACE**

# INDICATOR 3

*Numerator:* **number of employees**

*Denominator:* **number of local units**

*Units of measurement:* **employment units per local unit**

# INDICATOR 4

*Numerator:* **difference between the number of employees in year t and the number of employees year t-1**

*Denominator:* **number of employees in year t-1**

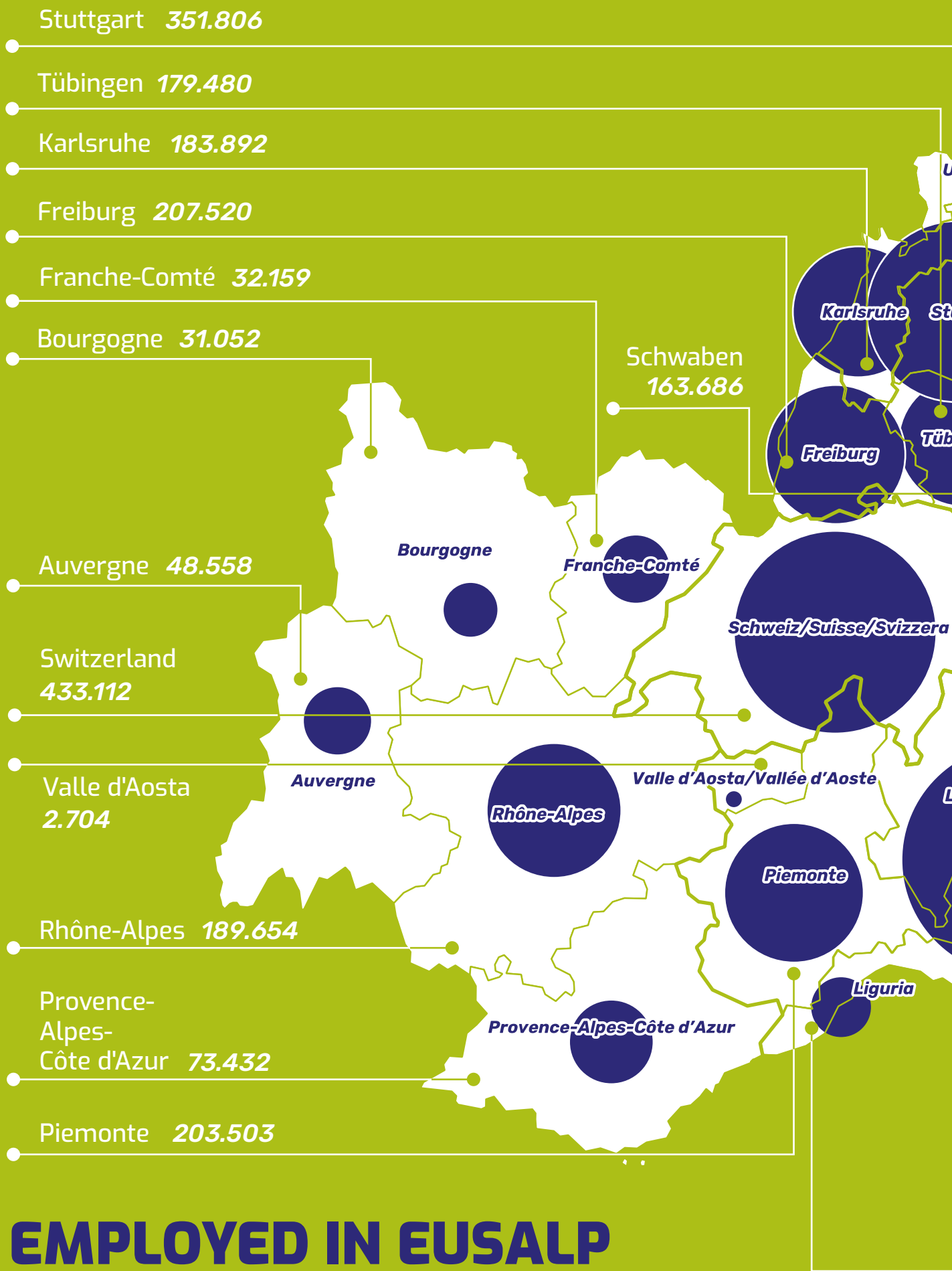
*Units of measurement:* **percentage**



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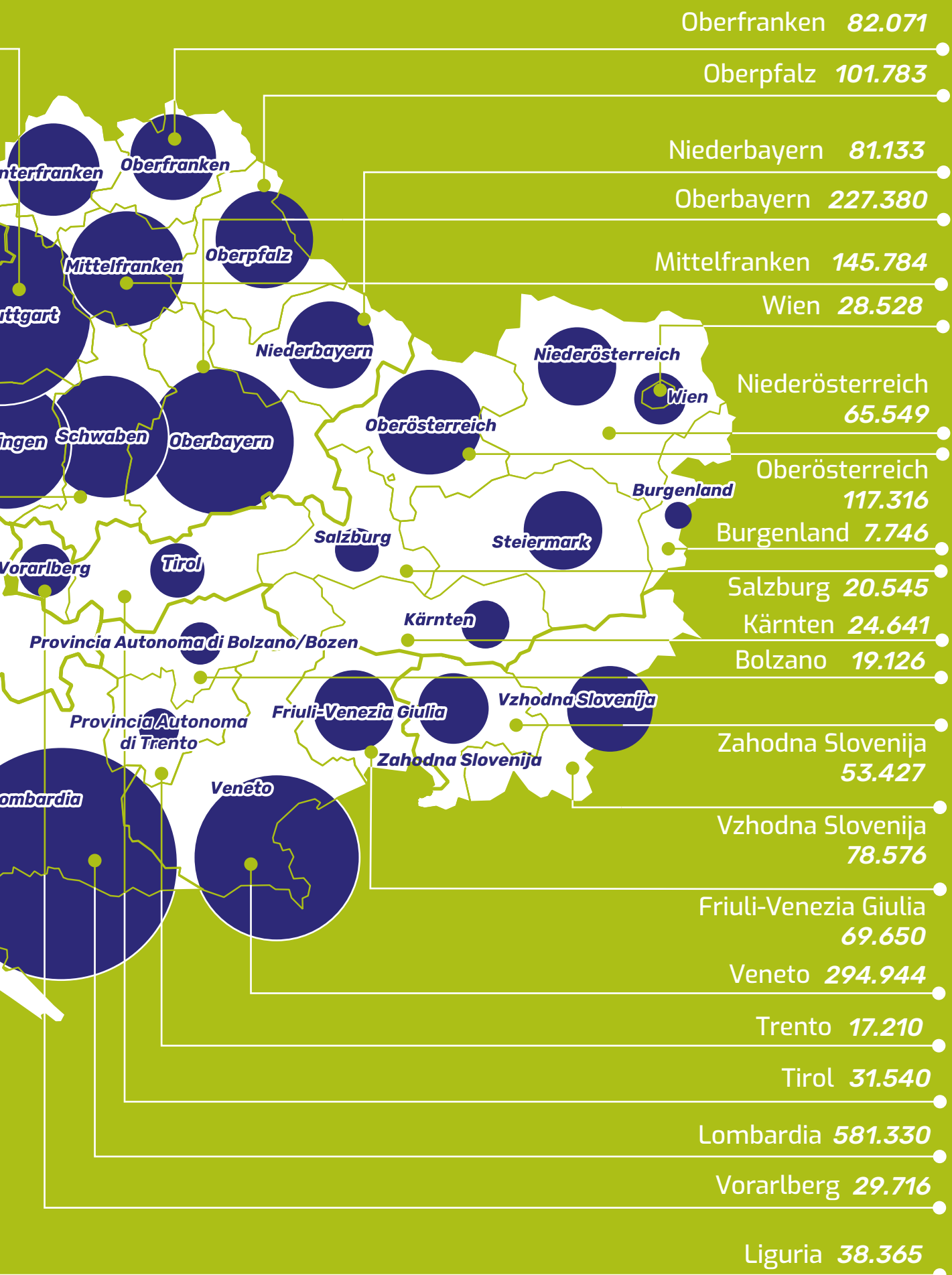
Indicator 3 is useful to understand the size of local units in the sectors under study and in the Alpine regions. Looking at the data presented below, a strong heterogeneity characterising the sectors as well as the regions is immediately apparent. This diversity can be explained by two elements: on the one hand, the peculiarity of production processes (for the chemical and plastic industry, for example) and, on the other hand, the intrinsic characteristics of the entrepreneurial fabric of each country. The change in company size can be attributed to a general reorganisation of the different sectors, due both to the closure of some companies and to their merger or division. The indicator is the result of the ratio between the number of employees and the number of local units for each sector in the different years.

Indicator 4 shows the rate of change of employment in the different sectors analysed. Again, the growth rates are very different between regions and, again, growth rates differ widely both between regions and between manufacturing sectors.

