„Socio-Economic Assessment of the Danube Region: State of the Region, Challenges and Strategy Development”

Second Progress Report

December 2013

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0 Progress Summary

The second progress report on the socio-economic assessment of the Danube Region updates the results from the first progress report and presents new prosperity and competitiveness diagnostics. The first chapter of this report gives information on the concept of the socio-economic study and the employed methodologies and provides an overview of the technical implementation of the analyses that in particular refers to the expected presentation of results in the final report on the territorial analysis. The second chapter presents results of the competitiveness assessment according to the employed concept and the third and final chapter reports about the progress on cooperation and networks to increase competitiveness in the Danube Region.

The analysis takes into account that the Danube Region comprises a very heterogeneous set of regions with wide disparities in economic performance. The Danube Region has some of the most successful but also some of the poorest regions in the EU. Therefore, an exclusive focus on the Danube Region as a whole would hide important differences. In order to take these differences into account, we divide the Danube Region into five subgroups of countries or regions and make comparisons between these subgroups.

The main results of the assessment of the macroeconomic performance are the following (Chapter 2):

- Growth performance: Total real GDP in the Danube Region clearly grew stronger than GDP in the OECD and EU-27 over the last decade. Regarding subgroups within the Danube Region, the Accession and Neighbouring Countries, the least developed members of the region, followed by Romania, Bulgaria and Croatia (Member States Area 3) and the group formed by Hungary, Czech Republic, Slovak Republic and Slovenia (Member State Area 2) exhibit substantially higher growth rates during the period of analysis than the subgroup consisting of Bavaria, Baden-Wuerttemberg and Austria (Member States Area 1). However, the fast growing Accession Countries and Neighbouring Countries contribute only a share of 5% and 2% to the total Danube GDP.
• Prosperity performance: As an indicator for prosperity, real GDP per capita is commonly used. For the Danube Region a gradual increase in GDP per capita over time can be observed, but this also holds for the OECD and EU-27. Consequently, there is little evidence of sustainable convergence so far. Furthermore, the OECD has an overall level of GDP per capita that is twice as large as that of the Danube Region. Here again, there are important differences within the Danube Region. Member State Area 1 enjoys the highest level of prosperity with a GDP per capita of approximately 37,000 US$. In fact, Member State Area 2 only narrowly reaches a level that is a little higher than half of Member State Area 1’s level. Similarly, a wide margin separates Member States Area 2 from the Member States Area 3 in terms of GDP per capita. At the bottom of this classification we find the Accession Countries and Neighbouring Countries with a GDP per capita of approximately 9,000 US$ and 7,000 US$, respectively.

• Composition of GDP: There has been a shift in advanced economies from the primary towards the secondary sector, followed by a shift towards the tertiary sector. As such, the tertiary sector has currently become the main economic activity in these economies. While the share of services is still significantly smaller in the Danube Region than in the OECD and the EU-27, the shares of industry and agriculture are notably higher. Based on this finding, we conclude that the Danube Region as a whole is still going through a process of transformation, shifting from agriculture to industry and finally towards services. Each of the Danube Region’s subgroups is at a different stage of this transformation process. For instance, Member States 3, the Accession Countries and the Neighbouring Countries exhibit a higher share of the agricultural sector than the Member States Areas 1 and 2. Nevertheless, at this point it is important to note that a significant reduction in the size of their agricultural sector took place between 2003 and 2011.

• Financing and indebtedness: The Danube Region shows the lowest level of indebtedness relative to GDP compared with the EU27 and Germany.
• Foreign direct investment: The increasing stock in inward FDI shows that the importance of the Danube Region as a destination for international investments has been rising. Additionally the raising outward FDI stock shows the increasing importance and the intensifying integration of the Danube Region in international trade and the world economy.

• Domestic investment: The Danube Region shows the highest rate compared to the other depicted regional aggregates. Still, one has to take into account that the region has to catch up and therefore it is reasonable that the domestic investment rate is higher than in the other regions.

• Trade: The Danube Region shows a higher trade intensity. This fact can be attributed to the region’s relatively small countries with a correspondingly small market size and an elevated importance of trade. This can be interpreted as another sign for increasing integration into the world economy.

• All in all the Danube Strategy Region has been a net recipient of foreign capital in terms of Foreign Direct Investment stocks over the past six years. Its outward FDI stocks have continued to rise during the economic crisis against the EU-27 trend. Both export and import shares to and from the EU-27 vary strongly between the 14 countries of the Danube Region in the year 2011.

• Investment climate: With regard to different competitiveness indicators measured by The Global Competitiveness Report of the World Economic Forum, Member states 1 are characterised by relatively high ranks, whereas other areas of the Danube Region lag behind in many respects. Particularly the group of Member states 2 shows a decline since 2008. Improvement however can be observed in the overall index of the other regions. Concerning more explicit measures of the investment climate, it becomes obvious that most of these variables have decreased in the observed period.

• Unit labour costs within the region are rather constant for the entire period within the Member States of Area 1, 2 and 3, whereas they
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display a higher volatility for the Neighbouring and Accession Countries. This could lead us to the conclusion that in these subgroups the development of wages and productivity are not yet balanced.

- Labour productivity measured as GDP per person employed is clearly higher in the OECD and EU-27 than in the Danube Region. While labour productivity is approximately 60,000 US$ for the OECD and the EU-27, the Danube Region exhibits a GDP per person employed of approximately 40,000 US$. The differences within the Danube Region are, again, conspicuous.

The preliminary conclusions from the labour market and migration assessment are as follows:

- Population ageing has become a common feature in the EU, the Danube Region and the OECD countries and is expected to accelerate in the coming decades, posing a serious risk on the welfare system of these countries.

- Activity rates in the Danube Region have been traditionally lower (at about 67%) than either in the OECD or the EU-27 and EU-15 countries (over 70%), with the respective gaps remaining almost unchanged in the past couple of years.

- With respect to gender, both male and female activity rates are significantly lower in the Danube Region than in the OECD and EU countries, by close to 10 and 6-7 percentage points respectively. There are, however, large differences among the Danube Region sub-groups and individual countries.

- Unemployment, being higher in the Danube Region than in the OECD and EU-27 at the beginning of the century, fell substantially during the boom years and followed a similar pattern like the OECD from 2009 onwards. Again, developments vary significantly among the Danube Region sub-groups, with the accession countries reporting extremely high unemployment rates (close to 30%).
• Employment rates increased in all major regions up to 2008, but the trend reversed with the crisis. The employment rate of the Danube Region has been traditionally lower than both the EU and OECD averages; within the Danube Region accession countries’ employment rates are significantly lower than the average and differ even more strongly if compared with the best performers (AT, BW and BY).

• Youth employment rates in the Danube Region are lower than in the EU and OECD; the gap in youth employment rates between the Danube Region and the OECD remained almost unchanged over time at close to 9 percentage points.

• The services sector is the main provider of employment in all groups of countries, but is more developed in the EU and OECD countries (around or slightly over 70% of total employment) if compared with the Danube Region (less than 60%). Here agriculture is still an important employer; also industrial employment is more concentrated in the Danube Region than in the three other groups of countries.

• The Danube Region has (significantly) lower shares of both low and highly educated employment than either the EU-15 or the EU-27. Compared with the EU average, the Danube Region has a very strong representation of the medium educated skill groups, employing over 60% of the workforce, as against just 49% in the EU-27 and 45% in the EU-15.

• Employment rates of those having tertiary education are highest in the EU-27 and EU-15 and show only slightly lower rates in the Danube Region (over 80% on average). Differences as compared with the EU-15 and EU-27 occur particularly in the lowest educational group, with the employment rates being constantly below 40% in the Danube Region.

• In the Danube Region part-time employment is below the EU average (around 20%), but above the OECD level. It is however rare in the Member States 3 (BG, RO and HR) and in the Accession Countries, where the incidence of part-time employment is less than 10%.

• Remittances are an important source of income in a number of countries of the Danube Region, e.g. in the Neighbouring and Accession
countries and to some extent in the Member States 3 (BG, RO and HR). The share of remittances in the GDP ranges from 2.1% in Romania, 11% in Bosnia and Herzegovina to 24.5% in Moldova. Ukraine is the country with the highest inflow of remittances (USD 9.3 billion in 2013).

Our assessment of transportation infrastructure shows that

- in most countries of the Danube Region the railroad and port sectors are underperforming in relation to other infrastructure sectors, in particular the electricity sector.
- In general, there is a declining trend in infrastructure quality from the western to the eastern countries of the Danube Region. This is true for roads, railroads, ports and airports, with only a few exceptions.

For the energy sector, we found

- that all Danube countries are relatively well developed. However, the eastern part of the Danube Region is again found to be performing less well.
- Energy dependency is high in all countries of the Danube Region. Electricity prices are high in the western part and decline towards the east. Also, taxes and fees for electricity decline towards the east.
- Electricity network losses draw the inverse picture of electricity prices. Network losses are high where electricity prices are low. The electricity markets are highly concentrated. This is a known phenomenon, because electricity is a network industry; but concentration increases towards the east.

All put together, we can see a decrease in infrastructure quality towards the east. However, an advantage in competitiveness that the eastern countries have is that they are still much cheaper than the western countries in terms of usage of the infrastructure.
The conclusions from the assessment regarding firm dynamics are that

- Start-up intensities (numbers of start-ups in relation to the working age population) in the Danube Region resembled those in the EU15 countries in the years 2006 and 2007, but significantly exceeded them in the years 2009 and 2010.

- Start-up rates (number of start-ups in relation to the stock of firms) in the period 2008-2010 were similar to those in the EU15 countries.

- A fraction of around 18 percent of all start-ups was established in research and knowledge intensive sectors between 2004 and 2010. This is general in line with the fraction of research and knowledge intensive start-ups in other EU countries. However, the proportion of start-ups in the research and knowledge intensive sectors in the Danube Region seems to be a bit lower than in the EU15 and the EU27.

- Start-up intensities in the research and knowledge intensive sectors are significantly lower in the Danube Region than in the countries of the EU15.

- Also the start-up rate in the research and knowledge intensive sectors was slightly lower in the Danube Region than in the EU15 countries.

- Closure rates (number of firm closures in relation to the stock of firms) were similar to those for the EU15 countries both for all closures and for closures in the research and knowledge intensive sectors in the period 2008-2010.

- The stock of active firms in the Danube Region as a whole has not changed at all in the considered time period. The closure rate has been as high as the start-up rate. This holds both for the research and knowledge intensive sectors and for the other sectors.

- There are large differences detectable between the different subregions of the Danube Region with respect to firm dynamics. While the stock of firms in the countries of Member area 1 is in a kind of equilibrium, noticeable turbulences in the stock of firms can be observed for the Member area 2 and 3.
The results of the assessment of SME Financing in the Danube Region are the following:

- A wide range of financial support institutions and instruments have been developed to support SMEs at the different stages of their life. Financial support for SMEs has been provided at European level but also at national and regional level. At the European level initiatives were launched to promote increased access to finance through the financial instruments of the Competitiveness and Innovation Framework Programme, financial support available under the Structural Funds and the schemes supported by the European Investment Bank and the European Investment Fund. In the Danube Region, the EIB is the most active multilateral financing institution.

- According to the analysed studies, the different programmes and initiatives that address SME financing have effectively contributed to the easing of SMEs’ financing conditions in the Danube Region. Through their different approaches, together they cover a wide spectrum of financing instruments demanded by SMEs. Once the European debt crisis will be left behind, the focus of the initiatives will shift from emergency support in illiquid markets to structural support and the implementation of necessary reforms to foster development of the financial infrastructure available to SMEs.

- Furthermore, we analyse the use of different sources of financing, the financial situation and financial needs of SMEs in the region and compare it to the financial situation and needs of SMEs in the EU27. When looking at the recent sources of financing, SMEs most often use external financing. And, generally speaking, bank loans are the main source of external SME financing. Venture capital and similar schemes are very restricted. Other sources of finance such as private placements, listings on the exchanges or issuing of bonds are usually not available for by far the majority of SMEs.

- Our results show that banks’ willingness to provide loans for SMEs in the Danube Region and EU27 had worsened in 2009 and – by a lower degree - in 2011. Surprisingly, for both these years the respective change in banks’ willingness to provide a loan was better for firms lo-
cated in the Danube Region as compared to firms in the EU27. When asked to rate the importance of a number of different mechanisms to help their company’s financing in the future, managers across the EU rated “making existing public measures easier to obtain” as the most important.

The main findings of the assessment of Entrepreneurship and SMEs in the Danube Region, in particular as regards institutions and regulations, are the following:

- Regarding economic freedom, a mediocre ranking of “moderately free” predominates in the Danube Region. Over time, there is a divergence between EU Members and Accession Countries, which have made progress during the last 4 years, and Neighbouring Countries, in which economic freedom has been decreasing.
- Our analysis highlights that corruption remains a major issue for a large part of the region. Although much effort has been taken, there is no clear evidence of an improvement yet.
- Over the last 10 years market entry procedures were simplified significantly. The cost and time to complete business-registration procedures have been cut to one third, and minimum capital requirements to one sixth. However, until now the region is not on one level with the OECD and EU15 in any of the indicators, which leaves room for further reforms.

The main findings of the assessment of development of clusters in the Danube Region are as follows:

- Quantitative data from the European Cluster Observatory suggests that across the Danube Region are plenty of economic sectors that have the potential for cross-cluster cooperation. Out of the 21 NACE 3 sectors in which there are significant clusters in at least three different countries of the region, the highest social impact (no of jobs involved) in terms of cooperation would be achieved in sectors such as automo-
tive and the metal manufacturing, followed by production technology, construction, processed food and transportation and logistics. In terms of the sectors in which clusters are present in most countries of the region, metal manufacturing, building fixtures, equipment & services and processed food are credible options for cluster level cooperation. However, from a normative perspective, as shown by surveys, the ICT sector seems one of the first cluster development and cooperation option for Danube Region countries.

- As regards cluster organisations, which are needed to transform cluster potential into reality, the case study on Romania reveals that about half of the registered clusters have formalised their structure by association agreements. The mere existence of a cluster organisation is no proof that such structure is active in search of competitive development and cooperation. In practice, there is a large gap in terms of cluster organisation efficiency. Some structures are just opportunistic, in the search of public funding, while the most reliable have established a sense of ownership and shared responsibility among the cooperating actors.

- Last but not least, an analysis of cluster cooperation projects, again from the case study perspective of Romania, shows a large variety of initiatives and actors involved. While diversity is good, it is clear that from a policy perspective a more focused and result-oriented framework of cluster networking would be advisable for the competitive development of the Danube regions.

In chapter 3 the report provides an overview of the existing organisations and networks related to economic cooperation in the Danube Region and gives conclusions and recommendations concerning development perspectives. It gives an overview of the various cooperation initiatives of the Danube Region countries among themselves and with neighbouring regions and then looks at the cooperation of business networks and clusters in and beyond the region. Business and cluster networks in the Danube Region are in their inception while there is a long tradition to cooperate in the framework of EU programmes and the Southeast European cooperation process. Chapter 3 pre-
sents the activity of some 30 organisational entities mainly based on the information provided on their websites.

The targets of cooperation are set in the Action Plan for the Priority Area 8. Projects are to be developed by cluster and business organisation. The Priority Area Coordinators together with the Steering Group established seven thematic Working Groups (WGs). Two of the working groups initiate the cooperation of clusters and of business networks. The WG Cluster of Excellence aims "To foster cooperation and exchange of knowledge between SMEs, academia and the public sector in areas of competence in the Danube Region." The WG Cooperation of Business Organisations aims "To improve business support to strengthen the capacities of SMEs for cooperation and trade". In the field of cluster cooperation DanuClus (Danube Cluster Networks) is the main initiator. Clusterland Upper Austria takes a coordinative role in this area. DanuClus aims to link clusters, cluster managers, cluster experts and cluster policy-makers from the Danube Region, in order to prepare clusters in this geographic area for the new EU funding period of 2014-2020. Among business organisations the most important is the Danube Chambers of Commerce Association (DCCA), an association of 20 regional and municipal chambers of commerce along the river Danube. There is no member from the more remote provinces of the Danube Region countries. It does not cover all organisations in the region and also excludes Moldova and Ukraine. The DCCA was the driving force to create a new PA8 Working Group, called Business Organisations.

The participation in cooperation initiatives is very uneven in the Danube Region. German, Austrian and Hungarian organisations are the most active, those from Croatia, Serbia, Romania and Bulgaria are less so while other countries hardly show up. At the same time, there are some pilot projects especially by Romanian organisations with no real international participation. In some instances the whole country participates where the governments signed up to the Danube Region cooperation (Hungary); in other cases only organisations from those regional entities are active which are strictly along the Danube (Northern provinces of Bulgaria and Austria).
Some questions for the further development of cooperation have been identified as:

- What is the role of initiatives in the framework of the Danube Region in relation to other initiatives at the EU level, as well as in Central Europe and Southeast Europe?
- How to provide the integration of organisations from less developed regions especially from Moldova and Ukraine into the cooperation process?
- Which regional organisations participate – from the whole territory of participating countries or only from territorial units close to the Danube?
- What are the financing channels of EU and other funds for cooperation projects in the Danube Region during the forthcoming 2014-2020 financing period?
- How can the equal access to financing be ensured by EU and non-EU members in the cooperation projects?
1 The Socio-Economic Study of the Danube Region: Aim and Concept

The aim of the project is an indicator-based analysis of potential opportunities, needs, challenges, and recommendations, in order to enhance the competitiveness, the innovative strength, the attractiveness, and the prosperity of the entire region of the Danube riparian countries and regions, and to develop a strategic orientation with regard to transnational and interregional cooperation for the period from 2014 to 2020. From this overall aim we derive the following concept of the project:

- First, to assess the levels of prosperity and competitiveness in the region from a broad, socio-economic perspective by means of macro- and microeconomic analyses drawing on a comprehensive set of outcome-based and input-based indicators. A further aim of the analysis is to take stock of the degree of economic integration within and across the Danube Region. The outcome will be an indicator database for the Danube Region and relevant benchmark countries and regions outside the Danube Region.