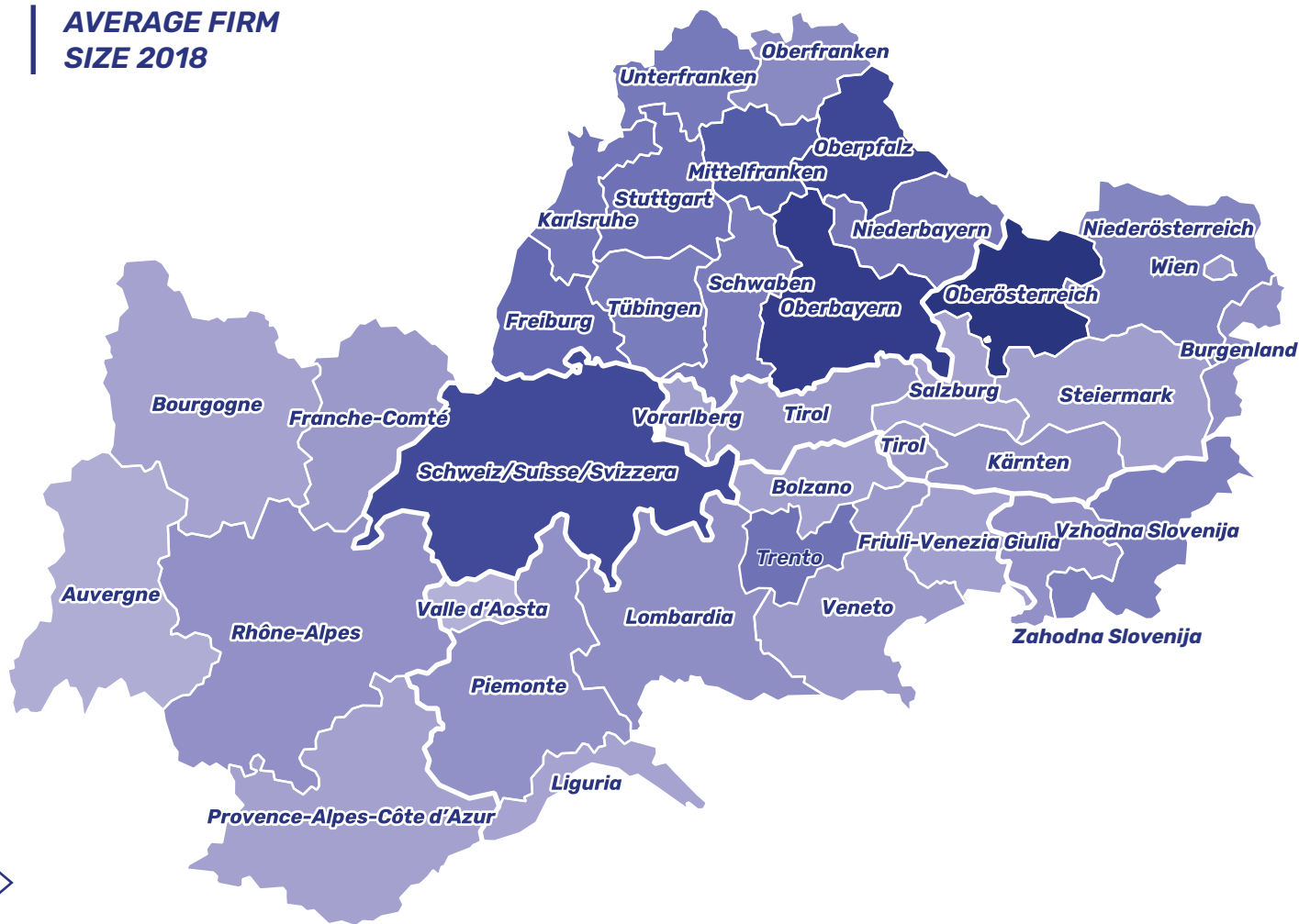


# EMPLOYED IN EUSALP MANUFACTURING<sup>☆</sup> 2018





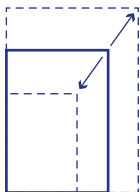
## AVERAGE FIRM SIZE 2018



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## CHEMISTRY

### How to read these data visualizations



The **size** of each square depends on the size of the indicator: a larger square corresponds to a higher indicator value.

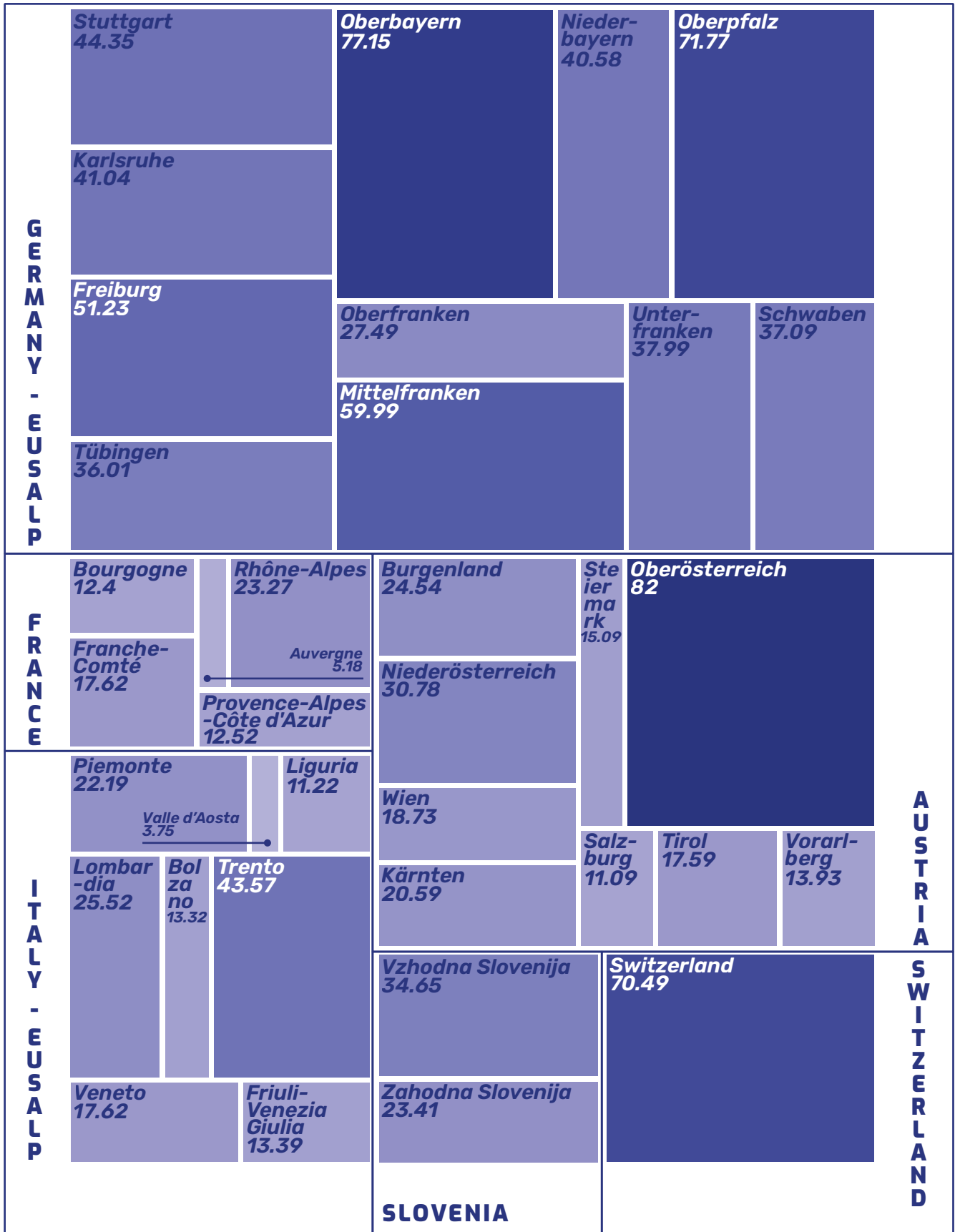
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Company size is a good indicator, not the only one, to observe the structure of the production fabric of a territory. In 2018, companies in the chemicals sector in the Oberösterreich, Oberbayern, Oberpfalz, Mittelfranken and Freiburg regions are medium-sized. In general, Swiss and German chemical companies are medium-sized, employing more than 70 people per local unit in the case of Switzerland and more than 50 people in the case of Germany. As for the companies located in the other regions, these are on average small (between 10 and 49 employees). The only exceptions are the regions of Valle d'Aosta and Auvergne with micro enterprises in the chemical sector, i.e. with fewer than 10 employees per local unit (3.8 and 5.2 employees per unit respectively). On average, in the chemical sector, companies in the EUSALP area employ about 30 people per local production unit: slightly below the average in the Austrian and Slovenian regions (30.3 and 27.6 employees per unit, respectively), while Italian and French companies show a greater detachment from the area's trend. In Italy, the average size of companies in the sector is just over 20 employees

**AVERAGE FIRM SIZE 2018**

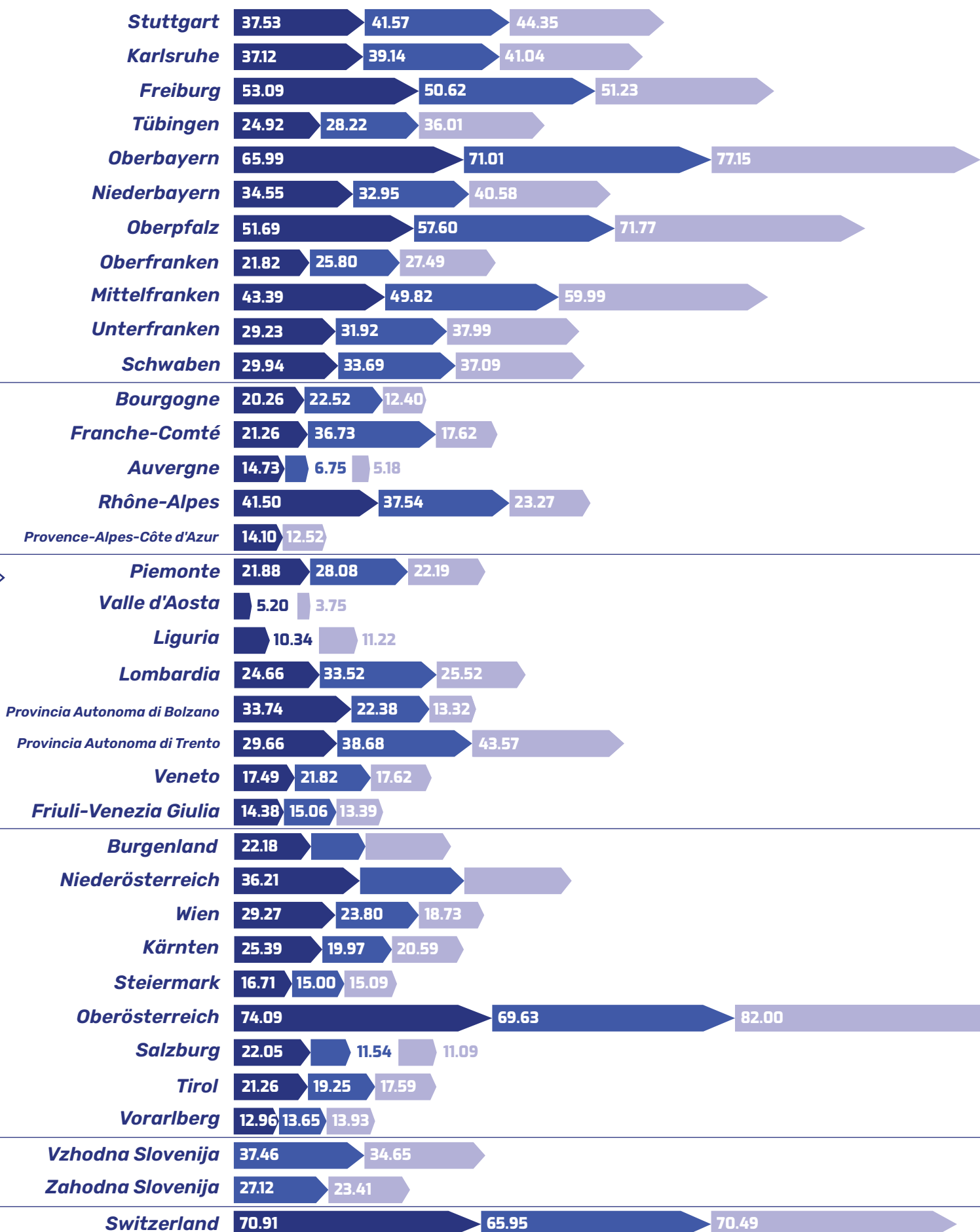
per local unit (only the Province of Trento and Lombardy are above the country's average); in France, the average size is 16 employees per unit (only Rhône-Alpes and Franche-Comté are above the country's average).



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## REGIONAL AVERAGE FIRM SIZE 2011 - 2015 - 2018

2011 2015 2018

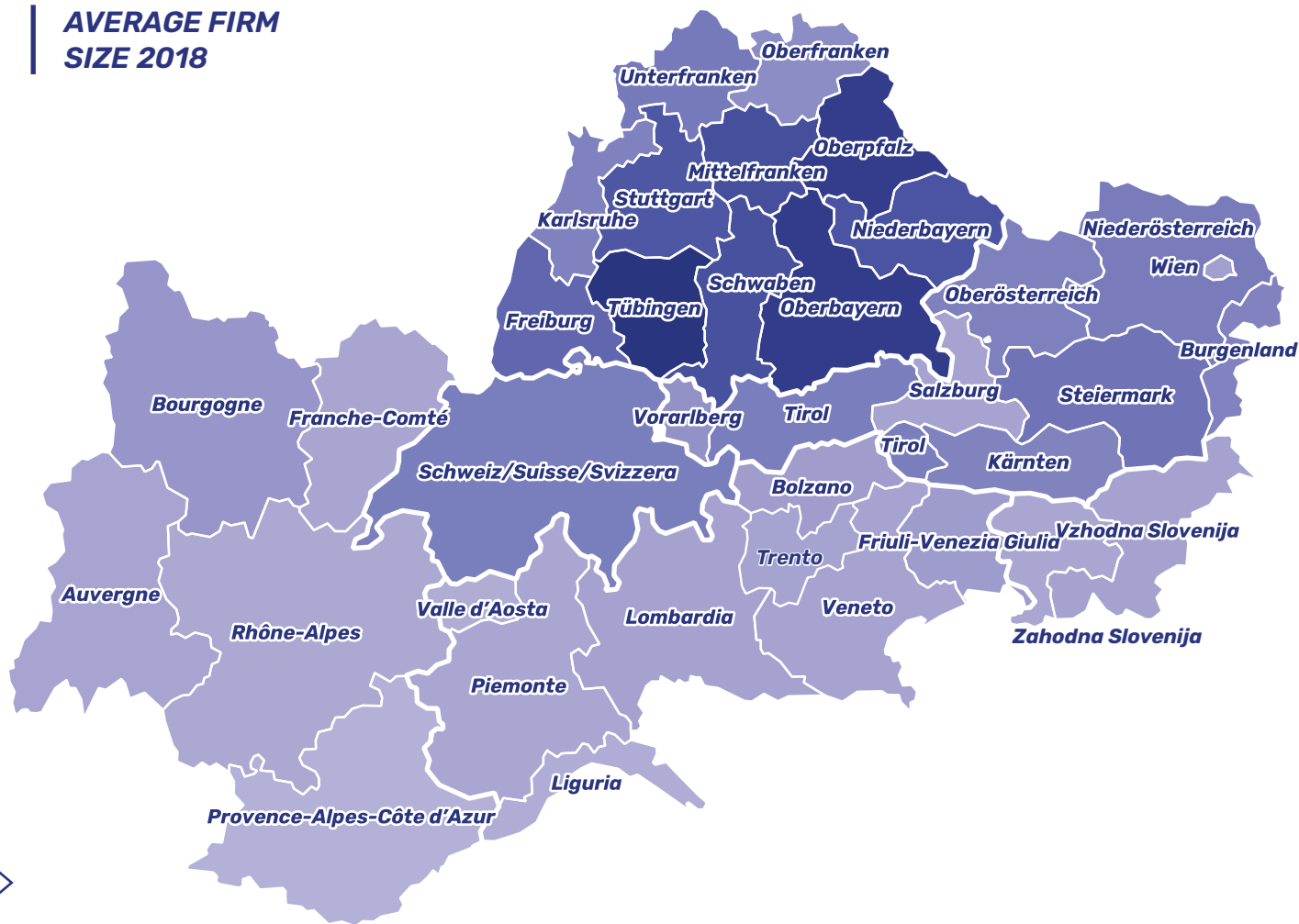


**CHANGE**  
**2011-2018**

The graph shows a prevailing downward trend in the size of enterprises in the chemical sector. Over the period 2011-2018, 18 regions saw the number of employees per local unit decrease with an average of -24.8%; the other regions saw the size of companies in the sector increase by an average of +19.7%. On average, in the EUSALP area, the company size decreases by -3.6%; the regions that see a large increase in the number of employees per unit are the Province of Trento, Tübingen and Oberpfalz (around +40%), on the contrary a clear decrease is seen in the Auvergne regions and the Province of Bolzano (around -60%).