- Second, to summarise the assessment in SWOT-styled, country- and region-specific tableaus in order to derive tentative suggestions for future pathways of political support. The outcomes are country- and region-specific scoreboards and tables with a set of preliminary recommendations for priority fields of action.

- Third, to assess the level and quality of network activities, the strength of current regional and interregional cooperation, and to identify potentials to stimulate cooperation since these are the means to enhance prosperity and competitiveness within the EU Strategy for the Danube Region (EUSDR). The outcome is a set of preliminary recommendations on cooperation potentials with which we enter the second stage of the project and continuously shape a vision for the implementation of the EUSDR in an on-going dialogue with the relevant stakeholders of the region. This vision should deliver strategies for fostering cooperation and identify pro-
jects that promote sustainable development and cover several re-
regions and countries.

1.1 Part I of the Project

Competitiveness is defined and measured in very different ways and there is
no unanimous definition of the concept.\(^1\) Regarding the level of analysis, com-
petitiveness may be captured on different levels ranging from the supra-
national to the national and regional level, down to the sector and firm level.\(^2\)
Concerning substance and content, the factors that are believed to reflect
competitiveness are equally varied and they are used and combined in a num-
ber of different ways.

The measurement of competitiveness is thus performed in as many ways as
the concept is defined: whereas some scholars deny that competitiveness as
such even exists, others construct sophisticated indicators including a large
number of parameters from the economic, social, environmental and political
context. Important groups of indicators can be allocated, for instance, to the
fields of market performance, price and quality, the ability to innovate, the
structure of the labour market, the level of markets’ international integration,
but even to the qualitative conditions of countries’ business environments.

As the present project aims at the comparative analysis of the competitiveness
of nations (and, in the case of Baden-Wuerttemberg and Bavaria, federal
states) from which the competitiveness of the Danube Region as a whole will
be derived, important sources relevant for the present study are the European
Unions’ (DG Enterprise and Industry) yearly European Competitiveness Re-
ports\(^3\) as well as the Global Competitiveness Report provided by the World

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\(^1\) European Commission (2009), 'Special Report: Competitiveness Developments within the

\(^2\) With regards to the underlying data, competitiveness indicators can be measured on the
macro level (e.g. aggregate data on GNP) and on the micro level (e.g. firm-level data on
productivity).

Economic Forum (WEF). Both reports include wide ranges of basic and composite indicators from the economic, societal and political spheres and they allow for detailed comparisons between countries. For our analyses in the present project, we will use readily available indicators of these and further reports as far as possible and reasonable, and we will complement them by additional indicators that will be specially compiled for the countries of the Danube Region. In addition, our local experts will provide qualitative information, in particular in fields such as entrepreneurship and SMEs that are covered only sparsely by available sources.

Figure 1: The concept of prosperity and competitiveness measurement

The present study defines competitiveness as the set of factors, institutions and policies that affects the level of macroeconomic and microeconomic

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productivity which enables a country to achieve a high and sustainable path of income and prosperity. It thus builds on a broad understanding of competitiveness by including the relevant factors that make a country or region attractive for doing business and a place for generating job and employment opportunities. Fundamental requirements are the mobilisation of production factors (labour and capital), institutional, organisational and local conditions that enhance the efficiency of factor inputs, and factors that drive business and innovation.

We thereby distinguish between a macro dimension (mainly referring to framework conditions at the national level) and a micro dimension, which relates to factors driving business operation and success (see Figure 1). Important factors at the macro level are different types of institutions, e.g. regulatory frameworks, the educational system or openness to trade, countries’ endowments with infrastructure and characteristics of the labour market. At the micro-level, we focus on business dynamics, particularly with regards to SMEs, on innovation activities, as well as on the structure and development of sector and regional clusters.

Figure 2: The pillars to assess the state of the Danube Region
At the operational level, we break down the work load of Part I along three work packages, each of which constitutes a pillar of the socio-economic and competitiveness assessment of the Danube Region (Figure 2). The following leaders and scientific contacts have been assigned:

- Prosperity and Competitiveness (Work Package 1): lead by IAW, scientific contact: Günther Klee, guenther.klee@iaw.edu
- Entrepreneurship and SMEs (Work Package 2): lead by ZEW, scientific contact: Jürgen Egeln, egeln@zew.de
- Cooperation and Networks (Work Package 3): lead by wiiw, scientific contact: Gabor Hunya, hunya@wiiw.ac.at

The implementation of the socio-economic and competitiveness assessment rests on three layers (Figure 3):

- A database of quantitative and qualitative indicators that will be compiled from various sources according to the project’s topics and objectives. This annual database will cover indicators for each individual country of the Danube Region, and in particular for the Danube Region at the aggregate level since a central aim of the project is to assess and upgrade the competitiveness of the macro-region. Also relevant benchmark regions such as the Eurozone, the EU 27, EU 15, the USA and the OECD region will be considered. The database has a temporal dimension showing indicators for the past years up to the most recent available year in order to assess changes over the recent past. In addition, if available, the database will include forecasts for selected headline indicators.

- Scoreboards that are meant to condense the information from the database in order to provide clearly arranged region and country profiles. The scoreboards will contain selected headline indicators for each pillar and topic. Comparisons with analogue scoreboards for benchmarking regions or adjacent countries will help to identify country and Danube Region specific strengths and potentials with regard to socio-economic development and competitiveness. The exact decomposition of the indicators will be elaborated over the course of the implementation of project Part I.
Region and country profiles in SWOT-style overview tables which are the main outcome of the analytical assessment. These profiles will summarise the potentials, needs and challenges for each Danube Region country and for the Danube Region as a whole. They will include a set of preliminary recommendations to enhance the competitiveness, the innovative strength, the attractiveness, and the prosperity of the entire region through better cooperation and deeper networks. The recommendations will also identify funding resources, e.g. by national or international funding agencies.

**Figure 3: The implementation and outcomes of Part I**
2 Progress on Competitiveness of the Danube Region: Potentials, Needs and Challenges

2.1 Prosperity and Competitiveness

2.1.1 Introduction

The Danube Region is largely a European Union (EU) territory, especially after the EU enlargements from 2004 and 2007, hence, the need of a European Union Strategy for the Danube Region whose main objective is to reinforce the integration of the Region in the EU.5

Since the end of the Cold War (1989), most countries sharing a border with the EU have gone through change on an unprecedented scale. In many ways the European Union has been an important factor behind this change: successive waves of EU enlargement have extended its external borders outwards from the borders of the founding Member States, turning former neighbours into current Member States while creating new neighbours along its new external borders.

Since the foundation of the EU, the number of Member States has more than quadrupled, the EU population has risen to half a billion citizens, and many of the 15 countries that surrounded the European Economic Community (EEC) in 1970 have become Member States. In terms of output, however, the combined GDP of countries surrounding the EU today is just a fraction of the latter’s GDP. This is a reflection not only of the economic success of the EU, but mainly the fact that many of the countries surrounding it today are relatively poor and still in a developing stage (whereas many of the countries surrounding it in 1970 were at an economic level comparable to that of the founding Member States).6

The Danube Region

The EUSDR deals primarily, but not exclusively, with: Germany (Baden-Wuerttemberg and Bavaria), Austria, the Slovak Republic, the Czech Republic,

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5 EUSDR: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions.

6 European Competitiveness Report 2012: Reaping the benefits of globalization.
Hungary, Slovenia, Romania, Bulgaria and (since July 2013) Croatia within the EU, and Serbia, Bosnia and Herzegovina, Montenegro, the Republic of Moldova, and Ukraine.\textsuperscript{7}

The region exhibits very wide disparities. It has some of the most successful but also some of the poorest regions in the EU.\textsuperscript{8}

The current level of integration and comprehensive interdependency of the region as a whole is quite unprecedented. This opens up prospects for sustainable development and faster convergence based on a closer cooperation and well-designed regional policies.

An important feature of the region is its relatively high (yet varying) degree of trade integration. In most Danube Region countries, the share of German exports is overwhelming. For instance, more than 20\% of total Austrian, Czech, Slovakian, Slovenian and Hungarian exports go to Germany. On the other hand, Bulgaria, Romania, Serbia, Bosnia and Herzegovina, Montenegro as well as Ukraine and Moldova display divergent trade specialisation patterns.\textsuperscript{9}

The Danube Region also has many opportunities. It has many areas of outstanding natural beauty, as well as a rich history, heritage and culture. There is immense development potential, especially in the countries most affected by the transitions since 1989. There are creative ideas, and a quality labour force.\textsuperscript{10}

In the following we compare the Danube Region with other regional aggregates, namely OECD and EU-27, to be able to better judge the Danube Region’s competitiveness and position in the world.

In order to take the differences within the regions into account we further divide the Danube Strategy Region into five subgroups.

\textsuperscript{7} EUSDR: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions.

\textsuperscript{8} And European Competitiveness Report 2012: Reaping the benefits of globalization.

\textsuperscript{9} European Competitiveness Report 2012: Reaping the benefits of globalization.

\textsuperscript{10} EUSDR: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions.
The **Member State Area 1** consists of Bavaria, Baden-Wuerttemberg and Austria. Whereas Bavaria and Baden-Wuerttemberg are two of the most important economic regions of Germany which form part of the European Union since its foundation, Austria joined in 1995.

The **Member State Area 2** is made up of Hungary, the Czech Republic, Slovak Republic and Slovenia. All these countries became members in the, so far biggest (in terms of number of states), enlargement of the European Union in 2004.

**Member State Area 3** contains Romania, Bulgaria and Croatia. Whereas Romania and Bulgaria joined in 2007, Croatia is the most recent and newest member of the Union, since it joined in July of 2013.

The **Accession Countries** are Serbia, Bosnia and Herzegovina, as well as Montenegro. The status of a candidate for accession has been given to Montenegro in 2010 and to Serbia in 2012, while Bosnia and Herzegovina remains a potential candidate for accession.

The **Neighbouring Countries** are Ukraine and Moldova.

**A brief characterisation of the subgroups of the Danube Region**

**Member State Area 1: (Austria, Bavaria, Baden-Wuerttemberg)**

Bavaria and Baden-Wuerttemberg are two of the most economically important and strongest regions in Germany; therefore Bavaria and Baden-Wuerttemberg, as well as Austria are among the wealthiest members in the European Union. While Germany has been a part of the EU since the Union’s foundation, Austria joined in 1995. Both countries have also been part of the euro area (Eurozone) since the creation of the monetary union. They all have low unemployment rates, solid competitive economies and a good investment climate.

Bavaria and Baden-Wuerttemberg both have great rates of innovation especially in the high-tech industry, research and development. In Baden-Wuerttemberg the industry is orientated towards the production of cars, mechanical engineering, electrical engineering and the chemical industry. Bavaria’s industry is turned towards the IT sector, as well as the car industry, media
and the defense industry. In 2009 the real GDP growth turned negative for all three members, Baden-Wuerttemberg recorded negative growth rates of about -9.15 percentage points (highest value in the Danube Region, except for Ukraine), but recovered rapidly in the consecutive years. In GDP per capita a gradual growth (except during the economic crisis) is notable for all three members. In terms of productivity the Member State Area 1 also scored the highest level in comparison with the other subgroups. All in all, Member State Area 1 can be denominated as the wealthiest and most developed subgroup within the Danube Region.\(^\text{11}\)

**Member State Area 2: (Hungary, Czech Republic, Slovakia, Slovenia)**

In 2004 the biggest enlargement of the European Union to date took place and the four countries that form the Member State Area 2 were all part of it. They were also hit hard by the economic crisis and still suffer from the consequences and economic contractions. GDP growth in 2012 was negative for all except the Slovak Republic. Also, the expected growth rates for the coming years are rather small or still negative (Czech Republic and Slovenia).

Hungary currently has two main aims: the creation of one million new jobs and reforms concerning competitiveness. In the meantime the Czech Republic, which is strongly orientated towards industry, especially the car industry, suffers from a high financial deficit.

Slovakia and Slovenia have joined not just the European Union, but also the euro area in 2009 and 2007, respectively. Whereas Slovakia suffers from high unemployment, especially among the youth and falling real wages, Slovenia is facing a severe banking crisis. Up to 2008 the economy took pride in its strong long term economic growth, thanks to investments and strong exports. However, during the crisis these components contracted and the country still fights against the consequences of the crisis. In spite of these setbacks it joined the OECD in 2010.\(^\text{12}\)

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\(^{12}\) Federal Foreign Offices (Deutsches Auswärtiges Amt).
Member State Area 3: (Bulgaria, Romania and Croatia)

This group contains three of the poorest countries within the European Union (comparing GDP per capita, PPP).

While Bulgaria and Romania already joined the EU in 2007, Croatia with its accession in 2013 is the newest member of the Union. They share the same problems concerning corruption; therefore the EU started a monitoring program for Bulgaria and Romania after their accession, which was meant to increase the pressure for reforms. Corruption, together with judicial systems that leave much to be desired, hampers the business environment and investment climate.

Thanks to a strict austerity policy in recent years the Member State Area 3 exhibits solid public finances.

All three countries have a functioning market economy and are able to cope with the competitive pressure within the Union due to structural reforms in recent years. Yet further reforms are needed with respect to public administration, employment (Croatia and Bulgaria), infrastructure and education (Bulgaria).

In Bulgaria an increasing absorption of EU funds can be observed in comparison with previous years, still the responsible actor for applications (public administration) leaves much room for improvements, concerning efficiency. The need for investments is great and the country has to fight against demographic changes, with younger people leaving the country to look for jobs elsewhere and a decreasing birth rate.

Romania faces a weak domestic demand since the crisis and a rather elevated inflation. Its dependence on the euro area is relatively high.

Meanwhile in Croatia, reforms are still needed with respect to employment.13

13 Deutsches Auswärtiges Amt.
Accession Countries: (Serbia, Bosnia and Herzegovina, Montenegro)\textsuperscript{14}

The accession countries Serbia and Montenegro already have reached the “candidate for accession” status, while Bosnia and Herzegovina is considered a “potential candidate”. They all still have deficits regarding the fulfilment of the Copenhagen Criteria in several areas. For economic development, the hampered and partly poor business environment, which is also affected by a high level of corruption, defected rule of law and partly meagre infrastructure, represents a major obstacle. Some reforms and progress have been noted in the recent past, but further improvements are needed in order to provide a safe and trustworthy business environment. The labour market conditions are far from optimal and the unemployment rate is rather high.

In recent years some progress has been made towards a functioning market economy but there is still a long way to go in order for the countries to be able to cope with the competitive pressure and market forces within the European Union.

Neighbouring Countries (Ukraine, Moldova):

The Neighbouring countries are former Soviet republics and share the corresponding post-communist legacy. More than 20 years after gaining independence, they are still politically unstable and suffer from democratic deficits (to varying degrees).

They belong to the low-income to medium-income economies with a strong adverse legacy in their economic structures. Despite their relatively low per capita income level, they are highly industrialised and have an educated population and a relatively well-qualified labour force. They also have close ties with the EU in terms of culture, history and values.\textsuperscript{15}

\textsuperscript{14} EU-Commission: Conclusion Report 2012 (Serbia, Bosnia and Herzegovina, Montenegro).

\textsuperscript{15} European Competitiveness Report 2012: Reaping the benefits of globalization.
The banking system in both countries is generally stable and well capitalised. On the contrary, both countries still present notable deficits in their judicial systems. Moldova’s growth is supported by private consumption, which is financed through the remittances of Moldavians working in other countries. Ukraine needs to improve its image as a destination for FDI.

2.1.2 Gross Domestic Product (GDP)

Table 1 includes information about GDP of the subgroups and their respective total growth rates in the Danube Region for selected points in time or periods.

Table 1: GDP and GDP growth rates for OECD, EU-27, the Danube Region and its subgroups

<table>
<thead>
<tr>
<th>GDP in Billion, constant 2005€</th>
<th>2003</th>
<th>2011</th>
<th>Growth 2003-2012 (in %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU-27</td>
<td>10,586</td>
<td>11,768</td>
<td>11.2</td>
</tr>
<tr>
<td>OECD</td>
<td>27,234</td>
<td>30,697</td>
<td>12.7</td>
</tr>
<tr>
<td>DANUBE</td>
<td>1,370</td>
<td>1,626</td>
<td>18.7</td>
</tr>
<tr>
<td>Member Area 1</td>
<td>921</td>
<td>1,062</td>
<td>15.3</td>
</tr>
<tr>
<td>Member Area 2</td>
<td>236</td>
<td>293</td>
<td>24.0</td>
</tr>
<tr>
<td>Member Area 3</td>
<td>124</td>
<td>157</td>
<td>26.0</td>
</tr>
<tr>
<td>Accession Countries</td>
<td>27</td>
<td>35</td>
<td>31.6</td>
</tr>
<tr>
<td>Neighbouring Countries</td>
<td>62</td>
<td>79</td>
<td>28.0</td>
</tr>
</tbody>
</table>

Source: Eurostat, UNdata, World Bank, Statistische Ämter des Bundes und der Länder. Calculation and illustration: IAW.

Table 1 shows the percentage shares of real GDP with which the five subgroups within the Danube Region contribute to the GDP of the whole region in 2011.

INFO BOX: Methodological explanation

We make use of real data, i.e. constant 2005€ in order to facilitate comparability among the subgroups of the Danube Region, since we are interested in the current state and the development of production/income and not in the development of the prices in each of these subgroups.
Total GDP of the Danube Region amounts to 1,626 billion euros in 2011 in comparison to 1,370 billion euros in 2003 (See Table 1).

In 2011 the group formed by Austria, Baden-Wuerttemberg and Bayern accounts for 65% of the GDP of the whole Danube Region compared to 67% in 2003 (Annex Figure 77). Hungary, the Czech Republic, Slovenia and the Slovak Republic together amount to 18% of the Danube Region’s GDP in 2011, which implies an increase by one percentage point in comparison with 2003.

The third group formed by Croatia, Bulgaria and Romania exhibits a share of 10% of total Danube Region GDP in 2011, which also exceeds the group’s share in 2003 by one percentage point.