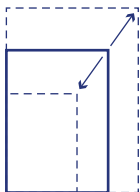
## AVERAGE FIRM SIZE 2018



## WOOD



### How to read these data visualizations

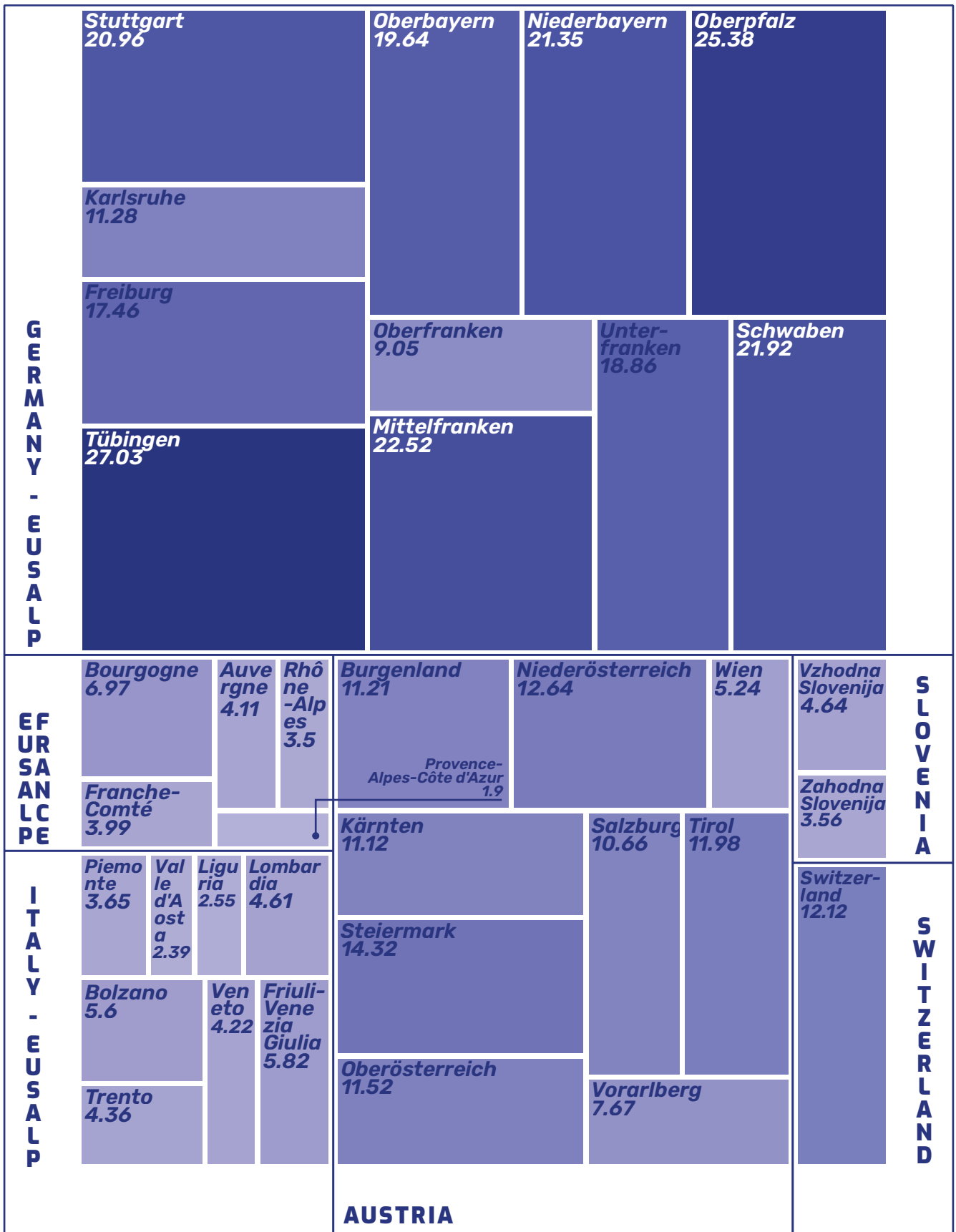


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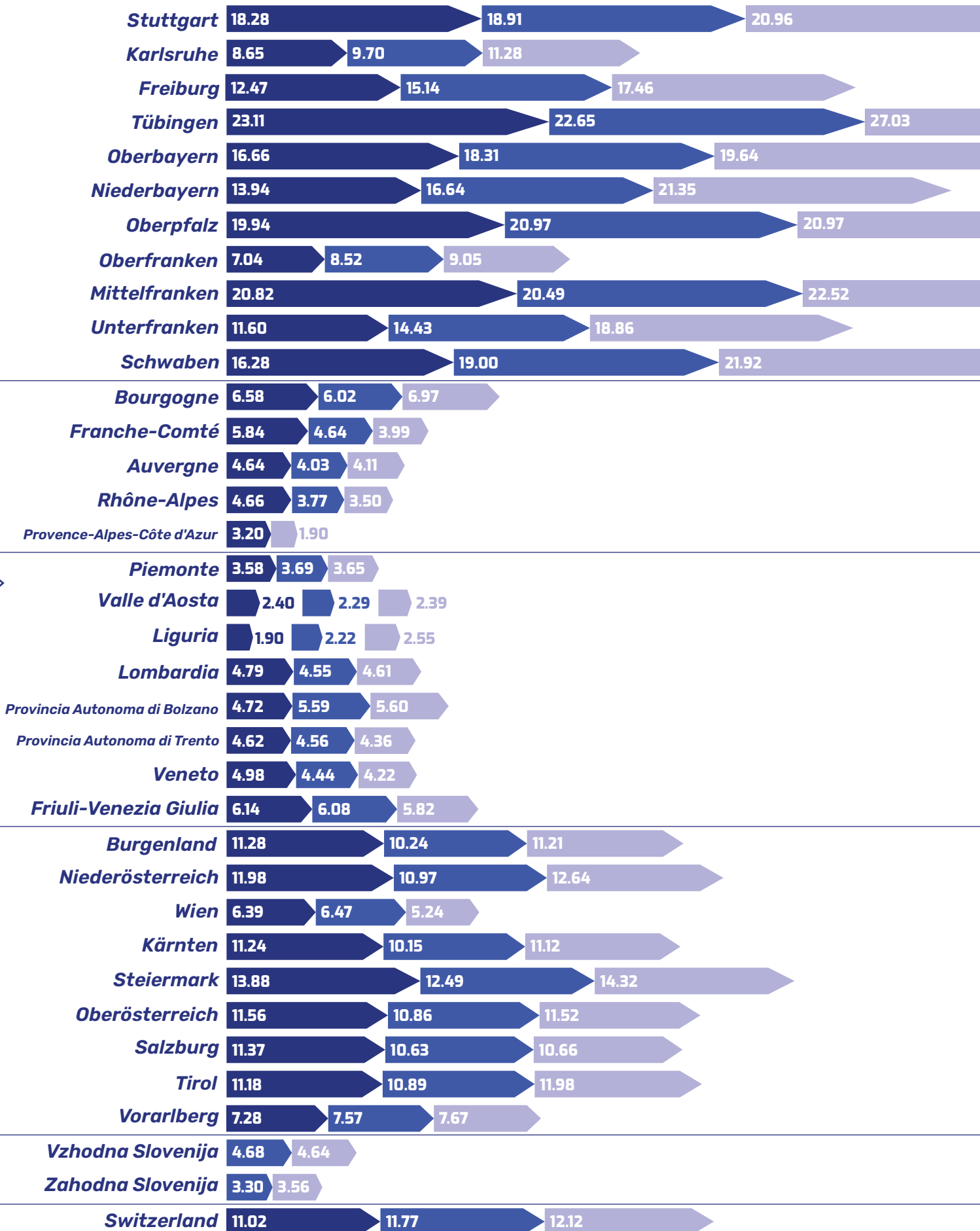
Compared to the other sectors considered, enterprises in the wood sector are small in size: in fact, in 2018, on average EUSALP, enterprises employed around 7 people per local unit. For most regions, micro-enterprises with less than 10 employees operate in the sector: below the EUSALP average, the Italian regions (on average 4.3 employees per unit), the Slovenian regions (on average 4.2 employees per unit) and the French regions (on average 3.8 employees per unit) are positioned. Only the Austrian, Swiss and German regions have, on average, small enterprises (with more than 10 employees per unit): woodworking enterprises in the Tübingen region are the largest on average (27.0 employees per unit), along with those in the Oberpfalz region (25.4 employees per unit). With the exception of the units in Friuli Venezia Giulia and the Province of Bolzano, all Italian regions are populated by wood industry enterprises with less than 5 employees. Enterprises in France and Slovenia have an average of less than 4 employees per unit: in the Provence-Alpes-Côte d'Azur region, enterprises are predominantly one-man businesses (1.9 employees per



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## REGIONAL AVERAGE FIRM SIZE 2011 - 2015 - 2018