By contrast, the shares of Accession Countries and Neighbouring Countries in total Danube Region GDP amount to 2% and 5% respectively, both in 2011 and 2003.

**Figure 4: Real GDP (constant 2005€) in 2011**


Figure 5 shows the total real GDP growth experienced by the Danube Region, OECD and EU-27 from 2004 to 2011. The Danube Region’s growth rate during
the observed period is substantially higher than the ones for OECD and EU-27. Figure 78 also shows the total real GDP growth experienced by the subgroups within the Danube Region from 2004 to 2011. The area 1 formed by Bavaria, Baden-Wuerttemberg and Austria grew by 15% from 2003 to 2011, the area 2 formed by Hungary, the Czech Republic, the Slovak Republic and Slovenia by 24%, the area 3 composed by Croatia, Bulgaria and Romania by 26%, Accession Countries by 31.6% and Neighbouring Countries by 28%.

**Figure 5: Real GDP growth (%)**

![Real GDP growth graph](image)

Source: Eurostat, UNdata, World Bank, Statistische Ämter des Bundes und der Länder
Calculation and illustration: IAW.

Figure 5 shows real GDP growth calculated as percentage change on the previous year from 2004 until 2011 for the whole Danube Region, OECD and EU-27. Real GDP growth evolution for OECD and EU-27 stays approximately constant from 2004 until 2007 at 3%. From 2007 until 2009, coinciding with the financial crisis, the series shows a sharp decrease reaching its lowest value in 2009 with a growth rate of -4%. In 2010 real GDP growth shows signs of an incipient recovery with a rate of approximately 2%. In 2011 the series again exhibits a slight decrease, however not comparable with the sharp drop experienced in 2009. On the contrary, the Danube Region presents higher real GDP growth rates than OECD and EU-27 over the period 2004 to 2008 as well as
during the period after the financial crisis. More specifically, growth rates amount to 7% for the Danube Region and 4% for the OECD and EU-27 in the years preceding the financial crises. During the financial crisis, i.e. the period from 2007 to 2009, the drop suffered by real GDP growth in the Danube Region is bigger than the one experienced by the EU-27 and OECD countries. In 2009 the Danube Region experienced a real GDP growth rate of -8%.

Given this information, one could conclude that real GDP growth is more volatile in the Danube Region than in the OECD and EU-27 during the observation period, implying that growth is higher in times of an economic boom and lower in times of an economic crisis. One could also say the Danube Region’s recovery from the crisis seems to be faster than in the countries of the OECD and EU-27.

Regarding the development of real GDP growth from 2004 until 2011 in the different subgroups of the Danube Region, the Member States have experienced a negative real GDP growth rate of approx. -6% in 2009, while Accession Countries exhibit a negative growth rate of “only” approx. -3.5%. The Neighbouring Countries have suffered more intensively from the consequences of the financial crisis, resulting in a negative growth rate of -14% in 2009 (Annex Figure 78).

2.1.3 Prosperity Indicator

Figure 6 shows real GDP per capita, PPP adjusted for the Danube Region compared with OECD and EU-27. For all three aggregates, GDP per capita shows a gradual raise, although it’s also clearly visible that there exist sharp changes for the years around 2008/2009. The slightly higher slope of the Danube Region series could be interpreted as a modest convergence.

OECD level is well above the other two and swings around an average of about 30,000 US$ (2005, PPP) per capita. This is closely followed by the EU-27 for which GDP per capita moves in a range between 26,000 US$ and 28,000US$ (2005, PPP). The Danube Region follows at an overall level between 15,000US$ and 18,000US$ (2005, PPP).

As there is no data available yet for Bavaria and Baden-Wuerttemberg, we could infer its development by taking a closer look at the data for entire Germany. This reveals that for 2010 there exists a positive growth rate of 5.3 per-
percentage points and for 2011 a positive growth rate of 2.7 percentage points, so we can see a recovery taking place. With a high degree of certainty we can assume that Baden-Wuerttemberg and Bavaria as two of the most important economic areas in Germany do not act anti-cyclical. With a majority of positive growth rates from the other countries for 2010 and 2011 we can presume that the entire Danube Region will have undergone a recovery in 2010 and 2011.

Figure 6: GDP per capita, PPP adjusted

Regarding the GDP per capita levels of the subgroups within the Danube Region, the countries forming the group Member States 1 enjoy the highest prosperity level with a GDP per capita level around 37,000 US$. A wide margin separates them from the Member States 2, which have a GDP per capita of around 20,000 US$, followed by Member States 3 with approximately 14,000 US$, Accession Countries with 9,000 US$ and Neighbouring countries with ca.
7,000 US$ per inhabitant. The tendency for GDP per capita for all subgroups is a rising one (Annex Figure 79).

2.1.4 GDP components and sectors

There are three different approaches to measure Gross Domestic Product: the income approach, the expenditure approach and the output approach. Here we focus on the last two methods, i.e. the expenditure and the output approach.

INFO BOX: Methodological explanation

The expenditure approach is based on the fact that the aim for most goods and services produced in an economy is to be sold. Therefore, Gross Domestic Product can be calculated as the sum of the following components: private consumption, public consumption, investment and net exports.

The output approach, also called Value Added method, consists of calculating GDP as the sum of “Total gross value added” and “Taxes less subsidies on products”. Gross value added is the net result of output valued at basic prices less intermediate consumption valued at purchaser’s prices. Gross value added is calculated before the consumption of fixed capital.

Gross value added can be broken down by economic activities, being the most common classification of the division into Agriculture and Fishery, Industry and Services sector.

GDP main aggregates (Expenditure side)

Figure 7 shows the GDP share of the GDP components (private and public consumption, investment and net exports) in the Danube Region, OECD and EU-27 in 2010. In 2010, private consumption share of GDP in the Danube Region is 56.7%, public consumption share is 18.5%, investment share is 20.2% and net exports share is 3%. In 2010, private and public consumption shares are slightly lower in the Danube Region than in the EU-27 and OECD. On the contrary, investment and net export shares of GDP are higher in the Danube Region than in the OECD or EU-27.
Comparing component shares of GDP in the Danube Region between 2004 and 2010, it can be pointed out that the shares of net exports and public consumption have increased by 0.4 and 0.7 percentage points respectively, while the shares of investment and private consumption have decreased by 1.4 and 0.5 percentage points respectively.

**Figure 7: GDP components in 2010**

![GDP components in 2010](image)

Source: Eurostat, UNdata, World Bank, Bayerisches Landesamt für Statistik, Landesamt für Statistik Baden-Württemberg, Statistische Ämter des Bundes und der Länder. Calculation and illustration: IAW. Danube Region does not hit the 100 % mark because proxies have been used for net exports for Bavaria and Baden-Württemberg.

Figure 8 shows the GDP share of the GDP components (private and public consumption, investment and net exports) in the subgroups within Danube Region in 2010. It can be pointed out that in 2010 in the first two groups from the left, private consumption has a share of GDP of approximately 50%, public consumption and investment 20% each and net export share is positive and lies over 3%.
Furthermore, in 2010 the third group and the Neighbouring Countries have a private consumption share of GDP that lies at approximately 60% and a negative net export GDP share that lays around -4%. Group 3 exhibits an investment share of GDP of 24% while for the Neighbouring countries it is at approximately 19%. Public consumption presents GDP shares of 17% and 20% respectively.

**Figure 8: GDP components in 2010**

![GDP components in 2010](source)

Source: Eurostat, UNdata, World Bank, Bayerisches Landesamt für Statistik, Landesamt für Statistik Baden-Württemberg, Statistische Ämter des Bundes und der Länder. Calculation and illustration: IAW. 2010: The most recent year with complete data coverage. For Member State Area 1, 100 %mark is not reached because for Bavaria and Baden-Württemberg proxies have been used for net exports.

The Accession Countries, in contrast, present values that deviate significantly from the common pattern. While public consumption and investment exhibit GDP shares similar to those of the other areas, that is, shares that lie around 20% in each case, the private consumption share of GDP in 2010 is 83% and net exports exhibit a GDP share of -19%.
Comparing the GDP shares of the GDP components in 2010 with the values of 2004, we can observe the following facts (Annex Figure 87): In the group formed by Hungary, the Czech Republic, the Slovak Republic and Slovenia, the investment share of GDP has decreased; furthermore, this group has corrected its current account imbalances by turning from a negative net export GDP share to a positive one. The Neighbouring countries have increased their private consumption share of GDP mainly at the expense of deteriorating their current account, since net export share of GDP has turned negative.

In contrast to this, the group formed by Croatia, Bulgaria and Romania has improved its current account balance, even if net export share of GDP remains negative, mainly at the expense of reducing the private consumption share of GDP. Accession countries have carried out a big effort to improve their current account imbalances mainly at the expense of reducing investment share of GDP. In spite of this effort, net export share is still negative. The expenditure structure in the group formed by Bayern, Baden-Wuerttemberg and Austria has not changed much between 2004 and 2010.

Figure 9 shows the total growth rate of GDP components, i.e. private and public consumption, investment, exports and imports, between 2003 and 2010 in the Danube Region, OECD and EU-27. The Danube Region imports exhibit the highest growth rate between 2003 and 2010 with an approximate rate of 50%. Exports are in second place with an approximate total growth rate of 43%. The third position is occupied by private consumption with a growth rate of approximately 18%, followed by public consumption. Investment exhibits a growth rate of approximately 5% over the period 2003 to 2010.

Comparing these results with GDP component growth rates over the analysed period for the OECD and EU-27, we need to point out that with the exception of public consumption, which exhibits similar growth rates in all three regions all components show a stronger growth in the Danube Region than in the OECD or EU-27. Furthermore, in contrast with the EU-27 and OECD, imports have grown more than exports in the Danube Region.
Figure 9: Growth rates of real GDP components from 2003 to 2010


No data available for Bosnia and Herzegovina, Montenegro, Moldova and Ukraine for 2012.

Figure 10 shows the total growth rates of GDP components, i.e. private and public consumption, investment, exports and imports, between 2003 and 2010 in the subgroups within the Danube Region. There are substantial differences between these subgroups. Private consumption and investment exhibit low growth between 2003 and 2010 in the group formed by Baden-Wuerttemberg, Bavaria and Austria. Export and import growth rates, by contrast, amount to around 40%, with import growth slightly exceeding export growth.

In the Member State Area 2 private consumption and investment also have low growth rates. Especially noteworthy is the fact that imports have grown around 55% over this period while exports have grown around 75%.
The group formed by Croatia, Bulgaria and Romania exhibit, with the exception of public consumption, which stayed almost constant over the analysed period, growth rates of its GDP components that lie over 40%. Import growth rates between 2003 and 2010 lie over 75%, thus, clearly exceeding export growth which exhibits a rate of approximately 50%.

Investment and import growth between 2003 and 2010 in the Accession Countries lies around 60%, while export growth is around 80%. Private and public consumption exhibit growth rates of approximately 30% and 20%, respectively.

Imports and private consumption in the Neighbouring Countries exhibit growth rates of over 80% between 2003 and 2010. Public consumption has grown by approximately 10% over this period while exports and investment present a negative growth rate of approximately 10% over the analysed period.

Several observations can be made with respect to the yearly growth rates, i.e. percentage change from the previous year, of the different GDP components (private and public consumption, investment, exports and imports) in the Danube Region, OECD and EU-27 (Annex Figure 82 to Figure 86).

The analysed period is from 2004 to 2011. Investment, exports and imports are the most volatile GDP components, since one-period growth rates range from +15% to -15%. Growth rates of -15% are reached in 2009, coinciding with the burst of the financial crisis.

One striking fact is that with the exception of public consumption, the remaining GDP components grow more strongly in the Danube Region than in the EU-27 and OECD in times of an economic boom, while they exhibit weaker growth rates in times of an economic crisis. Summarising, we could say that the development of GDP components in the Danube Region shows a stronger link to the economic cycle than in the EU-27 and the OECD.
All GDP components, with the exception of public consumption, exhibit positive growth rates before and after the burst of the financial crises, which points to a rapid recovery. On the contrary, in 2009 all mentioned GDP components show negative growth rates.

Public consumption, in contrast, increases during the financial crisis (2009). This is probably due to the expansionary fiscal policies carried out in most of the economies of the world at the burst of the financial crisis.

**Sectoral structure (Output approach)**

Figure 11 demonstrates the composition of GDP between the regional aggregates for the year 2010. It is quite obvious that the sectorial component for services has the highest share in the composition of all three regional aggregates. While the OECD and EU-27 services share of GDP lies over 70% and has increased by approximately 2 percentage points from 2003 (Annex Figure 89)
to 2010, the Danube Region remains below 70%, at around 64%. This share does not change significantly between 2003 and 2010 as well. The already relatively small share that agriculture holds (at around 2% for OECD and EU-27 and 3% for Danube) decreases over the depicted period for all three regional aggregates. For OECD and EU-27 the share of the secondary sector also decreases over time (by about 2 percentage points), while it increases for the Danube Region (by slightly above 1 percentage point).

**Figure 11: GDP sectors in 2010**

![GDP sectors in 2010](image)

Source: Eurostat, World Bank, Statistische Ämter der Länder. Calculation and illustration: IAW. Anomalies are caused by rounding up or down.
Figure 12: GDP sectors in 2010

Figure 12 shows the GDP share of the main economic activities (Services, Industry and Agriculture) in the subgroups within the Danube Region in 2010.

In 2010 the Member States 1 group exhibits GDP shares of the service, industry and agriculture sectors of 65.6%, 33.4% and 0.9% respectively. In comparison with 2003 (Annex Figure 90), the share of the service and agriculture sector has decreased while the share of the industry sector has increased.

The Member States 2 group presents a similar economic structure to that of the Member States 1. The main difference is a bigger agricultural sector (2.9 % of GDP) and a smaller services sector. In comparison with 2003, this group shows an increase in the GDP share of the service and industry sector and a decrease in the agricultural sector.

The Accession Countries and the Neighbouring Countries, on the contrary, present agriculture shares of GDP of approximately 9%. In the case of the Ac-
cession Countries this translates into a smaller industry sector while for the Neighbouring Countries it translates into a smaller service sector.

In comparison with 2003, both country groups have succeeded in reducing the size of their agricultural sector, and especially noteworthy is the change the Neighbouring Countries have experienced.

The Member States 3 group exhibits GDP shares of the diverse economic activities, i.e. services, industry and agriculture of 58.9%, 34.6% and 6.2%. It is clearly positioned between the more advanced economies of the Danube Region (Member States 1 and Member States 2) and those who are still catching up (Accession Countries and Neighbouring Countries). In comparison with 2003, the agricultural sector has strongly diminished in size, while the industry sector has gained importance.

In the last century there has been a shift in the composition of GDP in industrialised countries from the primary and secondary sector towards the tertiary sector, which meanwhile has become the most important sector in advanced economies. The annual growth rates for the Danube Region range between those of the OECD and EU-27. In the pre-crisis era the growth rates have been positive or at least constant for all three regional aggregates. During the economic crisis the growth rates turned negative and declined steeply. OECD suffered the least dramatic drop and recovered rapidly, while the Danube Region and EU-27 suffered a deeper decline with the lowest point reaching a negative annual growth rate of -5% and -6%, respectively. After 2009 the growth rate for EU-27 turns positive again.

Industry, also known under the term secondary sector, is generally placed second in the composition of GDP from the production side. In this sector the parallel movements of the growth rates are obvious. The Danube Region has the highest growth rates, followed by EU-27 and then OECD. During the economic crisis the growth rates turned negative and suffered a steep decline. Whereas, OECD underwent a relatively moderate decline, the EU-27 and the Danube Region reached a negative growth rate of nearly -20%. The recovery for OECD and EU-27 follows closely and they got back or even overtook pre-crisis level growth rates.
Figure 13: Services (value added) growth


Figure 14: Industry (value added) growth

Agriculture, also known as the primary sector, contributes only a small part to GDP in the industrialised world. The Danube Region has the highest fluctuations in this sector and the steepest growth rates. While OECD and EU-27 swing between +/- 5% growth rates over the depicted time series, the Danube Region reaches high points around nearly 25% of the previous year and low points around -5%.

2.1.5 Financing and Indebtness

The economic performance of a region is strongly influenced by government finance, such as domestic and foreign government debt and the system of taxation, because this may provide limits to future fiscal policy. In this context, the tax and social security contribution ratios of the Danube Region countries will be analysed.
Figure 16: Tax aggregates in year 2011, Danube Region compared to OECD and EU27

![Tax aggregates in year 2011, Danube Region compared to OECD and EU27](image)

Source: World Bank, WDI. For Baden-Wuerttemberg and Bayern, Germany has been used as a proxy. Calculation and illustration: IAW.

Figure 17: Tax Aggregates by Country Groups (2011)

![Tax Aggregates by Country Groups (2011)](image)

Source: World Bank, WDI. For Baden-Wuerttemberg and Bayern, Germany has been used as a proxy. Calculation and illustration: IAW.
Figure 16 and Figure 17 show three different sources of public revenue:

- Taxes on income, profits, and capital gains are impositions levied on the actual or presumptive net income of individuals, on the profits of corporations and enterprises, and on capital gains – whether realised or not – on land, securities, and other assets. Intra-governmental payments are eliminated in consolidation.
- Taxes on goods and services include general sales and turnover or value added taxes, selective excises on goods, selective taxes on services, taxes on the use of goods or property, taxes on extraction and production of minerals, and profits of fiscal monopolies.
- Social contributions include social security contributions by employees, employers, and self-employed individuals as well as other contributions whose source cannot be exactly determined. They also include actual or imputed contributions to social insurance schemes operated by governments.

We first focus on the Danube Region. The most important source of public revenue are the social contributions, which amount to about 14% of the GDP of the region, followed by taxes on goods and services (9% of GDP) and taxes on income, profit and capital gains with ca. 5% of GDP.

This same rank of importance can be found in the EU-27, which also exhibits tax shares similar to those of the Danube Region. However, the countries of the EU-27 rely less on social contributions and more on taxes on goods and services than the countries of the Danube Region.

In the OECD, on the contrary, there is no such big difference between the sources of public revenue, i.e. all three tax aggregates exhibit similar shares of GDP, which lie further below those of the EU-27 and the Danube Region.

Regarding the Danube Region’s subgroups, the Member States 1 and Member States 2 show a similar pattern as the Danube Region concerning the ranking of the sources of public revenue. The Member States 3, Accession Countries and Neighbouring Countries, in contrast, have higher shares of public revenues proceeding from taxes on goods and services. It is also worth mentioning that the overall public revenue emanating from these three
sources amounts to a higher share of GDP in Accession Countries and Neighbouring Countries than in the Member States.

Figure 18: Implicit tax rates (2011)

Figure 18 shows the implicit tax rates on consumption, labour and capital in the Member States in 2011.

Hungary, Czech Republic and Slovenia exhibit the highest tax rates on consumption with a tax rate that lies over 20%. The highest tax rates on labour can be found in Austria, Hungary and Czech Republic with labour tax rates above 35%. Finally, although information on capital tax rates could not be collected for all Member States, it has to be pointed out that the highest tax rates on capital can be found in Germany, Austria and Slovenia, where these tax rates lie above 20%.
Figure 19: General government consolidated gross debt (2003-2011)

![Figure 19: General government consolidated gross debt (2003-2011)](image)

Source: Eurostat and German Ministry of Finance. Illustration and calculation: IAW.

Figure 20: General government consolidated gross debt in % of GDP

![Figure 20: General government consolidated gross debt in % of GDP](image)

Source: Eurostat and Bundesministerium für Finanzen. Illustration and calculation: IAW.
consolidated gross debt across all three regional aggregates, although the Danube Region’s level lies significantly below that of EU 27 and Germany.

Taking into account the heterogeneity within the Danube Region, we can see similar developments for Member States of the Areas 1 and 2 as well as for Member State of the Area 3 and Neighbouring Countries. All subgroups had decreasing government gross debts before the economic crisis starting in 2008 and increasing debts during and afterwards. The Accession Countries display the highest volatility over the depicted period. While the Member States of the Area 1 display the highest level of debt in relation to GDP, up to 60% at its peak, the Neighbouring Countries display the lowest levels falling down to around 12% of GDP in 2007.

2.1.6 Trade, FDI and exchange rates

Foreign Direct Investment (FDI) constitutes an important mean of international economic integration. It interlaces the world more closely and encourages the transfer of technological know-how. Furthermore, it might help developing countries to develop faster, as it is an additional source of investment funding. FDI might take on many forms: a firm might enter a foreign market by using an existing business facility (brownfield investment), e.g. through Mergers and Acquisitions (M&A) or a joint venture with a local enterprise, or it might build a new plant (greenfield investment). Generally, one talks about FDI when an investor can influence the management and pursues long-term interests in a foreign affiliate. This criterion is said to be fulfilled if an investor holds shares or voting rights exceeding the widely accepted OECD benchmark of 10%.\(^{16}\)

We can further distinguish between vertical and horizontal forms of FDI. The acquisition of (intermediate) inputs via vertical FDI, on the one hand, is foremost a mean to reduce production costs by exploiting factor cost differences across countries. Horizontal FDI, on the other hand, involves the production of final goods directed at the foreign market in the destination country and

serves to avoid transport costs and other trade barriers. The line between these two types of FDI is not always clear-cut, as some firms may simultaneously pursue both motives. This information is typically internal to the firm and hence it is not possible to distinguish both forms only by looking at data on investment flows or stocks. Given the motive of these investments, one might conjecture that FDI flows between developed economies are more likely to reflect horizontal investments, while FDI flows from a developed to a developing economy are more likely vertical in nature.\textsuperscript{17}

Figure 21: FDI stocks over time (in % of GDP)

Inward FDI stocks refer to all direct investments in an economy by non-residents, while outward FDI stocks capture the investments by residents made in foreign countries.\(^{18}\) Besides FDI, there also exists portfolio investment. This form of investment is geared towards short term gains and does not entail active management or control of the firm; therefore, it is more volatile than FDI.\(^ {19}\)

Figure 21 compares the inward and outward FDI stocks relative to the GDP of the Danube Strategy Region, the EU-27, and NAFTA for the period 2008-2011. It is evident that both inward and outward FDI stocks of all three regions rose in 2009, stagnated in 2010, and declined in 2011, with the sole exception of outward FDI from the Danube Region, which continued to rise toward the end of the observed period.

The EU-27 has the highest (relative) outward FDI stock, which amounts to 45% of GDP in 2008 and around 55% of GDP in the following years. The inward FDI stock is also higher than in all other regions, rising from around 37% in 2008 to the level of 42% to 46% in the following years. The inward FDI stock for the Danube Region varies between 30% and 40% of GDP during the observed period, while the outward stock starts at slightly under 30% in 2008 and reaches its maximum in 2011 with close to 33% of GDP. Compared to NAFTA, the Danube Region both receives and sends more FDI in relative terms.

We see that the outward FDI stock exceeds the inward stock (expressed in % of GDP) for the EU-27 and NAFTA over the entire period, so these regions conduct more investments abroad than they receive. The opposite is true for the Danube Region, which features a positive net FDI position in each year. However, while outward FDI stocks of the Danube Region continued to grow in 2010-2011, inward stocks declined, which implies a convergence of these two measures over the depicted period.

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\(^{19}\) Compare Investopedia: Portfolio Investments.
For the NAFTA, both inward and outward FDI stocks lie roughly between 20% and 25% of GDP and the difference between both stocks is the smallest compared to the other regional aggregates. Also, we observe a convergence of inward and outward stocks over the investigated period and for 2010 and 2011 the values are nearly identical.

Concerning the subgroups, it is notable that all inward FDI stocks display a rising trend, which tends to slow down during the recent economic downturn in 2009. Over the entire period 2008-2011, the Member States Area 2 has attracted the largest amount of foreign capital, featuring an inward FDI stock of 50% to nearly 70% of GDP. The Member States Area 3 used to have the second highest inward FDI stock in terms of GDP until 2010, when it was overtaken by the Accession Countries. Member State Area 3’s inward FDI stock started at around 25% in 2003 and peaked in 2009/2010 slightly below 60% of GDP.

The Neighboring Countries feature the second lowest inward FDI stock of all subgroups, which has been rising significantly over the past years; starting from slightly below 20% of GDP in 2003, it reached a peak of around 40% of GDP after 2008. The Accession Countries’ FDI stock also has been rising significantly over the same period and reaches a value of about 65% of GDP in 2012. The most developed Member States Area 1 has the lowest inward FDI stock at around 20% of GDP (Annex Figure 91).

Concerning outward FDI stocks, the Member States Area 1 displays the greatest variation over time, reaching from 32% of GDP in 2003 to 52% in 2011. The Member State Area 2 ranks second, with an outward FDI stock starting from around 5% of GDP in 2003, which has been rising steadily since then to 13% in 2012. For the Member States Area 3, the Neighboring Countries, and the Accession Countries, the outward FDI stock has been increasing, too, but ranges from less than 1% to only 7% of GDP for the entire period (Annex Figure 92).

Domestic investment is an important driver of economic growth. Here, investment is defined as gross capital formation. When analysing this variable, one has to bear in mind that net values might differ due to differences in the depreciation rates.

Figure 22 shows that the domestic investment rate, defined as gross capital formation in % of GDP, in the Danube Region is above the OECD and EU-27 averages for the entire period 2004-2010. It starts in 2004 at close to 22% and
peaks in 2008 at 24% of GDP. These numbers for the Danube Strategy Region exceed the domestic investment rate of the EU-27, which reaches its peak in 2007 at around 22% of GDP, while the OECD average alternates about 21% from 2004 to 2008. After 2008, the domestic investment rate decreases dramatically and slowly starts to recover after 2009 for all three regional aggregates.

**Figure 22: Domestic Investment**

Within the Danube Region, Member States Area 3 has one of the highest investment rates over the depicted period, with a peak of around 32% of GDP in 2008. In contrast, the Member States Area 1 has one of the lowest domestic investment rates, which is relatively constant at about 20% of GDP. The other subgroups develop rather parallel with peaks in 2007/2008 and steep declines thereafter. Mostly, they move within a bound of 20% to 30%.

The fact that the newer members and the Accession and Neighboring countries have higher investment rates is probably due to the circumstance that
they still have a greater need and potential for capital accumulation (catching-up), whereas the Member State Area 1 comprises highly advanced economies (Annex Figure 93).

**Figure 23**

*World Export Market Shares of the Danube Strategy Region*

The illustration of the share of the Danube Region in world exports in Figure 23 yields one striking result: over the past five years, the weight of the Danube Region in world exports of goods and services has declined continuously. Its share in total world exports has dropped from its level in 2008 by one per-

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20 For Baden-Wuerttemberg and Bayern, only data for goods exports are available. Therefore, the world export share for services of these two regions is approximated. The approximation method tends to overestimate the world export share for services.
progress on competitiveness of the danube region: potentials, needs and challenges

centage point to approximately 6.1% in 2012. In this respect, the danube region falls further behind the respective shares of the eu-27 or the nafta. for example, in 2012, the world export shares of the eu-27 and the nafta were 32.9% and 13.8%, respectively.

we also observe a persistent structural pattern in exports from the danube region, which captures a larger share of world trade in commodities than in services. for example, the danube region accounted for 6.4% of total world exports of commodities in 2012, when its share in world services exports was only 5.7%. in contrast, the shares in world exports of services of the eu-27 and the nafta exceed their shares in goods trade (annex figure 94 and figure 95).

next, we focus on the different subgroups within the danube region. the member states area 1, formed by austria, baden-wuerttemberg and bayern, exhibits the highest export share in the danube region, which amounts to approximately 3.2% of world exports of goods and services in 2012. however, it is also the region that suffers the greatest drop in its share over the period 2008-2012.

the rest of the groups member states areas 2 and 3, accession countries and neighboring countries have shares in world exports of goods and services in 2012 of approximately 2.0%, 0.5%, 0.4%, and 0.1%, respectively. for these regions, the world export shares remain approximately constant over the analysed period.

we next compare goods or services exports for each of the subgroups. on the one hand, the member states area 1 and member states area 2 have a higher share in world exports of goods than for services trade. on the other hand, the member states area 3, accession countries, and neighboring countries export relatively more services than goods compared to the rest of the world (annex figure 96 and figure 97).
Figure 24: Trade Intensity

Figure 24 shows that trade intensity, measured as the sum of imports and exports over GDP, is higher in the Danube Region than in the EU-27 and the OECD average. This implies that the Danube Region is more engaged in international trade than the OECD and EU-27 countries on average. In 2011, trade volume (imports + exports) in the Danube Region was approximately 101% of GDP, while for the EU-27 and the OECD, trade volumes in the same year reached only 87% and 58% of GDP, respectively. It is important to note that part of this difference in trade intensities can be explained by the fact that the single countries of the Danube Region are smaller in terms of GDP, and therefore inherently more open to international trade, than those that are composing the EU-27 and the OECD.

Regarding the development of trade intensities over the depicted period, an important observation can be made: all three regions, i.e. the Danube Region, the EU-27, and the OECD show a parallel development of trade intensities.
from 2003 to 2011. Overall, trade volumes show an increasing trend over the entire period, which is only interrupted by the crisis of 2009.

Regarding the subgroups within the Danube Region, it is worth mentioning that trade intensity in the Member States Area 2, formed by Czech Republic, Hungary, Slovenia, and Slovak Republic, lies well above that of the other groups (Annex Figure 98).

**Figure 25: Trade with EU-27 in 2011**

![Graph showing trade with EU-27 in 2011](chart.png)

Source: Eurostat For Bavaria and Baden-Wuerttemberg: Statistisches Bundesamt. Calculation and Illustration: IAW

Trade with the EU-27 in the year 2011 is shown in Figure 25 and varies strongly between the 14 countries of the Danube Region. It can be demonstrated,

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21 For Bavaria and Baden-Wuerttemberg we use the value of Exports and Imports for goods. It is also important to mention that the import values for the two regions are not complete because of measurement errors concerning the assigning of imports for the different regions.
that Bavaria, Baden-Wuerttemberg, and the Czech Republic have the highest value of exports within the EU-27, followed by Austria, Hungary, and Romania. In contrast, Austria is the biggest importer followed by Bavaria, Baden-Wuerttemberg, the Czech Republic, and Hungary. Only five out of 14 regions within the Danube Region have a positive trade balance, while the other nine countries import more than they export. It is also clear that Germany as a whole dominates the rest of the Danube countries in terms of trade intensities.

Finally, we examine the intensity of trade in the Danube Region with the EU-27. The EU-27-share of total trade (exports and imports) for all the Danube countries can be described as follows: The Czech Republic and the Slovak Republic trade most intensively with the EU-27, which receives more than 80% of its exports, followed by Hungary, Romania, and Slovenia. On the lower end, Ukraine ships only 26% of its exports to this region. Looking at the imports, we see that Austria, the Czech Republic, the Slovak Republic, and Romania import the highest shares (around 70% of their imports) from the EU-27. Ukraine again features lowest value with only 31%. The comparably low values for Ukraine are not very surprising due to its geographic location and intensive economic relationship with Russia.

The development of imports and exports with the EU-27 was very heterogeneous between different countries. While the share of trade with the EU-27 members has decreased in Austria and Germany, it stayed relatively constant in Slovenia. One final observation concerns the reduction of trade shares with the EU-27 for most countries in the Danube area that are not members of the Eurozone, like Ukraine or Hungary. The strong performance of the Euro as a currency in the last years may have contributed to this decline.

2.1.7 Investment Climate

Policymakers are struggling to find ways to cope with the current economic challenges while preparing their economies to perform well in an increasingly

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22 For detailed information see Annex Figure 110 and Table 13.

23 For detailed information, see Annex:Table 12 and Table 13.
unpredictable and volatile global landscape. Amid the short-term crisis management, it remains critical for countries to establish the fundamentals that underpin economic growth and development in the longer term. In this respect, the Global Competitiveness Reports of the World Economic Forum assess the competitiveness landscape of significant parts of the world’s economies since many years and provides insights into the drivers of their economic growth.

The most recent survey conducted by the World Economic Forum in its latest Global Competitiveness Report captures the opinion of more than 13,000 business leaders in 148 economies on competitiveness issues.

**INFO BOX: Methodological explanation**

Most questions in the survey ask respondents to evaluate on a scale of 1 to 7 with 1 as the worst possible situation and 7 represents the best. Partner Institutes are asked to follow detailed sampling guidelines to ensure that the samples are as representative and comparable as possible. The sampling guidelines are based on best practices in the field of survey administration and on discussion with survey experts.

Based on the results of that survey (and in comparison to a previous survey from the years 2007/08), Table 2 shows the ranks of the areas of the Danube Region with regard to different competitiveness indicators. While Member states 1 are generally characterised by relatively high ranks, the extant areas of the Danube Region lag behind in many respects, and particularly the group of the Member states 2 also show a decline in their ranks since 2008. Improvement however can be observed in the overall index of the other regions. Concerning more explicit measures of the investment climate, it becomes obvious from the table that most of these variables have decreased in the observed period with only a few exceptions.
### Table 2: Global Competitiveness Report Rank, selected variables 2013-2014

<table>
<thead>
<tr>
<th>Indicator/Area</th>
<th>Member States_1 A, BW, BY</th>
<th>Member States_2 H, CZ, SK, SLO</th>
<th>Member States_3 HR, BG, RO</th>
<th>Acc. Countries</th>
<th>Neighb. Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Competitiveness index</td>
<td>8</td>
<td>62 (-)</td>
<td>69 (+)</td>
<td>85 (+)</td>
<td>87 (+)</td>
</tr>
<tr>
<td>Domestic Market Size</td>
<td>16 (+)</td>
<td>63 (-)</td>
<td>61 (-)</td>
<td>100 (-)</td>
<td>81 (-)</td>
</tr>
<tr>
<td>Cost of Crime &amp; Violence</td>
<td>21 (-)</td>
<td>50 (-)</td>
<td>66 (+)</td>
<td>48 (+)</td>
<td>56 (-)</td>
</tr>
<tr>
<td>Gov. Regulation</td>
<td>67 (-)</td>
<td>138 (-)</td>
<td>125 (-)</td>
<td>87</td>
<td>130 (-)</td>
</tr>
<tr>
<td>Property rights</td>
<td>14 (-)</td>
<td>86 (-)</td>
<td>96 (-)</td>
<td>103 (-)</td>
<td>137 (-)</td>
</tr>
<tr>
<td>Intellectual property rights</td>
<td>15 (-)</td>
<td>57 (-)</td>
<td>98 (-)</td>
<td>109 (+)</td>
<td>129 (-)</td>
</tr>
<tr>
<td>Trade barriers</td>
<td>47 (-)</td>
<td>39 (-)</td>
<td>103 (-)</td>
<td>99 (-)</td>
<td>91 (+)</td>
</tr>
<tr>
<td>Flexibility of wage determination*</td>
<td>143 (-)</td>
<td>88 (-)</td>
<td>56 (-)</td>
<td>80 (-)</td>
<td>57 (-)</td>
</tr>
</tbody>
</table>

Source: Global competitiveness Report 2013, Calculation and illustration: IAW.

Red (-): Decrease in Rank since 2007-2008
Green (+): Improvement of Rank since 2007-2008
Ranks are arranged in an ascending order.