2011 2015 2018



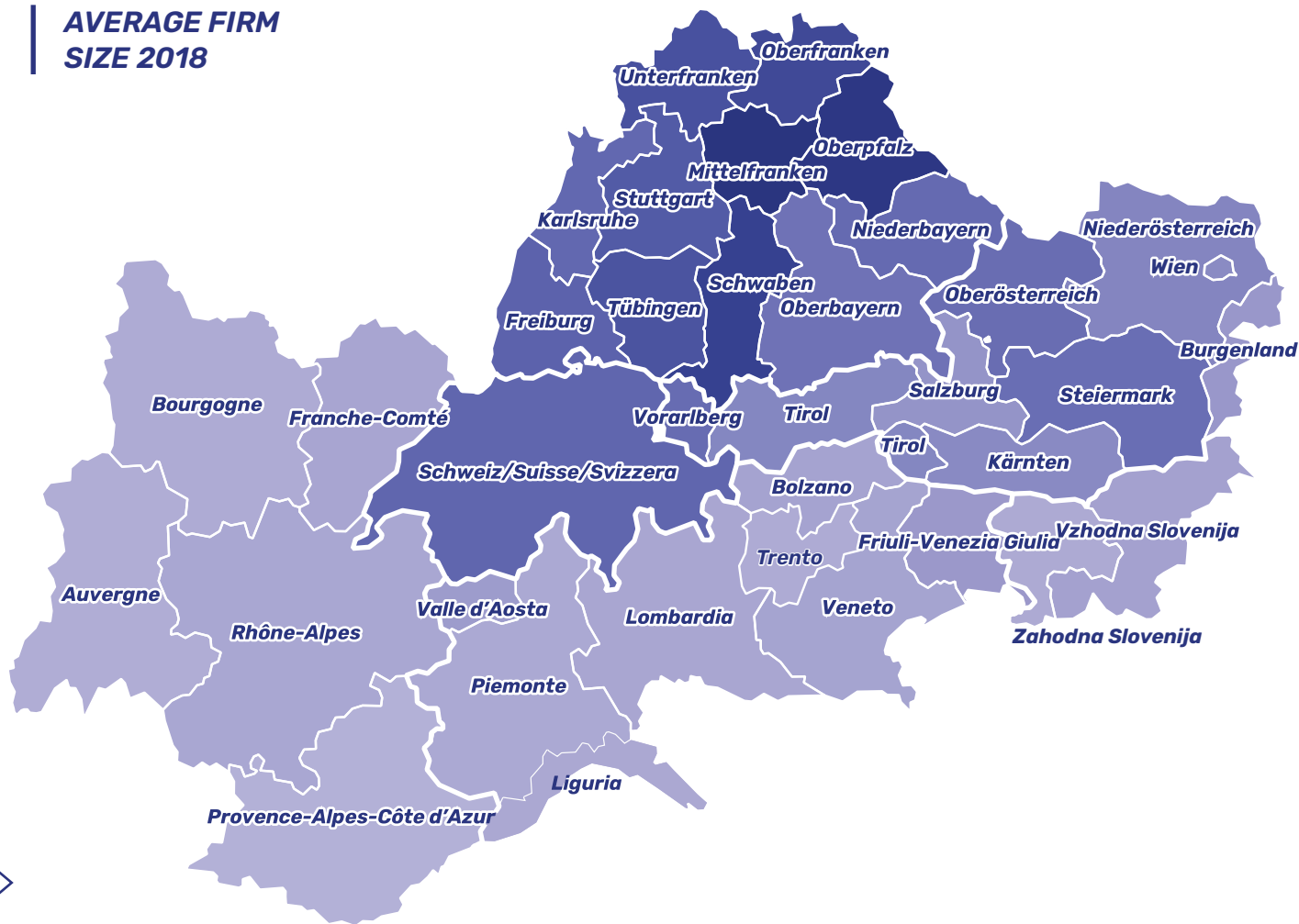


**CHANGE**  
**2011-2018**

Most regions see an increase in the average size of woodworking companies between 2011 and 2018, with an average of +21.2%. Some German regions and Liguria are leading the way with a variation of more than +30%. In the average of the EUSALP area, however, the size of companies in the sector remains almost unchanged, with a slight increase of +1.3%. Enterprise size decreases for 15 regions with an average of -11.0%. The French regions are at the bottom of the list, with reductions of more than 20%: the Provence-Alpes-Côte d'Azur region lost 40.5% of employees per local unit over the same period.



## AVERAGE FIRM SIZE 2018



## MECHANICS AND MECHATRONICS

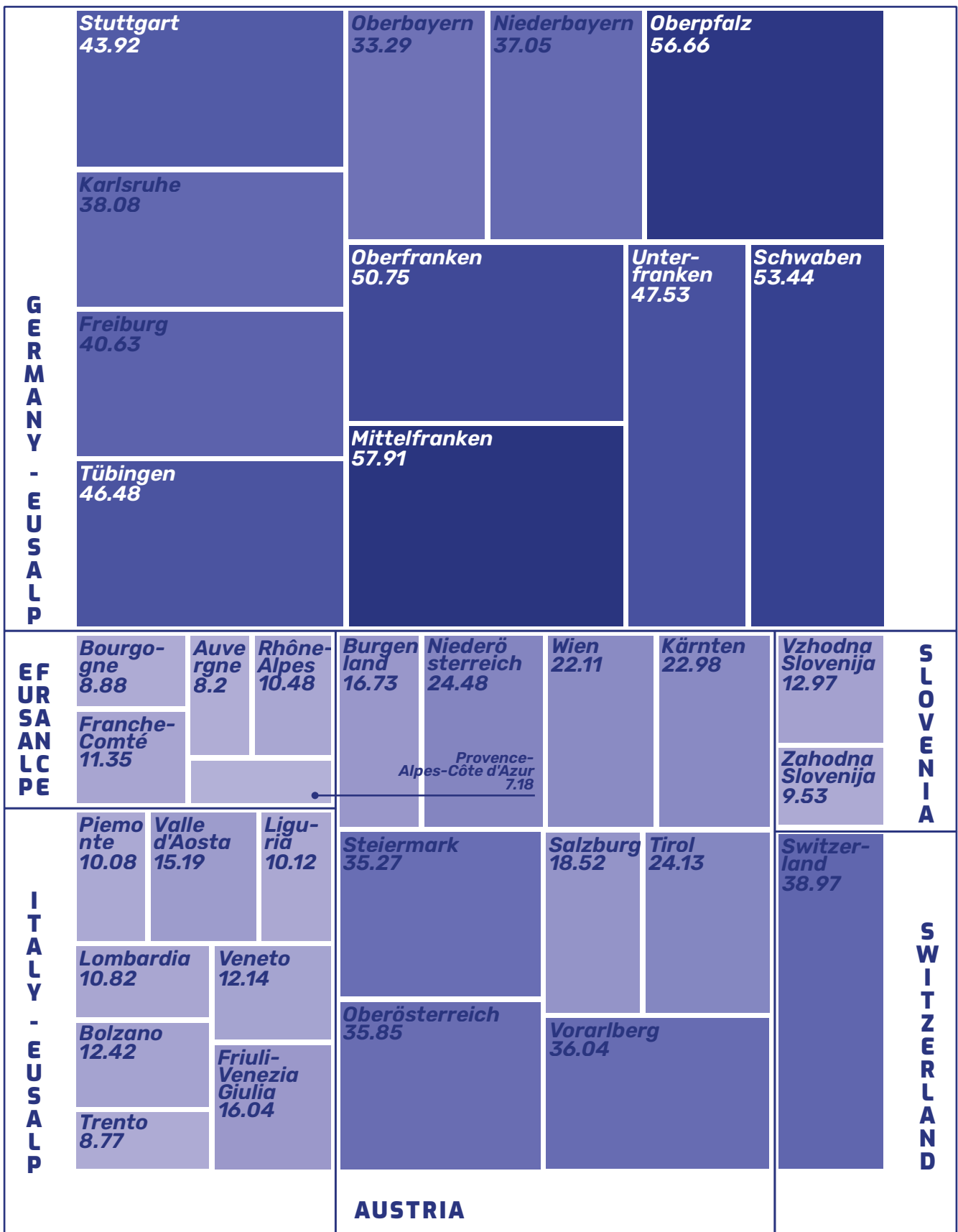


In 2018, in the EUSALP area, mechatronic mechanical manufacturing enterprises are predominantly small: in fact, on average these employ around 20 people per local unit. Only German SMEs in the Mittelfranken (57.9 employees per unit), Oberpfalz (56.7 employees per unit), Schwaben (53.4 employees per unit) and Oberfranken (50.8 employees per unit) regions can be considered medium-sized. Local units in the German, Swiss and Austrian regions employ on average more people in the same local unit than in the other countries of the EUSALP area. There are also micro-enterprises in the mechanics sector, with an average of fewer than 10 employees per local unit, in some regions of France (Provence-Alpes-Côte d'Azur, Auvergne and Bourgogne), Italy (Autonomous Province of Trento) and Slovenia (Zahodna Slovenija). As the map clearly shows, the picture is one of a highly fragmented industrial economic fabric in the southern regions of the Alpine belt and a more compact one in the northern regions. This reflects the manufacturing organisation of the countries, even outside the EUSALP regions.

### How to read these data visualizations

Please, look at the previous sector.