**INFO BOX: Methodological explanation**

Surely, the Global Competitiveness Report is an important indicator for the development of competiveness in an economy, but it should not be overestimated as the Report is based on the subjective opinion of experts. As there is no clear consensus about the roots of growth in the economic theory, the choice of these criteria is linked to some specific visions and opinions of its author than to a solid scientific approach. Composite indexes are sometimes based on unreliable statistical methods and on the principle of aggregation which always generalises.
Composite indexes often change the criteria used in their survey. This is understandable as they try to follow the latest developments in economic theory or management research. But it means that there is no continuity in the statistical series they use and that it is therefore risky to use their yearly ratings as strong benchmarks.24

2.1.8 Unit labour costs

The cost of the value added in a country is the relevant concept for competitiveness, therefore costs or price measures are generally used for measuring competitiveness. Export prices as well as consumer or producer prices present major drawbacks when used as an indicator for competitiveness. For instance, export prices have the disadvantage that due to market pressures, firms may continue to supply at prices that do not reflect their underlying cost position. The main weakness of consumer prices is that there is not such indicator for intermediate goods. Regarding producer prices, although they are more relevant, they will not reflect the cost of value added in a country if inputs imports in this country are substantial.25

From the perspective of competitiveness, we are interested in those costs that differ from one country to another. For this reason we focus on labour costs.

In the following we will focus on labour inputs into the production as a central cost component. Labour costs might differ greatly in the international comparison due to the lack of mobility of workers and also due to the different burdens imposed by taxes and charges.

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24 “Draft: Competiveness - a general approach” by Gilles Walter, REPEC (Russian European Centre for Economic Policy) funded by the EU

25 ECORYS Research and Consulting (2011). “Study on the cost competitiveness of European industry in the globalization era - empirical evidence on the basis of relative unit labour costs (ULC) at sectoral level”.
http://ec.europa.eu/enterprise/newsroom/cf/_getdocument.cfm?doc_id=7060
Figure 26: Unit labour cost, current national currency

Source: OECD, UNECE, VGRDL, Eurostat, Penn World Table. Illustration and calculations: IAW

26 Country Specific Notes: Bosnia and Herzegovina, The wages include remuneration in cash only, not in kind, and the total wages are divided by the number of all employees including both full-time and part-time workers.

Croatia, the total wages are divided by the number of all employees including both full-time and part-time workers. Free lancers and craft workers are not included. 1994 denomination of the Croat dinar: 1 new Croatian Kuna = 1000 dinars.

Moldova, Republic of, the total wages are divided by the number of all employees including both full-time and part-time workers. 1993 denomination of the coupon: 1 new leu = 1000 old coupon.

Montenegro, the total wages are divided by the number of all employees including both full-time and part-time workers.

Serbia, the total wages are divided by the number of all employees including both full-time and part-time workers. Wages in services provided by households are not included, covers economic activities A-O (ISIC Rev.3).
For the analysis of competitiveness concerning labour cost, unit labour costs are taken into account. These are calculated by dividing the average gross wage by the labour productivity, defined as GDP per person employed.

Generally, one can conclude that lower unit labour costs lead to price reductions of the products offered in the market and thus to a higher competitiveness concerning prices.

The concrete measurement of labour costs, labour productivity and unit labour costs is not unambiguously possible; therefore, assumptions and calculation methods can affect the results to varying degrees and have to be considered when analysing unit labour costs.\(^\text{27}\)

\(^\text{27}\) IAW-Wirtschaftsmonitor BW 2009
Whereas the unit labour costs of the Member State Area 1 and 2 stayed rather constant, they display a gradual rise for the other subgroups. Concerning the development of the unit labour costs over time, it is notable that the Neighbouring Countries again display the highest volatility as well as the highest growth rates. For all subgroups, the unit labour costs have been rising shortly before the economic crisis and show a bend in 2009.

**Figure 28: Unit labour costs, current national currency**

Taking a closer look at the Index displayed in Figure 28, the dynamics of subgroups can be compared to the Danube average. While the Member State Area 1, the wealthiest subgroup, as well as the Neighbouring countries lie slightly above the Danube average for the entire period, the Accession Countries overrun the Danube Region’s average during 2007 and 2010. This fact might indicate that wages have risen faster than labour productivity in these countries. Member State Area 3, together with Member State Area 2 lie beneath average by roughly 15-20 percentage points throughout the entire period.
Summing up, one could say that the relative positions of the subgroups have not really changed in the depicted period. Noteworthy is that the Accession Countries and Neighbouring countries display a rather elevated level of unit labour costs. This fact may be able to contradict the common belief that firms relocate to these countries due to cheaper labour supply.

### 2.1.9 Labour productivity

Figure 29 shows labour productivity calculated as real GDP, PPP adjusted per person engaged in the Danube Region compared with OECD and EU-27. The Danube Region lies well below the OECD and the EU-27 level. For OECD and EU-27 the labour productivity shows a parallel co-movement with an approximate difference in overall level of 5,000 US$ (PPP). Before the economic crisis the productivity for the Danube Region displays a slightly steeper slope than the other two aggregates.

**Figure 29: Labour productivity (GDP per person employed)**

Source: Penn World Tables, OECD, Arbeitskreis VGL. Calculation and illustration: IAW. The Benchmark for the Danube area could not be calculated due to the missing data for years 2010 and 2011 for Bavaria and Baden-Wuerttemberg and missing data for Montenegro for 2003 and 2004.
Within the Danube Region, Member State Area 1 has unambiguously the highest level of GDP per person employed, at around 70,000 US$ (PPP), although the level declined during the economic crisis. The labour productivity of Member State Area 2 also has a rising tendency, which might be connected with the countries’ accession to the EU in 2004. It moved from around 40,000 US$ (2005, PPP) in 2003 to nearly 50,000 US$ (2005, PPP) in 2011 (Annex Figure 91).

Member State Area 3 and Accession Countries have nearly identical levels and movements, while we can see that the Member State Area 3 has overtaken the Accession countries by some small degree in 2007 (year of EU Accession). Neighbouring Countries have the lowest labour productivity, but it has also been rising significantly over an eight year period, from around 10,000 US$, (2005, PPP) to nearly 20,000 US$(2005, PPP), which indicates that the Neighbouring Countries have nearly doubled their labour productivity between 2003 and 2011.

2.1.10 Labour market and migration

Population by age groups

Population ageing has become a common feature that started several decades ago in the EU countries, the Danube Region and the OECD countries as well. Ageing is reflected in the development of the age structure of the population and visible in a rising proportion of older persons and a declining proportion of both the young and – in most countries – in the working age population in the total population. Ageing of the population is expected to accelerate in the coming decades in the EU-27 and probably so in the OECD area and the Danube Region, as a greater proportion of the post-war baby-boom generation reaches retirement. This will, in turn, pose a serious risk on the welfare system of these countries.

As illustrated in Figure 29 the prime-age population (15-64 years) remained almost unchanged over recent years in the Danube Region and was higher than in the EU-27 and in the OECD countries. By contrast, in the two latter regions the working age population shrank continuously in the 2004-2012 period.
The share of young people between 0 and 14 years has been steadily on the decline both in the EU-27 and in the Danube Region in the period 2004-2012 and represented only 15.6% and 14.2% of the total population (Annex Figure 103). There are, however, huge variations among regions and individual countries.

**Figure 30: Population 15-64 years (share of total population)**

![Population 15-64 years (share of total population)](image)

Source: Eurostat, OECD.

The EU-27, the Danube Region and probably the OECD countries as well are facing ageing populations. Population ageing has been slightly more advanced in the Danube Region than in the EU-27 up to the year 2010 when this trend reversed (Annex Figure 104). However in both groups of countries the share of the population above 65 years increased by 1.3 percentage points between 2004 and 2012.

**Activity rates**

As illustrated in Figure 30 overall activity rates in the Danube Region have been traditionally lower (at about 67%) than either in the OECD or the EU-27 and EU-15 countries (over 70%). In general, participation rates were more resilient than expected on the basis of historical regularities in the aftermath
of the recession. The gap between activity rates of the Danube Region and the three groups of benchmark countries remained almost unchanged in the period 2007-2012, ranging between 5 and 7 percentage points if compared to EU-27 and OECD respectively.

**Figure 31: Activity rates 2004-2012, total**

![Activity rates 2004-2012, total](image)

Source: Eurostat, OECD and national statistics

With respect to gender, activity rates differed across all regions. During the 2006-2012 period male rates have been very similar in the OECD and EU countries reached 80% and 78% respectively. At the same time male participation rates in the Danube Region have only slightly surpassed the 70% mark (Annex Figure 105). As regards females, the highest and most growing female activity rates were reported in the EU-15 and EU-27 reaching 66-67%. Similarly in the OECD activity of females was on the increase but remained below EU levels during the whole period (in 2012 the gap vis-a-vis the EU-15 was almost 5 percentage points). By contrast, in the Danube Region the participation of fe-

---

males on the labour market was growing less dynamically, hovering around 60% between 2006 and 2012 (Annex Figure 106).

**Figure 32: Employment rates**

Employed in % of working age population (15-64 years)

![Graph showing employment rates over time for different groups.](image)

Source: Eurostat, OECD and national statistics

**Figure 33: Employment rates in the Danube Region sub-groups**

Employed in % of working age population (15-64 years)

![Graph showing employment rates for different sub-groups.](image)

Note: Member states_1: BW, BY, AT; Member states_2: CZ, HU, SK, SI; Member states_3: HR, BG, RO
Source: Eurostat, OECD and national statistics
As indicated in Figure 31, employment rates – defined as the share of employment in the working age population (15-64 years) - increased up to 2008 in all major regions, the trend reversed with the crisis. Employment rates in the OECD exceeded the EU-27 average over the whole period under consideration, but fell below EU-15 from 2005 onwards. The employment rate of the Danube Region has been traditionally lower than both the EU and OECD averages. However, there are strong variations among the Danube Region subgroups as shown in Figure 32. Employment rates are remarkably lower in the accession countries than in the Danube Region on average and differ even more strongly if compared with the group of the best performers (Member states_1: AT, BW and BY), with the gap continuously widening over the past decade.

As depicted in Figure 33 the employment rates of young people (15-24 years) show remarkable variations. In the entire period under consideration youth employment rates were the highest in the OECD area and lowest in the Danube Region, with an almost constant gap of close to 9 percentage points between the two. In the period 2008-2012 youth employment rates decreased in all four regions, of which most pronouncedly in the EU-15 - by 6.4 percentage points. Within the Danube Region sub-groups youth employment rates fell most significantly in the accession countries (by 7 percentage points) and in the Member states 2 (by 4.8 pp).
Differences in youth employment rates are even greater if comparing the Danube Region sub-groups. As illustrated in Figure 34 the gap between the lowest youth employment rate reported for accession countries and the highest in Member states_1 accounted for 38 percentage points in 2012 (52% versus 13.6%).

Figure 35: Youth employment rates in the Danube Region sub-groups, in %

<table>
<thead>
<tr>
<th>Year</th>
<th>Member states_1</th>
<th>Member states_2</th>
<th>Member states_3</th>
<th>Acc. Countries</th>
<th>Neighb. countries</th>
</tr>
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<td>40</td>
<td>30</td>
<td>20</td>
<td>10</td>
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<td>50</td>
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<tr>
<td>2012</td>
<td>50</td>
<td>40</td>
<td>30</td>
<td>20</td>
<td>10</td>
</tr>
</tbody>
</table>

Note: Member states_1: BW, BY, AT; Member states_2: CZ, HU, SK, SI; Member states_3: HR, BG, RO
Source: Eurostat, OECD and national statistics

Figure 35 shows the sectoral distribution of employment by main economic activities – agriculture, industry and services. In all four regional groups services sector employment plays the dominant role, reaching 70% of total employment in EU-27 and exceeding that mark by 3-4 percentage points in EU-15 and OECD. In 2012 services sector employment in the Danube Region was far below these levels accounting for slightly less than 60% of total employment. Here agriculture is still an important employer, absorbing close to 13% of the total workforce, while the respective shares in EU-27 and OECD stood at 5%; in the EU-15 at only 3%. Also industrial employment is more pronounced in the Danube Region than in the three other regions.
Figure 36 presents the employment shares by main economic sectors in the Danube Region sub-groups. In 2012 the Member States_1 reported the lowest share of agricultural employment (2.6%) among the Danube countries, while it accounted for 22.5% in the Member States_3 mainly as a result of the still high proportion of agriculture in Romania. Also in the accession and neighbouring countries 18-19% of the workforce is employed in agriculture. The services sector absorbs two thirds of total employment in the Member States_1, but only 48% in the Member States_3 group and 53% in the accession countries. Industrial employment exhibits a higher share in total employment in the EU member states belonging to the Danube Region, above all in the Member States_2 comprising the Czech Republic, Hungary, Slovakia and Poland. Conversely, in the accession countries and particularly in the neighbouring countries, industry accounts for 27% and 21% of total employment respectively.
In the past couple of years the share of agricultural employment decreased in all major country groups, of which most pronouncedly in the Danube Region (neighbouring countries in particular). The industrial employment share has been on the decline as well with the strongest contractions in the EU-15 and EU-27. Within the Danube Region, industrial employment shares fell the most in the neighbouring countries and Member states_2. By contrast, services sector employment gained importance in all groups of countries with highest increases in the Danube Region, of which particularly in the neighbouring countries and in the Member states_3 (for further details on the sectoral shift from agriculture and industry towards the services sector see Chapter on GDP components and sectors above).

Moving on to the patterns of educational qualification of the employed we can see from Figure 37, that the Danube Region has a significantly lower share of low educated (people with less than completed secondary degree attainment levels) than either the EU-15 or the EU-27 (data on OECD are not available). Only 13% of the employed in the Danube Region belong to this group and 20%
in the EU-27 and 23% in the EU-15. Over the period 2004 to 2012, the share of the low educated has been falling in all economies under consideration.

**Figure 38: Employment by educational attainment, 15-64, in %**

![Bar chart showing employment by educational attainment](image)

Source: Eurostat, OECD and national statistics.

On the other hand the shares of the highly educated (employed with completed tertiary educational attainment level) are also lower in the Danube Region than either in the EU-15 or in the EU-27, by about 7-8 percentage points. Hence, compared with the EU-15 and EU-27 economies, the Danube Region has a very strong representation of the medium educated skill groups (group with some secondary completed educational attainment level) in which we find over 60% of the employed, as against just 49% in the EU-27 and 45% in the EU-15. The share of this group has been slightly increasing in the Danube Region and EU-15, while it is stagnant in EU-27. As shown in Figure 38 there are significant differences in the educational attainment levels of the employed in the Danube Region subgroups. With the exception of the Member states_1 the share of the medium educated in total employment is exceeding the 60% mark in all other country groups and reaches even 70% in the Member states_2. In the latter, together with the neighbouring countries, also the share of the low educated is lowest. Neighbouring countries exhibit the highest shares of highly educated within the Danube Region.
If looking at employment rates we can see an increase with the level of education, however to different extent in the individual regions. When it comes to tertiary education (high skilled) employment rates are highest in the EU-27 and EU-15, showing an almost identical picture in both groups of countries and only slightly lower rates in the Danube Region with over 80% on average. Differences as compared with the EU-15 and EU-27 occur particularly in the lowest educational group, with the employment rates being constantly below 40%. As shown in Figure 39, in 2012 the gaps in the employment rates of the low skilled between the Danube Region and the EU-15 and EU-27 accounted for 9pp and 6.6pp respectively. The employment rate of the medium-educated (about 66% on average in the Danube Region) is below the EU-15 and EU-27 levels, but the disparities narrowed since the outbreak of the crisis. Again, as illustrated in Figure 40, within the Danube Region there are large differences across the sub-groups with regard to the educational attainment of the workforce. For further details on developments over time, see Annex.
Non-standard forms of employment (part-time, temporary work, self-employment) have been increasingly used in the EU-15 since the early 1990s. As illustrated in Figure 41 part time employment accounted for 23% of total employment in 2012, in the EU-27 the respective share was 20% and in the OECD area 17%.
Data available for the Danube Region (Member countries) show huge variations among the sub-groups. As shown in Figure 42 part-time employment is most pronounced in the Member states_1 accounting for 27% of total employment in 2012, while only for 6% in the Member states_2 and for 8% in the Member states_3.

Figure 43: Part time employment in the Danube Region sub-groups,

Note: Member states_1: BW, BY, AT; Member states_2: CZ, HU, SK, SI; Member states_3: HR, BG, RO
Source: Eurostat, OECD and national statistics.
Remittances

Measured as a share in the GDP remittances are an important source of income in a number of countries of the Danube Region. This holds true in particular for the neighbouring and accession countries and to some extent for the Member states_3. Remittances coupled with increased migration have shown a rising trend over the past decade in these countries, generating welfare gains either for the sending country of the migrants for the migrants themselves. As shown in Figure 43 the share of remittances in the GDP ranges from 2.1% in Romania, 11% in Bosnia and Herzegovina to 24.5% in Moldova. 29 The amount of remittances sent to the neighbouring countries increased from USD 200 million in 2000 to USD 11.3 billion in 2013. Both Ukraine and Moldova have been characterised by a rise in remittances except for a decline in 2009 due to the financial and economic crisis. Ukraine is the country with the highest inflow of remittances (also in comparison with accession countries), amounting to USD 9.3 million in 2013. In the accession countries, the volume of remittances rose from USD 5.9 million in 2007 (there are no earlier data available for Serbia and Montenegro) to some USD 5.7 billion in 2013, again showing a temporary decline in 2009. In Bosnia and Herzegovina, the volume of remittances has increased but is still below the level of 2000. In terms of volume Serbia and Bosnia and Herzegovina are the largest receivers in the accession countries.

29 In Moldova remittances are among the main contributors to developments on the labour market, because first a high number of emigrants are recorded as inactive in the national statistics and second, because the remittances discourage the recipients from taking low-wage jobs as long as they can rely on financial support from family members working and living abroad (see Mara in Havlik et al. (2012), European Neighbourhood – Challenges and Opportunities for EU Competitiveness, wiw Research Reports 382, pp 117.)
Figure 44: Remittances as a share of GDP by countries, 2013


2.1.11 Transportation

2.1.11.1 General Overview

Data Sources

For the assessment of transportation, energy and the environment the main sources of data are Eurostat, the World Bank database and the CIA World Fact Book 2000-2012. In case data information differed between these sources we relied on Eurostat. For more regional data, especially for Baden-Wuerttemberg and Bavaria, we use data from the Bavarian State Ministry of Economic Affairs, Infrastructure, Transport and Technology and the Ministry of Finance and Economics of Baden-Wuerttemberg. Furthermore, we make use of data from the World Economic Forum (WEF) and the Federal Statistical Office of Germany (Destatis).