**AVERAGE FIRM  
SIZE 2018**

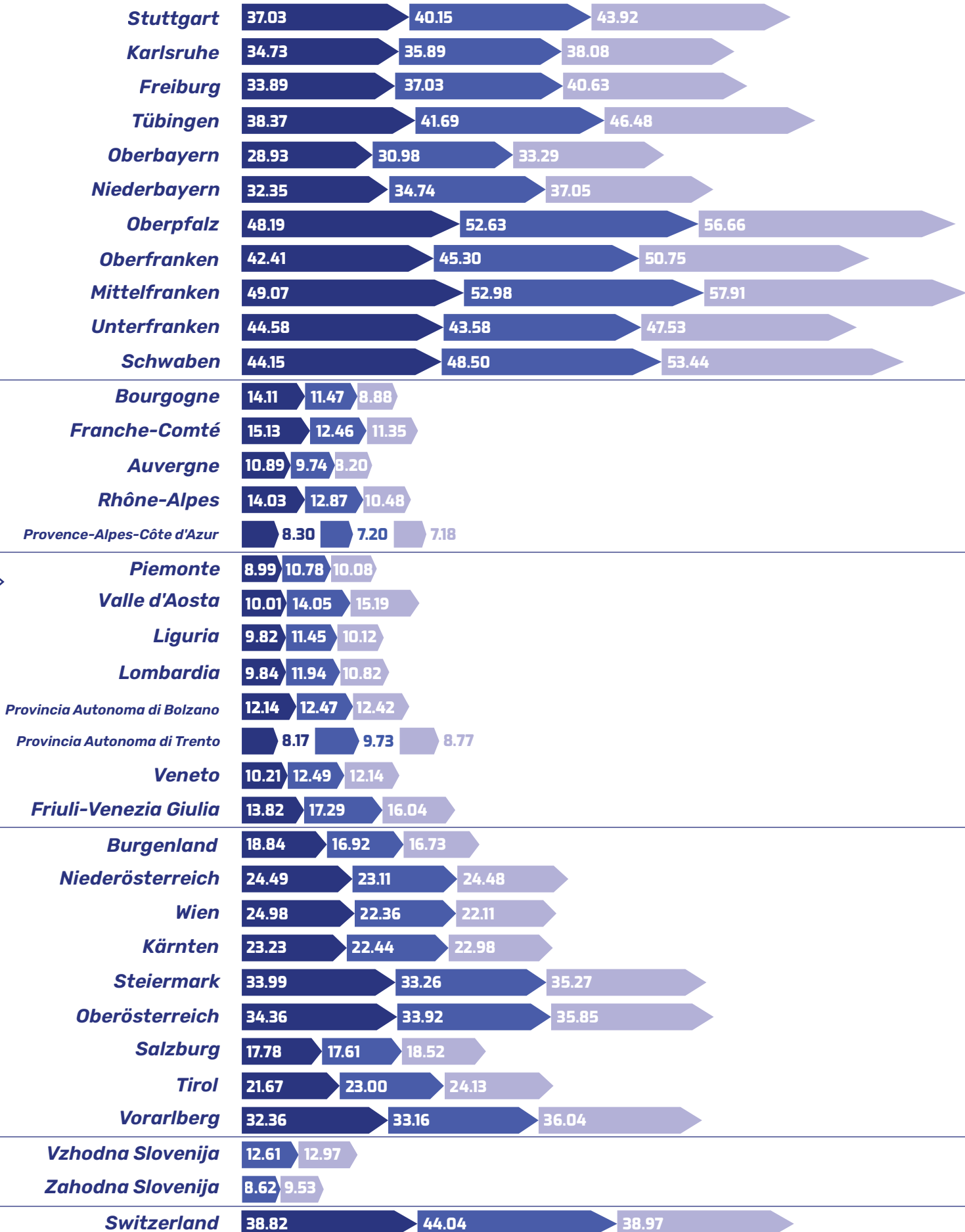


**REGIONAL AVERAGE FIRM SIZE  
2011 - 2015 - 2018**

2011

2015

2018

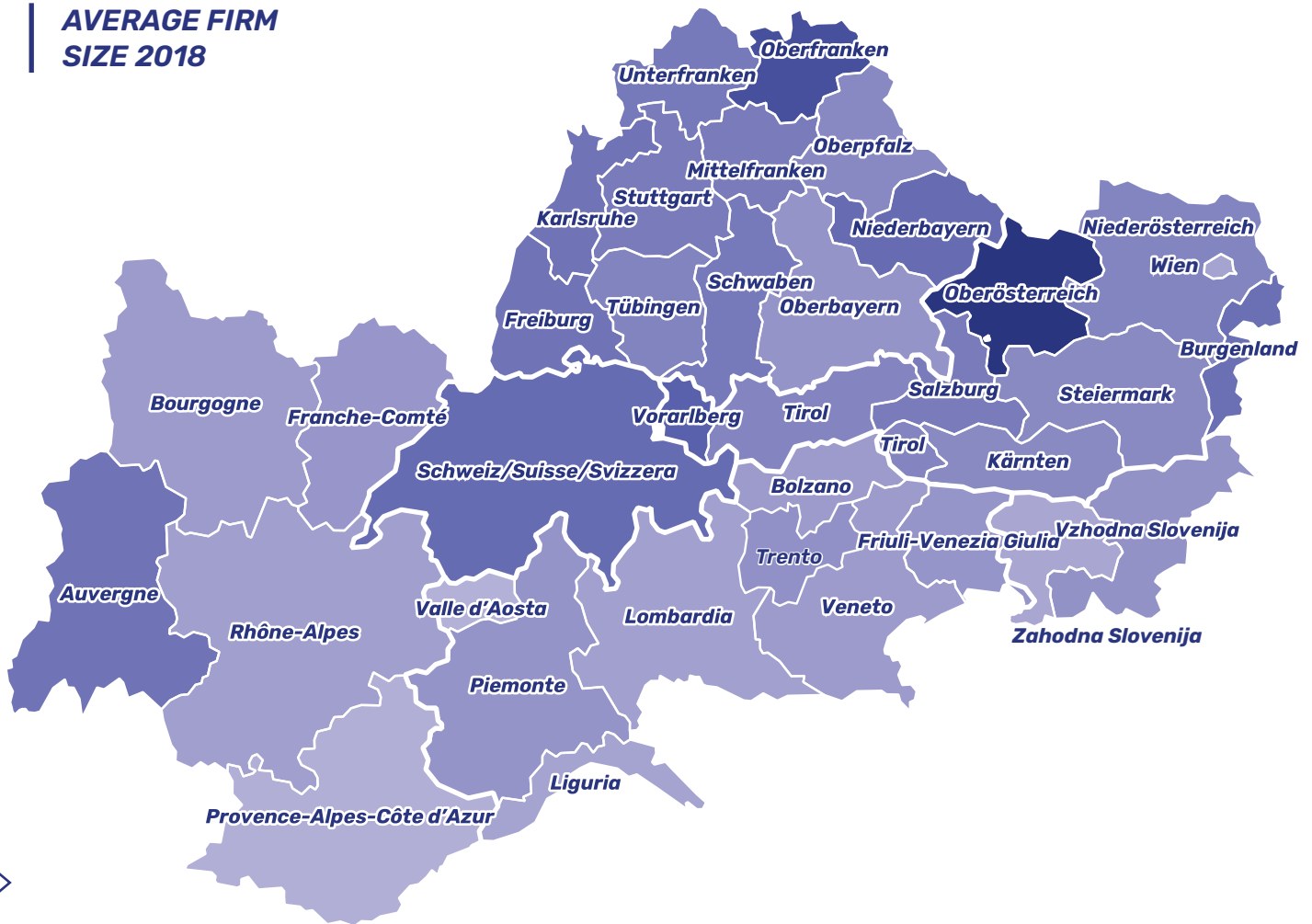


**CHANGE  
2011-2018**

The graph shows a clear upward trend in the average size of mechanical engineering companies in the EUSALP area. However, along with two Austrian regions (Burgenland and Vienna), all French regions show a negative rate of growth in the average size of local units, with the Auvergne, Franche-Comté, Rhône-Alpes and Bourgogne regions at the bottom of the list with a reduction of more than 20%. The German regions consolidate their trend of growth in company size, along with Valle d'Aosta (+51.8%). On average, companies in the sector in the EUSALP area are increasing their size by +6.4%.



## AVERAGE FIRM SIZE 2018

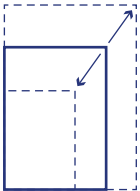


70

## PLASTIC



### How to read these data visualizations



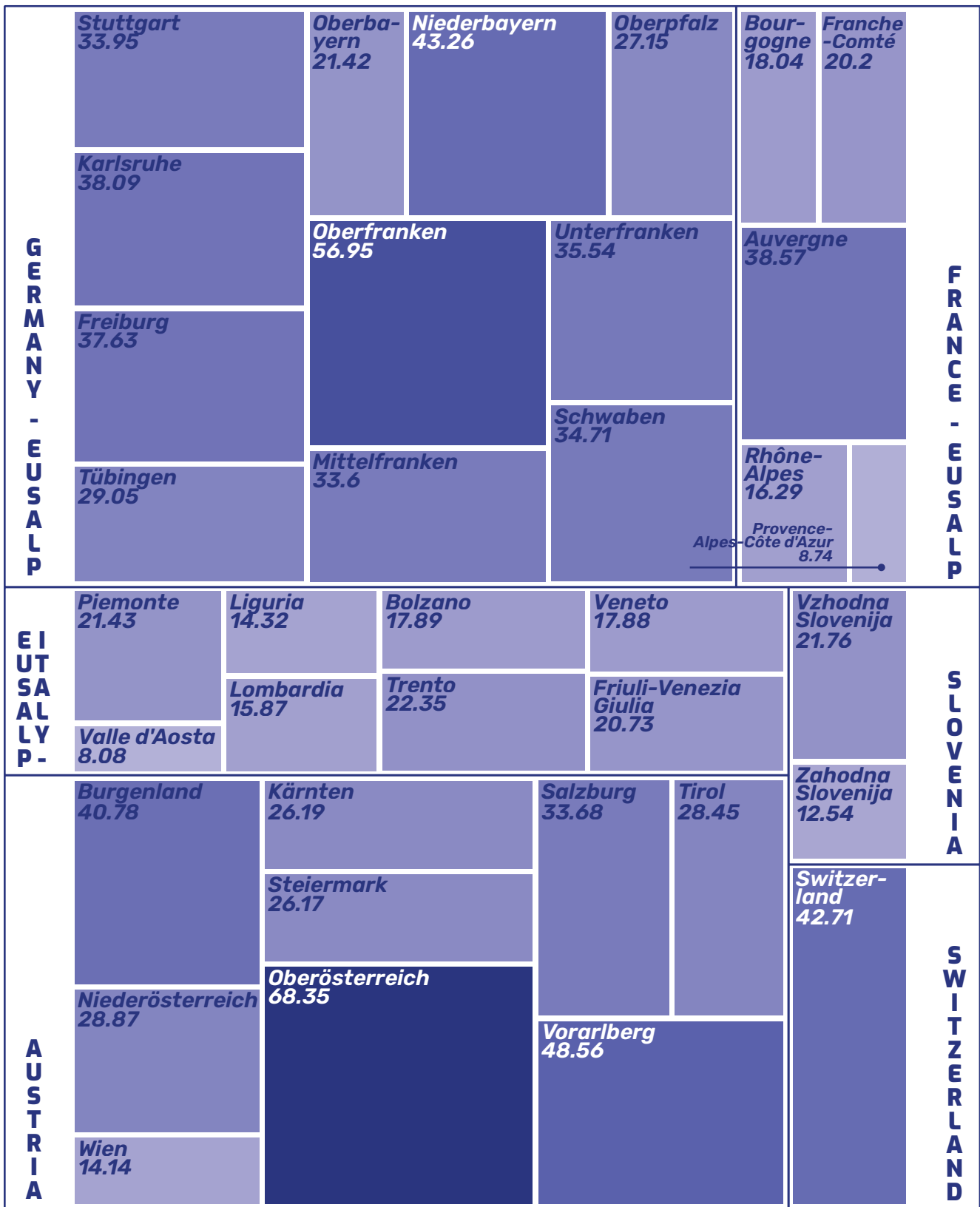
The **size** of each square depends on the size of the indicator: a larger square corresponds to a higher indicator value.

The **colour** of each square corresponds to the colour of each region in the map.

The **intensity of the colour** changes depending on the size of the indicator: a darker colour corresponds to a higher value of the indicator.

Together with those in the chemical sector, enterprises in the plastics sector are the largest of the four sectors analysed. In 2018 in the EUSALP area, each local production unit employs an average of around 25 people. Above the area average are still Swiss companies (42.7 employees per unit), Austrian companies (38.6 employees per unit) and German companies (34.5 employees per unit). Below the average for the area are the French regions (21.8 employees per unit), the Italian regions (17.4 employees per unit) and the Slovenian regions (16.8 employees per unit). In general, enterprises in the sector are small. On average, local units in the Oberösterreich and Oberfranken regions are medium-sized, while those in the Provence-Alpes-Côte d'Azur and Valle d'Aosta regions are micro-sized enterprises.