The WEF’s Global Competitiveness Report is a particular important source for this work. The report is a subjective analysis of different sectors of a country. It is based on a survey conducted by the WEF, where managers and high-level individuals from the field value the quality of e.g. infrastructure for the countries they do business with on a scale from 1 to 7, 1 being the worst and 7 being the best.
Figure 45 shows an overview of the analysed scores of the WEF Global Competitiveness Report. In the WEF report, countries were rated, among others, in terms of road, railroad, port, airport and electricity. In addition, a general infrastructure score was generated by averaging the other related scores. This helps to analyse deviations of single transportation and electricity scores from the country average. Overall, one can observe that the scores decline towards the eastern countries of the Danube Region. Exceptions of this trend are Croatia and Slovenia, which overperform compared to their region’s neighbors. In general, railroad and ports sectors are underperforming on average and electricity, road and airport sectors are overperforming compared to the infrastructure average.
Figure 46 shows the infrastructure score of the Danube Region countries of 2013. The horizontal lines indicate the scores of different benchmark regions, such as EU-27 and OECD countries, and for certain sub-regions of the Danube Region. Since there was no data available for Baden-Wuerttemberg and Bavaria, German data was used as an approximation. The figure shows the same trend as Figure 44, i.e. the scores decline towards the east. Looking at the averages of the smaller regional groups (Member Area 1-3, Danube Acc. Countries and Danube Neighb. Countries), this trend is confirmed with the exception of the two Danube neighbor countries (Moldova and Ukraine) which have a higher average than the trend would suggest.

The Slovak Republic is underperforming in its group and, looking at the broader picture, Slovenia and Croatia are significantly overperforming under the assumption that the scores decline towards the east.
The Annex provides more detailed figures on the road, railroad and electricity scores based on the WEF report (see Figure 114, Figure 115 and Figure 116).

**Figure 47: WEF Border Management Score 2012**

![Border Management Score 2012](image)

Figure 47 gives an overview on the border management scores. This includes all regularities concerning the procedure to do business across borders, customs, etc. Overall, the scores are closer together and therefore deviations from the benchmarks are not as large as in terms of other infrastructure (e.g. Figure 45). There is no general trend to observe, but most western countries of the Danube Region are still performing best. Only few countries are performing worse than the Danube average, namely Bulgaria, Romania, Serbia, Moldova and Ukraine. Compared to other infrastructure scores, the average of the Border Management lies almost one point below. This means, border
management is a topic of concern in perspective. However, as the comparison to the benchmark regions shows, this is not a Danube Region-specific problem.

2.1.11.2 Roads

**Figure 48: Density of paved roads 2010 (in km road per 100 km² area)**

Figure 48 shows the density of paved roads (in kilometer road per 100 square kilometers area). This figure was created by using data on the length of all roads of one country. The problem with this data is that it does not include specifications about whether the road has one or more lanes, therefore countries with many small roads are overvalued and countries with many large roads are undervalued. Also countries have different population densities and therefore different network structures (many small roads vs. a few big roads). Hence the data is biased and conclusions should only be drawn taking also into account population densities. For this figure to become a valid indicator, we would need data that shows either the length of all lanes summed up or data
that group roads in different categories concerning how many lanes they have. Therefore this indicator is not complete.

A better indicator for road performance is, at this time, the Road score of the Global Competitiveness Report (see Annex Figure 114).

2.1.11.3 Railroads

Figure 49: Railroad density 2010 (in km railroad per 100 km² area)

Figure 49 shows the railroad density in 2010. It should be noted that the data available for railroads suffers from the same problem as the data for roads (see Figure 47). This means that only data for railroad lines is available, but not for the length of each track of a line. Therefore, countries with many one track railroad lines are overvalued and countries with many multi-track railroad lines are undervalued. However, there is data of the share of multi-track railroads available. In order to provide a more realistic picture about the actual track length, it was assumed that each multi-track railroad equals a two track

30 A line can have several tracks. Hence, the railroad from point A to B is a line and its length is the distance from A to B. If that line has two tracks, then the length of the tracks from A to B is twice the length of the line.
railroad. This assumption holds in all cases, since a multi-track railroad is at least a two track railroad.

Still, this approximation tends to undervalue countries with a large share of multi-track railroads which contain more than two tracks. The results based on this assumption are shown in Figure 48. Moreover, the problem of different network structures concerning different population densities of the countries remains unresolved.

**Figure 50: Share of electrified railroads**

The electrification of a railroad network is a prerequisite for environmental friendly transportation, but it does not conclude it. This data can thus be useful for later analysis on the environmental section of this study. Also, the data might serve as a quality indicator of the railroad network.
2.1.11.4 Ports and waterways

**Figure 51: WEF Port Score 2013**

The ports and waterways have not been analysed in detail so far. Figure 51 is based on the WEF Port Score 2013 of the Global Competitiveness Report. It shows high deviations between countries and to the benchmark regions. But further analysis is necessary, because the score shown in Figure 50 could be dependent on the access a country has to possible waterways and how important waterway connections are to this country, given the accessibility to it.

For the remaining part of the project, the analysis of the main water road, the Danube River, will be a further focus of our work. It can be shipped from Bavaria all down to the Black Sea. The degree of navigability, the number and extension of ports and the linking of the ports to other infrastructure are issues to be studied.
2.1.11.5 Airports

**Figure 52: WEF Airport Score 2013**

We are currently working on the airport sector, but results are rare so far. Figure 51 shows the Airport Score 2013 of the WEF Global Competitiveness Report. The figure does not show a clear trend as was observable in the other sectors of infrastructure. Basically, it seems that countries can be categorised into three groups: The high-performing group of Baden-Wuerttemberg, Bavaria, Austria and the Czech Republic; the standard-performing group, namely Slovenia, Bulgaria, Croatia and Montenegro; and the low-performing group of Hungary, Slovak Republic, Romania, Serbia, Bosnia and Herzegovina, Moldova and Ukraine. The last two groups though, are not completely distinguishable and well-definable.
For further research, our attention lies on the analysis of available transport capacity and used freight weight, but we face the problem of non-homogeneous infrastructure facilities, which are therefore not easily to sum up. Another issue we are working on is how many connections to other infrastructure systems every airport has. This analysis would help to show how far integrated the infrastructure is.

2.1.12 Energy and Electricity

Figure 53: Import dependencies of different energy sources (2011)

The Danube Region as a whole is very dependent on energy imports. With the exception of Brown coal, which is still available in most Danube countries, the region has no natural energy resources. On the electricity market, the Danube
Region can be divided between net importers and exporters. But considering that the renewable energies are just on their rise, electricity production still depends on fossil fuels and therefore the electricity production depends on the import of its respective resource. Hence, electricity production in the Danube Region is also highly dependent on imports.

**Figure 54: Electricity prices (cent per kWh), all taxes included (2012)**

Figure 53 shows that electricity prices are high in the western parts of the Danube Region. Even though there are more monopoly electricity suppliers in the eastern countries, their prices are significantly below those of the western countries. Germany has the highest electricity prices in all categories, but taxes and fees make up a high share of those prices (see Annex Figure 117). The Czech Republic and the Slovak Republic also have high electricity prices, even though their taxes and fees on electricity are not as high as in Germany. For the other countries, prices are lower, with an average decline of 5 cents from west to east.
Figure 55: Network losses of net electricity production (2011)

Figure 54 shows the network losses of net electricity production. This means the percentage of electricity lost on the way to the consumer. Network losses are up to four times higher in the east than in the western parts. In the most developed countries of the Danube Region the network losses are around 4%. Interestingly, network losses are the highest where the electricity prices are the lowest.

Figure 56: Electricity market structure (2010)
Electricity production is a network industry and therefore oligopolies are common. As Figure 55 shows, we can find those oligopolies mostly in the western parts, with market shares of the largest producer of up to 30%. However, the electricity production in the eastern parts of the Danube Region has monopoly tendencies. Most of the countries still have state owned electricity production or highly regulated production. If not well regulated, these monopolies can have negative impacts on electricity prices and the quality of the network.

2.1.13 Environmental issues

So far, the analysis has concentrated on the two topics transportation and energy. That is because environmental issues are best analysed with the data and analysis of the two other topics in hand, since they are interdependent.

2.1.14 Regional development, urbanisation, and rural areas

(To be developed at a later stage)

To assess the economic performance of a nationwide economy one should also consider the development at the regional level. For this reason we will look into various indicators on the NUTS 2 level provided by Eurostat, compare these between the single administrative units within the Danube Region, and thereby uncovering interregional disparities in these indicators.

To depict the economic performance of various units, we will compare disposable household income, GDP per capita and unemployment rates. In addition we will look at arrivals/departures due to internal migration to picture the population development.

Particularly we will focus on inequalities in the economic development between rural and urban areas. To classify units relative to their level of urbanisation, we will look at the number of households by degree of urbanisation, an indicator dividing households into three groups (densely/intermediate/thinly populated). We will then examine differences in the development of the indi-
cators above to point out the main differences between rural and urban eco-

2.1.15 Agricultural development
(To be developed at a later stage)

2.2 Entrepreneurship and SMEs

In this part of the report entrepreneurship and the situation of SMEs in the Danube Region will be assessed. We will analyse business creation, business closure, financing conditions, the regulatory and institutional environment under which SMEs operate and conduct a stock-taking on cluster development. The analysis will make use of various complementary data sets and fully draws on information from on-going projects and activities such as the European Innovation Score-board or the European Cluster Excellence Initiative.

2.2.1 SME growth dynamics

Small and medium enterprises (SMEs) take on a central role with respect to innovation, competition and – ultimately – economic growth in an economy. An assessment of the state of SMEs is thus essential for the development of an adequate strategy for the Danube Region. As innovative activity, which is one key driver of economic growth, is sensitive to the general conditions in which SMEs operate, we analyse these conditions in the following.

In scientific literature and political discussion firm births and the dynamics of start-ups are regarded as important for an economy’s competitiveness, innovativeness, the capability for dynamic structural change and the potential to create employment. Especially start-ups in the so called research- and knowledge-intensive sectors (such as R&D-intensive manufacturing and knowledge-intensive business services) implement new technological knowledge and bring it to the market by introducing new products and new processes. Additionally, new firms also push existing companies to enhance their own products and services and accelerate the technological change in the economy and its competitiveness in general.

However, as shown below the fraction of all newly founded firms that are established in the research- and knowledge-intensive sectors is rather small.
Though start-ups in the research- and knowledge-intensive sectors are very important to stimulate the innovation efforts in an economy, all the other start-ups are also essential for economic development and employment creation – simply because of their large number. To assess the state of start-up activities in the Danube Region it is necessary to take both categories of start-ups –innovative and non-innovative – into account.

Start-up activities represent only one part of firm dynamics. Firm growth and market exits are the other important parts. To assess the dynamics of the enterprise sector it is necessary to also take these aspects into account. However, data for international comparisons of firm growth are more than insufficient. For this reason the analyses will be limited to start-ups and firm closures. Besides entrepreneurship activity in terms of the numbers of start-ups, the regulatory framework for small firms and the attitudes of the population regarding entrepreneurship in the countries of the Danube Region will also be analysed. These aspects are important to assess the conditions under which entrepreneurship in the different countries take place.

In the current stage of the project a first draft of start-up activities, firm closures and firm dynamics has been prepared. What is still open is the analysis on the attitudes of the population regarding entrepreneurship using data from the Eurobarometer surveys. This will be done for the final report.

### 2.2.2 Data sets used

The analyses in this subsection rest on the Structural Business Statistics (SBS) of Eurostat and the Mannheim Firm Panel (MUP).

The SBS is the database on firm dynamics maintained by Eurostat. Among others it covers the number of firm births, the number of firm closures and the number of active enterprises in the EU member states. The data are available for the EU27 countries since their respective entry into the EU. As with all other statistics from Eurostat, the data for the SBS are levied from the statistical agencies of member states and originate in the national business registers. The national statistical offices collect the data based on internationally harmonised rules for data collection and preparation. The data are available at the sector level. Based on this information firms can be classified into different subgroups according to their sector affiliation.
The SBS provides data at the country level, i.e. information on regions below the country level such as for the German federal states is not available. However, for this project the firm dynamics only in parts of Germany – in Baden-Wuerttemberg and Bavaria – is of interest. In order to be able to offer information on Baden-Wuerttemberg and Bavaria instead of Germany as a whole we rely on the Mannheim Firm Panel (MUP) of the Centre for European Economic Research (ZEW). The MUP is an extensive micro database of enterprises in Germany. It is based on a cooperation between ZEW and Creditreform, Germany’s largest credit agency. Also in this dataset, information on the sector of activity of the firms is available. This information can be used to classify firms according to their sector affiliation as in the SBS. Further information on the MUP is given in the Annex.

The analyses in the following will be performed by subsectors of the economy in order to say something about the structure of the population of firms and not only about the number of firms as a whole. In particular, we are interested in firms that are started in research and knowledge intensive sectors because it can be expected that these firms are especially innovative. The applied sector classification is given in Table 3.

| Table 3: Sector classification |
| NACE Rev. 2 |

<table>
<thead>
<tr>
<th>Research and knowledge intensive sectors</th>
<th>NACE Rev. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-tech manufacturing</td>
<td>C20, C21, C26-C30</td>
</tr>
<tr>
<td>Knowledge intensive services</td>
<td>J, M71, M72, M74, M69, M702, M73</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other sectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining, other manufacturing, energy</td>
</tr>
<tr>
<td>Transportation</td>
</tr>
<tr>
<td>Construction</td>
</tr>
<tr>
<td>Other business oriented services</td>
</tr>
<tr>
<td>Consumer oriented services</td>
</tr>
<tr>
<td>Retail</td>
</tr>
</tbody>
</table>

The classification has been made according to the intensity of research and development (R&D) and the knowledge intensity which is necessary to pro-
duce the products and service supplied. The rationale for using these criteria is that F&E and knowledge are closely related to innovation. This does, of course, not mean that firms in the sectors we label with “other sectors” are not innovative at all or that firms in the “research and knowledge intensive sectors” are innovative in any case. However, the likelihood that a firm is innovative is higher in the sectors we call “research and knowledge intensive” than in the other sectors.

As can be seen from Table 3 we do not consider all the sectors of the economy. The firms in the sectors A (agriculture, fishery), P (education), Q (public health), R (Arts, entertainment and recreation), and S (other service activities) are missing. On the one hand, this has to do with data availability. Data on firms in the sector A are not provided at all by Eurostat and information on the sectors P to S are provided only for selected countries. On the other hand, production conditions in the agricultural and the public sector (which makes up most of the sectors P to S) are fundamentally different from the rest of the economy, so that it is also advisable for reasons of content to exclude these sectors from the analysis.

As mentioned above, Eurostat provides information for countries that are members of the EU. This in turn means that for countries which are not in the EU no data on firm dynamics is available. This is insofar relevant as not all countries of the Danube Region are members of the EU. To the best of our knowledge at the current state of the project there are no data sources available that can fill in the gaps with respect to the non-EU countries of the Danube Region. Therefore, the analysis on firm dynamics can only be performed

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31 We first thought about using data from the Global Entrepreneurship Monitor (GEM). However, the GEM proofed to deliver too unreliable results on the number of start-ups in another project because of too low numbers of observations. The low number of observations also prevents an analysis by sector. And lastly, regardless of the mentioned problems we would not be able to fill the gaps completely by using the GEM because either the non-EU countries of the Danube Region also did not participate in the GEM or they participated for a too short period of time. In effect, we would only be able to include one more country (Croatia). Therefore, we refrained from using the GEM.
on part of the Danube Region. The included countries and regions cover Baden-Wuerttemberg, Bavaria, the Czech Republic, Slovakia, Hungary, Slovenia, Romania, and Bulgaria.

It needs also be mentioned that there is some time lag in the provision of data by Eurostat because the data preparation is rather complex and by now not as routinised as the preparation as, for example, the Gross Domestic Product. In addition, in 2004 a new sector classification (NACE Rev. 2) has been applied to the data which makes it at least difficult to use data before this year. The time span in the analysis therefore covers the period 2004-2010.

Finally: Although the Structural Business Statistics is probably the best source of data we have with respect to international data on firm dynamics, it is still in construction phase. This leads to the fact that not for all EU-countries all data on all variables are available for all years.

### 2.2.3 Start-ups in the Danube Region

In order to present start-up data for different regions or countries in a meaningful way it is necessary to normalise the numbers. Otherwise differences in start-up numbers can arise simply because the considered regions are of different size. One way to normalise start-up numbers is to calculate start-up intensities. Start-up intensities are defined as the number of start-ups in relation to the working age-population, i.e. in relation to the number of persons between 18 and 64 years, in a certain region. As the working age-population in a certain region can be regarded representing the potential of firm founders, start-up intensities can be seen as a measure to what degree this potential is exploited.

In Figure 56 the development of the start-up intensities in the Danube Region between 2004 and 2010 is depicted. (The time series for the Danube Region as a whole and the Member area 2 have a missing value in 2008 because the recorded values for the Czech Republic provided by Eurostat seem to be im-

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Another data set we took into consideration was the Entrepreneurship Indicators Programme by Eurostat and the OECD. However, also this data set does not deliver information on firm dynamics of the non-EU members of the Danube Region.
plausible for this year.) As can be seen from Figure 56 the development of the start-up intensities in the Danube Region resembled that of the countries of the EU15 between 2006 and 2010. Between 2006 and 2007 the start-up intensities increased and between 2009 and 2010 the start-up intensities decreased. However, while in 2006 and 2007 the start-up intensities were actually the same in both regions (2006: 71 start-ups per 10,000 persons in working age; 2007: 76 start-ups per 10,000 persons in working age) the start-up intensities in the Danube Region were noticeably higher than in the EU15 countries in the years 2009 and 2010. In the Danube Region 79 start-ups per 10,000 persons in working age were erected in 2009 and 73 in 2010 while it was 73 and 70 start-ups per 10,000 persons in working age in the EU15 countries respectively.