**AVERAGE FIRM  
SIZE 2018**

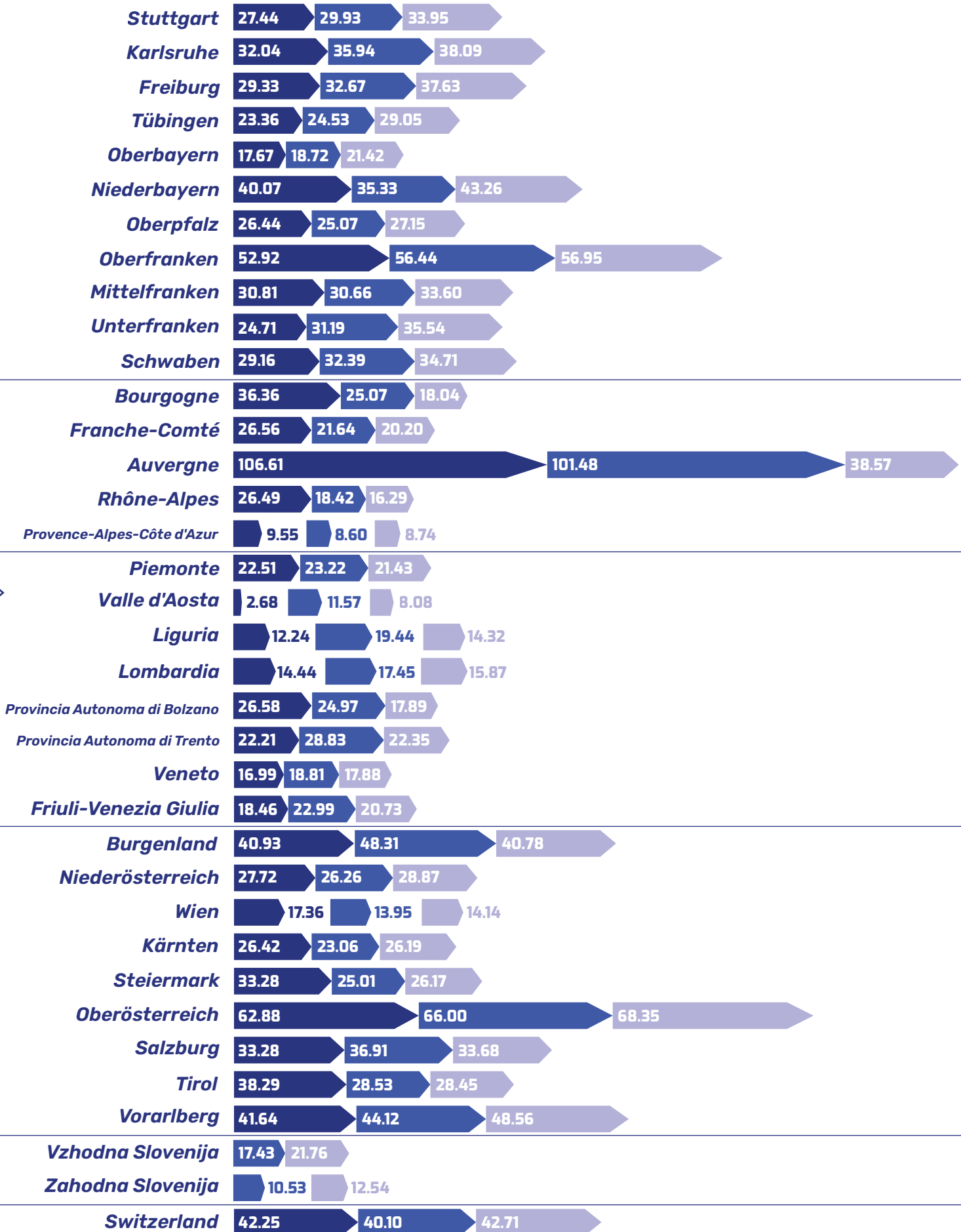


**REGIONAL AVERAGE FIRM SIZE  
2011 - 2015 - 2018**

2011

2015

2018



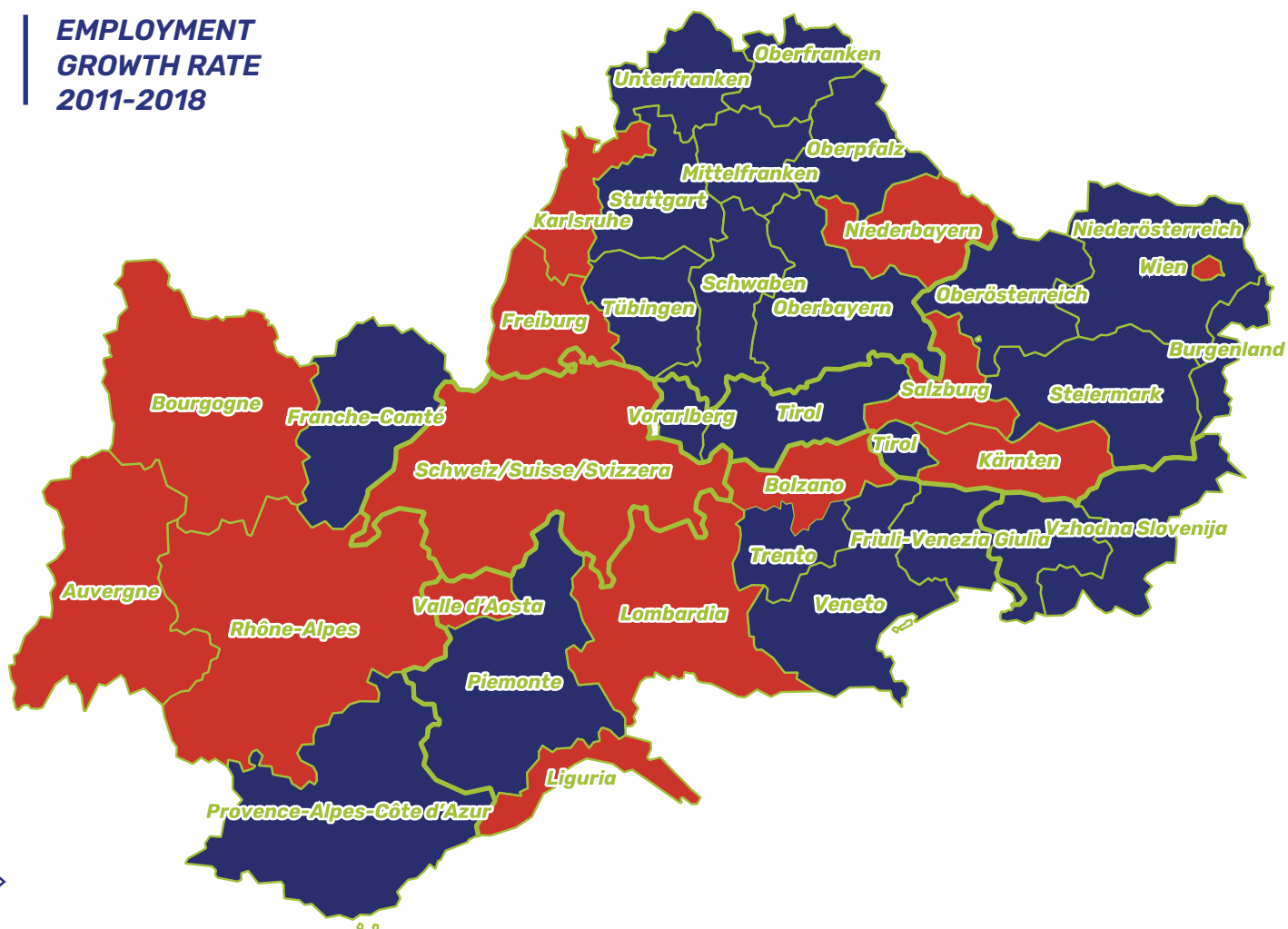


**CHANGE**  
**2011-2018**

Over the period 2011-2018, the average size of enterprises in the plastics sector remains almost unchanged (-0.7%). There is strong growth for the sector's enterprises located in the Slovenian (+22.6% on average) and German (+17.9% on average) regions. Businesses in the sector in the Italian, Austrian and Swiss regions show growth rates of between 1 and 6%. On the contrary, companies in the French regions also see a strong contraction in average company size in the plastics sector (-37.4%).



## EMPLOYMENT GROWTH RATE 2011-2018



74

## CHEMISTRY

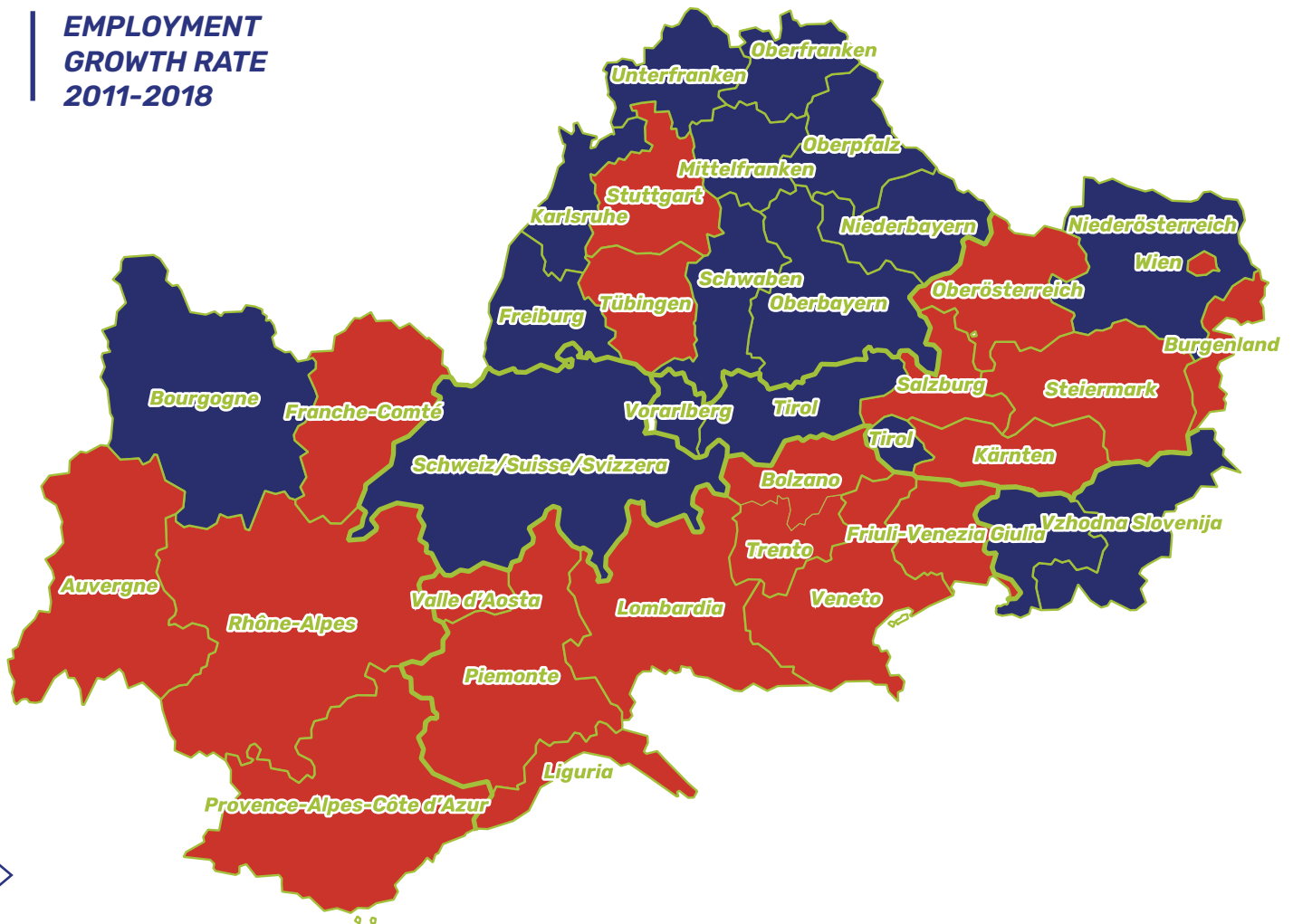
Between 2011 and 2018, employment in the chemical sector in the EUSALP area increased overall by +4.2%: in 2011, 2015 and 2018 the employment growth rate compared to the previous year is always positive. These data indicate a positive employment trend for the sector, which in 2018 consolidates the upward trend compared to the first year under consideration. As regards employment at macro-regional level, in 2018 higher growth rates are recorded in Germany (+8.0% compared to 2011), Slovenia (+4.3% compared to 2011) and Austria (+4.2% compared to 2011). In 2018, however, the employment picture worsens in the remaining EUSALP macro-areas: compared to 2011, employment in the sector falls by -0.9% in Italy, -5.5% in Switzerland and -5.9% in France. With the exception of the French regions, the annual growth rate of employment in the sector shows an irregular trend: positive values, but still less than 5% in 2011, then decreasing values in 2015 up to a maximum decrease of about -3%. In 2018, however, there is a return to higher annual growth rates of between 2 and 10%.

**EMPLOYMENT  
GROWTH RATE  
2011-2018**

At regional level, the regions showing strong employment growth between 2011 and 2018 are Oberpfalz, Provence-Alpes-Côte d'Azur, Unterfranken and Burgenland with rates above 30%. In contrast, the regions showing a markedly negative change over the same period (with rates of decline of more than 40%) are the Italian regions of the Autonomous Province of Bolzano and Valle d'Aosta, the Austrian region of Salzburg and the French region of Auvergne.



**EMPLOYMENT  
GROWTH RATE  
2011-2018**



**WOOD**

Between 2011 and 2018, employment in the wood sector increased in some regions, but with lower growth rates than in the other sectors considered. Overall, employment in the EUSALP area decreased by -5.9%. In 2018, the regions that are bucking the EUSALP average and therefore have a positive employment growth rate are Slovenia (+7.4% compared to 2011), Germany (+3.0% compared to 2011) and Switzerland (+2.3% compared to 2011). In the Austrian, French and Italian regions, employment in the sector is decreasing: in particular, employment in the Italian regions is down by -27.3%, with Lombardy (-27.4%) and Veneto (-34.6%) being the worst affected. As regards these regions, the rate of decrease is also confirmed by the annual rates of change of employment, which in all the years considered register negative values. On the other hand, in the average of the EUSALP area, 2018 shows a reversal of the downward trend, with an increase in employment of +0.7% compared to 2017. As the map clearly shows, employment in the wood sector is gradually decreasing in the southern part of the EUSALP area, while it is increasing in Slovenia and the northern part.