What also comes out from the analysis of Figure 56 is that there is considerable variation in the start-up intensities between the different regions and countries of the Danube Region. The start-up intensities in the countries/regions of the Member area 1 (Baden-Wuerttemberg, Bavaria, Austria) lay clearly below the average of the start-up intensities in the Danube Region and have slightly but steadily decreased over the period of observation. In contrast, the start-up intensities in the countries of the Member area 2 (Czech Republic, Hungary, Slovakia, Slovenia) all lay above the average of the Danube Region (the only exception being the value of Slovenia in 2004) and also increased between 2004 and 2010. The countries in the Member area 3 (Romania, Bulgaria) experienced a mix between the development of the start-up intensities in the Member Area 1 and that in the Member Area 2. Until 2007 the start-up intensities increased and since then decreased. In total, the start-up intensities in this area lay below the start-up intensities in the Danube Region as a whole. However, the start-up intensities in Bulgaria are above average over the whole period of observation.
Figure 57: Development of the start-up intensities in the Danube Region 2004-2010 – all start-ups

Note: Considered countries/regions of the Danube Region: Baden-Wuerttemberg, Bavaria, the Czech Republic, Slovakia, Hungary, Slovenia, Romania, and Bulgaria. * Value for 2008 is missing because of implausible value for the Czech Republic. **Values for EU15 without Greece, Denmark, and Ireland because data are either completely missing (Greece) or have considerable gaps (Denmark, Ireland). *** Member Area 3 without Croatia because Croatia joined the EU only in July 2013 so that there is no data available at Eurostat.

Source: Structural Business Statistics (Eurostat), Mannheim Enterprise Panel (ZEW), authors’ calculation.

Another way to present start-up data are start-up rates. These rates are defined as the number of start-ups in relation to the stock of firms. They can be regarded as an indicator for the renewal of the stock of firms through start-
ups. Figure 57 shows the start-up rates for the countries of the Danube Region for the time period 2008-2010. Because there is no information on the stock of firms available in the Eurostat data before 2008, this measure can only be calculated for the mentioned years. Unfortunately, exactly these years are the ones that cannot be regarded as ‘normal’ because of the financial and the subsequent economic crisis that hit all countries of the world in this period of time and in particular the EU member states. In order to take account of this fact, we calculated one start-up rate for the whole period assuming that we can take out at least some of the crisis effects thereby reaching a more normal start-up rate.32

What can be drawn from Figure 57 is that the Danube Region as a whole had a somewhat higher start-up rate between 2008 and 2010 than the countries of the EU15. The start-up rate in the Danube Region amounted to 10 percent while it was 9 percent for the EU15 countries. There are again noticeable differences between the different regions of the Danube Region detectable. The start-up rates in the countries/regions of Member area 1 did not vary very much. They were all around six percent. In the other countries considered they were much higher. In contrast to the start-up intensities, there does not show up a particular pattern which distinguishes the start-up rates in the countries of the Member area 2 from that of the countries of Member area 3. They have all at least the level of the Danube Region as a whole. Particularly high start-up rates appear in Bulgaria and Slovakia (both 15 percent). A possible reason for these high start-up rates is that the stock of active firms is rather low in these countries. This could hold for Bulgaria as in this country the number of firms in relation to its population is indeed relatively low. However, it is unlikely that this is the reason for the high start-up rate in Slovakia as the ratio of active firms and the number of inhabitants is not lower as in the other countries of Member area 2. An explanation which is more likely to hold for the high start-up rates in this country is that Slovakia had a flat tax of 19% for

32 These considerations of course also apply to the start-up intensities. However, for the start-up intensities information for a longer period of time is available which makes it easier to assess the start-up numbers in the crisis years.
personal and corporate income as well as value added at that time which made the country highly attractive for investors and firm founders.

**Figure 58: Start-up rates in the Danube Region 2008-2010 – all start-ups (in %)**

![Bar chart showing start-up rates in the Danube Region 2008-2010](chart.png)

Note: Considered countries/regions of the Danube Region: Baden-Wuerttemberg, Bavaria, the Czech Republic, Slovakia, Hungary, Slovenia, Romania, and Bulgaria. *Considered time period: 2009-2010 because of implausible values for the Czech Republic in 2008

Source: Structural Business Statistics (Eurostat), Mannheim Enterprise Panel (ZEW), authors’ calculation.

As to the sectorial composition of the start-ups, more than four fifth (between 81 and 83 percent) of the firms that are founded in the Danube Region are started in sectors that we call “other sectors” (Figure 58). Around 45 percent of the firms are founded in the sectors retail (around 28 percent) and consumer-oriented services (around 17 percent). Another around 37 percent is set up in the sectors ‘Mining, other manufacturing, energy’, ‘construction’, ‘transportation’ and ‘other business-oriented services’. Around 17 percent of the start-

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In this case values for 2008 can be presented because the implausibility in the 2008 values of the Czech Republic only refer to the height but not to the composition of the start-ups.
ups can be attributed to the knowledge-intensive services and only 1 percent of the firms are started in high-tech manufacturing. This sector composition of the start-ups does not change much, if at all, over time.

**Figure 59: Sector composition of the start-ups in the Danube Region 2004-2010 (in %)**

As can be seen from Figure 58, the sector composition of the start-ups in the Danube Regions is not that specific. Also in the countries of the EU15 and of the EU27 most of the start-ups are set up in non-research and knowledge intensive sectors and the highest proportion of the start-ups are firms in the retail sector. But still, the proportion of start-ups in the research and knowledge intensive sectors in the Danube Region seems to be a bit lower than in the EU15 and the EU27. In 2010 the proportion of start-ups in high-tech manufacturing and the knowledge-intensive services amounted to 18
percent while it was 25 percent in the EU15 countries and 21 percent in the EU27 countries.

What also becomes evident from Figure 58 is again the high variation between the countries of the Danube Region. Countries of Member area 1 tend to have the highest proportion of start-ups in the research and knowledge intensive sectors, countries of member area 2 lie in the middle and countries in member area 3 have the lowest proportion of research and knowledge intensive start-ups. There seem to be a correlation between the state of economic development and the proportion of start-ups that are founded in the research and knowledge intensive sectors. A noticeable exception among the countries of Member area 2 is Slovenia. In this country 26 percent of the start-ups were established in the research and knowledge intensive sectors in 2010. That is even slightly higher than the respective proportion in the EU15 countries (and could be a data error).

In the countries of Member area 3 most start-ups are retail firms or firms in the consumer-oriented services. In Romania 53 percent of the start-ups in 2010 could be attributed to these two sectors, in Bulgaria it was even 62 percent.

There are also differences detectable with respect to the proportion of start-ups that are established in high-tech manufacturing. In Baden-Wuerttemberg and Bavaria around 2 percent of the start-ups can attributed to high-tech manufacturing while in Hungary and Bulgaria the respective proportion is less than 0.5. In the other countries start-ups in high-tech manufacturing make up around 1 percent of all start-ups.

If one looks at the intensities of the start-ups in the research and knowledge intensive sectors it turns out that the countries of the Danube Region have lower numbers of start-ups in relation to its working age population than the countries of the EU15 (see Figure 60).
Figure 60: Sector composition of the start-ups in the countries of the Danube region in 2010 (in %)

Note: Considered countries/regions of the Danube region: Baden-Wurttemberg, Bavaria, the Czech Republic, Slovakia, Hungary, Slovenia, Romania, and Bulgaria.
Source: Structural Business Statistics (Eurostat), Mannheim Enterprise Panel (ZEW), authors’ calculation.

Besides that the same patterns as for all start-ups emerge. There is considerable variation in the start-up intensities between the different regions and countries of the Danube Region, the start-up intensities in the countries/regions of Member area 1 tended to lie below the average of the start-up intensities in the Danube Region (the exception here is Austria) and steadily decreased over the period of observation, start-up intensities in the countries of Member area 2 all lay above the average of the Danube Region and increased between 2004 and 2010, and the countries of Member area 3 experienced a mix between the development of the start-up intensities in the Member Area 1 and that in the Member Area 2.
Figure 61: Sector composition of the start-ups in the countries of the Danube Region in 2010 (in %)

Note: Considered countries/regions of the Danube Region: Baden-Wuerttemberg, Bavaria, the Czech Republic, Slovakia, Hungary, Slovenia, Romania, and Bulgaria.
Source: Structural Business Statistics (Eurostat), Mannheim Enterprise Panel (ZEW), authors’ calculation.
Figure 62: Development of the start-up intensities in the Danube Region 2004-2010 – start-ups in research and knowledge intensive sectors (high-tech manufacturing and knowledge-intensive services)

Note: Considered countries/regions of the Danube Region: Baden-Wuerttemberg, Bavaria, the Czech Republic, Slovakia, Hungary, Slovenia, Romania, and Bulgaria. * Value for 2008 is missing because of implausible value for the Czech Republic. **Values for EU15 without Greece, Denmark, and Ireland because data are either completely missing (Greece) or have considerable gaps (Denmark, Ireland). *** Member Area 3 without Croatia because Croatia joined the EU only in July 2013 so that there is no data available at Eurostat.

Source: Structural Business Statistics (Eurostat), Mannheim Enterprise Panel (ZEW), authors’ calculation.
**Figure 63: Start-up rates in the Danube Region 2008-2010 – start-ups in research and knowledge intensive sectors (high-tech manufacturing and knowledge-intensive services) (in %)**

Note: Considered countries/regions of the Danube Region: Baden-Wuerttemberg, Bavaria, the Czech Republic, Slovakia, Hungary, Slovenia, Romania, and Bulgaria. *Considered time period: 2009-2010 because of implausible values for the Czech Republic in 2008.*

Source: Structural Business Statistics (Eurostat), Mannheim Enterprise Panel (ZEW), authors’ calculation.

Also the start-up rate in the research and knowledge intensive sectors is slightly lower in the Danube Region than in the EU15 countries (9 percent compared to 10 percent, see Figure 61). Apart from that also in this measure of start-up activity similar patterns for all start-ups and for start-ups in research and knowledge intensive sectors emerge. The countries/regions of Member area 1 have the lowest start-up rates. The highest start-up rates can be found in Slovakia and Bulgaria.

### 2.2.4 Firm closures in the Danube Region

Start-up activities are one side of the medal which is called firm dynamics. The other side consists of firm closures. Though it is already a difficult exercise to capture start-ups it is even more difficult to measure firm closures. The reason is that the most common way of how firms exit the market is by voluntary
closure, i.e. by closing the business because of other reasons than insolvency. Whereas insolvency is an event that can be documented quite easily, voluntary closure often is a gradual process with no definite end point because in many countries business owners are not required to deregister their firm when it goes out of operation and they indeed often do not do this (because, for example, they hope they can reanimate it). While start-up numbers are available in the SBS from 2004 onwards for most of the countries, information on firm closure is only provided for the years 2008-2010.  

Applying the same arguments concerning these years as above we refrain from analysing the development of firm closures and only present results for the whole period.

In Figure 62 the closure rates for the countries of the Danube Region are depicted. Equivalent to start-up rate, closure rates are defined as the number of closures in relation to the stock of firms. In the Danube Region these rates were similar to those for the EU15 countries both for all closures and for closures in the research and knowledge intensive sectors in the period 2008-2010. In the Danube Region 10 percent of all firms were closed in that period while it was 9 percent in the EU15 countries. The respective numbers for the closures in the research and knowledge intensive sectors are 9 percent (Danube Region) and 8 percent (EU15). Again, we can find noticeable variations between the individual countries of the Danube Region. The lowest numbers of closures in relation to the stock of firms regarding all sectors can be found in the countries/regions of Member area 1 and in Slovenia. In these countries the closure rates vary around 7 percent. The countries with the highest closure rates are Slovakia and Romania where around 14 percent of the firms closed.

Regarding closures in the research and knowledge intensive sectors a different pattern emerges. In this case the lowest closure rates can be found in Bulgaria and Slovenia (6 percent in both countries). Baden-Wuerttemberg, Bavaria, Austria, the Czech Republic, and Hungary all had closure rates around 7 percent. The highest closure rates can again be found in Slovakia (13 percent) and Romania (14 percent).

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34 This is also the reason why there is only information on the stock of firms for the years 2008-2010 because the stock of the firms in a given year depends on the numbers of start-ups and firm closures.
**Figure 64: Closure rates in the Danube Region 2008-2010 (in %)**

![Bar chart showing closure rates in the Danube Region](image)

Note: Considered countries/regions of the Danube Region: Baden-Wuerttemberg, Bavaria, the Czech Republic, Slovakia, Hungary, Slovenia, Romania, and Bulgaria. *Considered time period: 2009-2010 because of implausible values for the Czech Republic in 2008

Source: Structural Business Statistics (Eurostat), Mannheim Enterprise Panel (ZEW), authors’ calculation.

### 2.2.5 Firm dynamics in the Danube Region

In general, high start-up rates tend to go along with high closure rates in the countries of the Danube Region (Figure 63). This is an observation that can also be made for other sets of countries and can therefore be regarded as a general phenomenon. Thus, if one is interested in the development of the stock of firms it is not sufficient to look at start-ups. Firm closures also have to be taken into account. Indeed, as can be seen from However, as with the results before, this does not hold for all subregions of the Danube Region. While the stock of firms seems to be in a kind of equilibrium in the countries/regions in Member area 1 (and also in Hungary) there has been partly high level of changes in the other countries. With the exception of Romania the number of active firms has increased. The highest increases can be observed for Slovenia and Bulgaria. The rise in the number of firms amounted to 4 and 6 percent of the stock of firms in the three years between 2008 and 2010.
What can also be observed is that the research and knowledge intensive sectors gained in importance both in the Danube Region as a whole and in most of the individual countries as the increase in the stock of firms in the research and knowledge intensive sectors is higher than the increase in the stock of firms in all sectors. The highest increase in importance of the research and knowledge intensive sectors has again taken place in Slovenia and Bulgaria. But the relative rise was also noticeable in Slovakia.

Figure 64, the stock of active firms in the Danube Region as a whole has not changed at all in the considered time period. The closure rate has been as high as the start-up rate.

**Figure 65: Relation of start-up rates and closure rates in the Danube Region 2008-2010 (in %)**

![Graph showing the relationship between start-up rates and closure rates for various countries in the Danube Region.]

Source: Structural Business Statistics (Eurostat), Mannheim Enterprise Panel (ZEW), authors’ calculation.

However, as with the results before, this does not hold for all subregions of the Danube Region. While the stock of firms seems to be in a kind of equilibrium in the countries/regions in Member area 1 (and also in Hungary) there has been partly high level of changes in the other countries. With the exception of Romania the number of active firms has increased. The highest increases can
be observed for Slovenia and Bulgaria. The rise in the number of firms amounted to 4 and 6 percent of the stock of firms in the three years between 2008 and 2010.

What can also be observed is that the research and knowledge intensive sectors gained in importance both in the Danube Region as a whole and in most of the individual countries as the increase in the stock of firms in the research and knowledge intensive sectors is higher than the increase in the stock of firms in all sectors. The highest increase in importance of the research and knowledge intensive sectors has again taken place in Slovenia and Bulgaria. But the relative rise was also noticeable in Slovakia.

Figure 66: Difference between start-up and closure rates in the Danube Region 2008-2010 (in %-points)

![Figure 66: Difference between start-up and closure rates in the Danube Region 2008-2010 (in %-points)](image)


Source: Structural Business Statistics (Eurostat), Mannheim Enterprise Panel (ZEW), authors’ calculation.

Another measure of firm dynamics is the turbulence which is the number of firms which are started or closed in relation to the stock of firms (or in other words: the sum of the start-up and the closure rates). Figure 65 shows the
turbulence in the Danube Region between 2008 and 2010. We again observe the, by now, familiar differences between the subregions of the Danube Region. In the countries of the Member area 1 the turbulence was rather low while there were more flows of firms in the other countries. The highest turbulence can be observed for Slovakia (around 28 percent), Romania (around 25 percent) and Bulgaria (around 24 percent). The turbulence for the Danube Region as a whole resembles those of the EU15 countries. This holds both for all sectors and for the research and knowledge intensive sectors.

Figure 67: Turbulence in the Danube Region 2008-2010 (in %)

Note: The turbulence is the sum of the start-up and the closure rate. Considered countries/regions of the Danube Region: Baden-Wuerttemberg, Bavaria, the Czech Republic, Slovakia, Hungary, Slovenia, Romania, and Bulgaria. *Considered time period: 2009-2010 because of implausible values for the Czech Republic in 2008. Source: Structural Business Statistics (Eurostat), Mannheim Enterprise Panel (ZEW), authors’ calculation.

2.2.6 SME Financing

SMEs in all countries around the world face a wide range of challenges which are often not faced by large firms. Among these challenges, access to finance is crucial. It can be an issue at all stages of the SMEs’ developmental cycle: at the seed, start-up, growth and expansion phase. In contrast to large businesses, which have access to equity markets, the vast majority of SMEs does not
have such access and is more reliant on other sources such as bank lending or internal funds.

The current economic environment with tightened credit conditions has brought SME needs into the focus of European policy. Taking into account the reduced ability and willingness of banks to provide financing for SMEs, the different financial characteristics of SMEs compared to larger companies and the importance of SMEs for the overall economy and the economic development in Europe, over the past two decades the European Commission has developed a comprehensive range of policies, measures and instruments to support financing of SMEs at the different stages of their life.

In this part of the project we start with a review of the existing EU programmes that address SME financing. We discuss the effectiveness of the programmes and show their relevance for the Danube Region. Furthermore, we present an overview of selected international and national programs, which have been implemented or are currently in the implementation process, with the purpose of facilitating SMEs’ access to finance.

In the next step we analyse the use of different sources of financing, the financial situation and financial needs of SMEs in the region and compare it to the financial situation and needs of SMEs in the EU. We use information from a variety of published studies and different data sources which are presented in the respective part of the report.

### 2.2.2.1 Programs for financial support

A wide range of financial support institutions and instruments at international, national and regional level have been developed to support SMEs at the different stages of their development cycle. Financial support for SMEs has been provided at European level through the financial instruments of the Competitiveness and Innovation Framework Programme, financial support available under the Structural Funds and the schemes supported by the European Investment Bank (EIB) and the European Investment Fund. An overview of the international and national programs addressing financial support for SMEs in the Danube Region is presented in the Annex.
In the Danube Region, the EIB is the most active multilateral financing institution having lent a total of nearly EUR 50bn in the 14 countries of the region as a whole in the period 2007-2011. SMEs have received EIB funding through credit lines to local intermediaries that lend on the money for small-scale capital investment and working capital requirements. The European Investment Fund, the risk financing arm of the EIB Group, supports small businesses in the Danube Region by means of equity instruments, SME guarantees and financial engineering products.35

The following chapter shortly describes the main international and selected national programs addressing financial support for SMEs and presents key points from evaluation studies on these activities.

**Entrepreneurship and Innovation Programme (EIP)**

Scope in the Danube Region: Austria, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Montenegro, Romania, Serbia, Slovak Republic, and Slovenia.

The EIP’s measures are mainly aimed at improving the availability of bank financing for SMEs and the conditions under which it can be obtained. The programme thereby directly addresses what has been identified as one of the major concerns of SMEs in various surveys36 - the access to finance.37

Focusing on one of the core problems faced by SMEs is seen as an important source of the effectiveness of the EIP, the more so as its implementation is geared towards practicability.38 Thereby, the projected scale and scope of the programme has been achieved with its costs remaining within the originally

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35 European Investment Bank.
36 See for instance *SMEs’ Access to Finance Survey 2011 – Analytical Report*
37 *Final Evaluation of the Entrepreneurship and Innovation Programme, p.112*
38 *ibid, p.105*
budgeted amount.\textsuperscript{39} Thus, when it comes to cost-effectiveness the EIP can be seen as a success.

Furthermore, other programmes supported under the EIP had a strongly beneficial effect on the business environment, too. For instance, it was estimated that the lowering of administrative burdens under the Community programme for the reduction of administrative costs would provide a value of €40 billion to European businesses.\textsuperscript{40}

There was, however, room for improvement. While the EIP was successful in ensuring a broad availability of funding assistance, its communication was less effective. Not having readily accessible information about alternative ways of financing was identified as an important obstacle to exploiting these by managers of SMEs.\textsuperscript{41} Thus, to reach more potential beneficiaries the EIP would have needed to engage in a “more co-ordinated and targeted promotion of the Programme’s instruments and results.”\textsuperscript{42}

**Activities supporting SMEs by the European Investment Bank Group**

Scope in the Danube Region: Austria, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Montenegro, Romania, Slovak Republic, and Slovenia.

The relatively wide range of Activities supporting SMEs by the EIB includes provision of equity financing, venture capital, and microfinance among others. Thus, even though it also provides loan guarantees, the programme is less geared towards utilising traditional intermediation through the bank channel to employ the EIB’s funds but rather emphasises the provision of risk capital.\textsuperscript{43}

\textsuperscript{39} ibid, p.102
\textsuperscript{40} ibid, p.102
\textsuperscript{41} Studie zur Finanzierung im Mittelstand 2012, p.15
\textsuperscript{42} Final Evaluation of the Entrepreneurship and Innovation Programme, p.103
\textsuperscript{43} Fit 4 SMEs, p.39
The programmes for funding assistance by the EIB were highly cost effective in their support to SMEs. The EIB was able to provide allocations to SMEs that exceeded the projected amounts for the years 2008-2011. This allowed the bank to provide significant relief to SMEs by extending the scale of its support far beyond pre-crisis levels.\textsuperscript{44} This was particularly important as the Financial Crisis depleted the capital base and increased risk aversion of traditional providers of outside finance to SMEs, i.e. commercial banks.

Furthermore, The EIB recognised the importance of dissemination of information about its Activities supporting SMEs. A monitoring framework was devised which put particular emphasis on ensuring that SMEs had been “individually informed about EIB’s support and the benefit received through that support.”\textsuperscript{45}

**Joint European Resources for Micro to Medium Enterprises Initiative (JEREMIE)**

Scope in the Danube Region: Austria, Bulgaria, Czech Republic, Germany, Hungary, Romania, Slovak Republic, and Slovenia.

The initiative aims at providing structured financing solutions to foster SME growth across European regions that have a particular demand for additional funds, whether due to their innovativeness or liquidity dry-ups associated with the European debt crisis.\textsuperscript{46}

The initiative’s approach to provide risk sharing instruments and guarantee schemes, as well as venture capital, in order to increase SMEs access to finance can be deemed a success. For instance, JEREMIE was particularly helpful in revitalising the market for SME loan securitisation after its near shutdown.

\textsuperscript{44} Report on Activities supporting SMEs 2011, EIB Group, p.2
\textsuperscript{45} ibid, p.2
\textsuperscript{46} ibid, p.3
during the financial crisis.\textsuperscript{47} Furthermore, due to increasing demand the EIF has repeatedly stepped up the resources it devotes to JEREMIE.\textsuperscript{48}

**Joint Action to Support Microfinance Institutions (JASMINE)**

Scope in the Danube Region: Bulgaria, Germany, and Romania

With its emphasis on microfinance to foster self-employment, as well as its additional focus on ethnic minorities and social groups that have been discriminated against, JASMINE is designed to fill the gaps left open by larger programmes such as the EIP and the EIB’s Activities to support SMEs.

As a part of JASMINE the EIB and its partner banks – who match the EIB’s contribution – devote € 50 million to promote growth of the Microfinance Sector in Europe by allocating funding to non-bank Microfinance Institutions, thereby enhancing access to finance for the smallest of SMEs.\textsuperscript{49} Furthermore, the European Commission has launched a Technical Assistance programme under JASMINE that supports beneficiaries of JASMINE funding by providing best practices regarding the institutions’ business.

While JASMINE already provides essential services there is plenty of room to extend its scope. Particularly the countries of the Danube Region that have not yet converged to middle European levels of economic development could benefit from this.

**Joint IFI Action Plan**

Scope in the Danube Region: Moldova and Ukraine

Recognising that SMEs first source of outside finance are commercial banks, the Joint IFI Action Plan seeks to provide long term funding to the banking

\textsuperscript{47}ibid, p.13
\textsuperscript{48}ibid, p.8
\textsuperscript{49}JASMINE Flysheet, EIF
sector in Central and Eastern Europe so that the necessary balance sheet adjustments can take place without cutting SMEs access to finance.\textsuperscript{50} Moreover, as part of the plan the IFIs assist SMEs with special financial services, for example trade financing, thereby providing them with essential services geared towards their needs.\textsuperscript{51}

The IFI’s therefore have committed €30 billion for the second round of the plan from 2012 to 2014 which are disbursed “mainly in the form of long-term loans to the private and public sectors.”\textsuperscript{52} This presents a significant increase relative to the €24.5 billion that were committed for the first round of the plan in 2009 to 2011 and eventually exceeded by the actual provision of €33 billion.\textsuperscript{53} Thus, if the second round will meet equally high demand it is likely to succeed in stabilising the availability of bank financing for SMEs.

**Western Balkans Enterprise Development and Innovation Facility (WB EDIF)**

Scope in the Danube Region: Bosnia and Herzegovina, Croatia, Montenegro, and Serbia.

Similar in spirit to the Activities supporting SMEs by the EIB, the WB EDIF provides equity financing, venture capital, and loan guarantees to entrepreneurs in the Western Balkans, but also offers technical assistance to governments in an effort to provide policy reforms. Looking at the bank lending channel, the Facility is mostly limited to complementing the (previously discussed) larger programmes’ efforts to stabilise bank financing, mainly due to its structure.

However, the Western Balkans is a region of under-developed domestic capital markets where banking is dominated by large foreign Eurozone banks.\textsuperscript{54}

\textsuperscript{50} First Report on the Joint IFI Action Plan for Growth in Central and South Eastern Europe, p.5
\textsuperscript{51} ibid, p.7
\textsuperscript{52} ibid, p.6
\textsuperscript{53} Final Report on the Joint IFI Action Plan, p.5
\textsuperscript{54} SME Policy Index: Western Balkans and Turkey 2012, p.117
Unfortunately the afore-mentioned larger programmes such as the EIP and the EIB’s activities to support SMEs have not been successful in reviving bank lending across the Western Balkans as private credit growth remained subdued.\textsuperscript{55}

Launched in December 2012 with € 140 million in initial capital, the EDIF is supposed to leverage up to € 300 million in direct allocations to SMEs in the Western Balkans.\textsuperscript{56} To achieve this goal, the Facility will have to overcome difficulties in disbursement caused by the insufficient development of the financial infrastructure.

Selected National Support Programmes

Support Activities by the Czech Export Bank (CEB) and the Export Guarantee and Insurance Company (EGIC)

In 2009 both entities were selected to receive a significant budget increase to finance new economic support measures aimed at forestalling the detrimental effects of the financial crisis on domestic businesses.\textsuperscript{57} As a result the CEB engaged in risk sharing measures such as guarantees to commercial banks financing SMEs and direct investment in factoring companies. The EGIC scaled up its insurance funds for export activities to meet increased demand while allowing for a substantial part of its funds to cover SMEs’ selected export activities by differentiating between political and commercial risks, with a deductible of only 5% on the latter.\textsuperscript{58} These efforts combined have helped to cover the increased demand for public guarantees and support for financing the exports of Small and Medium-Sized Enterprises facing an uncertain business environment.

\textsuperscript{55} Ibid, p.116
\textsuperscript{56} WB EDIF Leaflet
\textsuperscript{57} Financing SMEs and Entrepreneurs 2013: An OECD Scoreboard, p.88
\textsuperscript{58} Ibid, p.89
Hungarian Széchenyi Card Programme sponsored by the AVHGA

From 2002 on the Programme allowed banks to provide SMEs with standardised loans at subsidised interest rates, where the standardisation has so far been a major factor driving the success of the Programme as it simplifies the handling of loans for both banks and businesses.\textsuperscript{59} Furthermore, it provides borrowers with the often needed flexibility that comes with operating a Small or Medium-Sized Enterprise; “The main facility in the Programme is an overdraft loan that requires no tangible collateral.”\textsuperscript{60} By 2012 the volume of loans supported by the Programme exceeded € 500 million.

2.2.2.2 Sources of financing, financial situation and financial needs of SMEs in the Danube Region

We analyse the sources of financing, the financial situation and financial needs of SMEs in the Danube Region based on a variety of studies such as the World Bank Enterprise Survey reports, the SMEs’ Access to Finance – Survey 2011 Analytical Report by the EC, the report on Financing SMEs and Entrepreneurs 2013: An OECD Scoreboard and the report of the FIT4SMEs (2011) project on financial facilities for SMEs. With the implementation of the European Small Business Act (SBA) respective annual country factsheets monitoring SMEs performance are published on the behalf of the DG Enterprise and Industry containing indicators on SMEs’ access to finance. For companies located in Baden-Wuerttemberg and Bavaria, we use the KfW/ZEW Start-Up Panel, a database including firms’ financial figures.

According to the considered studies, the financial aspect is seen as crucial by SMEs in the Danube Region. Missing or difficult access to capital has become the main obstacle preventing the growth and development of these firms. A problem sharpened with the surge of the financial crisis. For many Danube countries it has been mainly a demand crisis, with a drastic drop in demand, started by the end of 2008 and continued during 2009. Due to the decrease of

\textsuperscript{59} Ibid, p.123
\textsuperscript{60} Ibid, p.123
sales and capacity utilisation, SMEs draw on the already limited internal funds to finance their working capital and increase the level of debt.⁶¹

When asked what the most pressing problem currently facing their firm was, in 2011 15% of SMEs’ managers in the EU27 and 19% of SMEs’ managers in the Danube Region (excluding Austria and Germany) cited access to finance (see Figure 66). In 2009 the percentage for both regions was the same (16%). Overall the financing problem is placed second alongside finding customers in the ranking of most important issues companies face.⁶² These results are in line with the Enterprise Surveys conducted by the World Bank which provide evidence that in 2009 about 20% of SMEs in the Danube Region identified access to finance as a major constraint.⁶³

**Figure 68: Most pressing problem - access to finance**

![Figure 68: Most pressing problem - access to finance](image)

*Source: SMEs’ Access to Finance – Survey 2011*

⁶¹ FIT4SMEs: Financial Facilities for SMEs: training and capacity building for Business Support Organisations in non-EU member states of the Central European Initiative.

⁶² SMEs’ Access to Finance – Survey 2011 Analytical Report by the EC.

Generally speaking, loans are the main source of external SME finance and loan schemes, especially guarantees tend to have a much larger impact in terms of the number of firms affected. Venture capital and similar schemes are much more restricted. Other sources of finance such as private placements, listings on the regulated exchanges or issuing of bonds are not usually available for by far the majority of SMEs. However, there is some research evidence that there is a lack of awareness among SMEs about opportunities in debt capital markets which could be a way to diversify funding sources for them.

According to the CEE Financial Market Survey conducted by ZEW and Erste Group Bank AG Vienna, for about 87% of the small- and mid-cap companies’ credit financing is very important (see Figure 67). While credit financing is the only available corporate financing option for 66% of the small-caps, only 3.2% of the large-cap companies indicate bank loans as the only available capital source.

**Figure 69: Importance of credit financing**

![Credit financing importance chart]

Source: CEE Financial Market Survey, Special Question July 2011

To address the question on how firms finance their operations, we use indicators similar to those presented in the Enterprise Surveys of the World Bank and the SMEs’ Access to Finance – Survey 2011 Analytical Report by the EC.
The first set of indicators compares the relative use of various sources to finance investment – internal funds, bank loans, trade credit financing and equity financing. Excessive reliance on internal funds is a sign of potentially inefficient financial intermediation or a limited access of firms to capital.

The second set of indicators measures the use of external financing by individual firms. It presents the percentage of working capital that is financed by external sources to the firm, and a measure of the burden imposed by loan requirements measured by collateral levels relative to the value of the loans. The third set of indicators focuses on the access to external financing as the willingness of banks to provide loans, the terms and conditions of bank financing or the access to public financial support.64

Where possible we compare the indicators for the Danube Region to the EU27 indicators. A set of selected indicators is presented below.

When looking at the recent sources of financing in the last six months (Figure 68), SMEs most often used external financing. Only 24% of the SMEs located in the EU27 and 22% of the SMEs in the Danube Region (excluding Austria and Germany) used internal funds in 2011. Comparisons with the 2009 survey show that there had been a strong drop of the proportion of SMEs using internal funds especially for the Danube Region. In 2009, 51% of the SMEs located in the Danube Region and 48% of the SMEs located in the EU27 used internal financing.

64 World Bank Enterprise Survey reports, SMEs’ Access to Finance – Survey 2011 Analytical Report by the EC.
Figure 70: Usage of internal funds

Source: SMEs’ Access to Finance – Survey 2011

Figure 71: Usage of bank loans

Source: SMEs’ Access to Finance – Survey 2011
The studies show that there has been an increase in debt financing in the Danube Region. In total, about 70% of SMEs in the Danube Region used debt financing in the past six months. This was an increase on the level in 2009, when about 50% had used debt financing for the same period. When focusing on the usage of bank loans, the percentage of firms in the Danube Region increases from 19% in 2009 to 30% in 2011 (see Figure 69). The respective development in the EU27 is much slighter (from 26% to 30%).

Only 7% of SMEs in the EU27 and even only 2% in the Danube Region used equity financing in 2011. Since 2009, the proportion of SMEs using equity financing increased significantly in both the EU27 and the Danube Region (see Figure 70).

The SMEs’ Access to Finance – Survey 2011 provides evidence that banks’ willingness to provide loans for SMEs in the Danube Region and EU27 had worsened in 2009 and – by a lower degree - in 2011. Surprisingly, for both these years the respective change in banks’ willingness to provide a loan was better for firms located in the Danube Region as compared to firms in the EU27 (see Figure 71).

**Figure 72: Usage of equity financing**

![Figure 72: Usage of equity financing](source)

*Source: SMEs’ Access to Finance – Survey 2011*
When asked to give an opinion whether access to public financial support including guarantees had changed in the past six months, the overall net balance of opinion (improved less deteriorated) for the EU27 was that the situation has deteriorated (-20%). For the Danube Region excluding Austria and Germany, the negative net change was even stronger (-24%).

In this context, managers across the EU rated “making existing public measures easier to obtain” (for example through the reduction of administrative burdens) as the most important measure, when asked to rate the importance of a number of different mechanisms to help their company’s financing in the future. This was followed by “tax incentives”, “guarantees for loans” and “business support services”.

For the quantitative evaluation of SMEs’ financing conditions, we used further data from the above mentioned surveys and from other available studies. These studies provide specific data on the sources and structure of SME financing as well as their experiences with external financing and expectations on future financing. Additionally, regional expert interviews will be held in

Source: SMEs’ Access to Finance – Survey 2011

**Figure 73: Change of the willingness of banks to provide a loan**

![Change of willingness of banks to provide a loan](image)

Source: SMEs’ Access to Finance – Survey 2011

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The interviews will cover questions regarding the financing needs of SMEs in the region and the perceived barriers to adequate finance.

Figure 74: Net change of access to public financial support incl. guarantees

Source: SMEs’ Access to Finance – Survey 2011

2.2.7 Regulation and Institutions

Small and medium sized enterprises (SMEs) account for 99.8% of European businesses and for 67% of total employment in the non-financial sector, which makes them the most important source of job creation. Additionally, they are crucial drivers of innovation and, thus, of long-run competitiveness.

General issues of competitiveness were analysed in Chapter 1.2, while Access to Finance was discussed in Chapter 2.2. This chapter looks at the regulatory and institutional environment for SMEs. It first examines the macro level by looking at economic freedom and corruption. The analysis gives a broad picture on the quality of institutions. The second part of the chapter comprises a detailed look on the most important aspects of SME-friendly regulation.
Economic Freedom

Economic freedom is an essential precondition for an efficient and functional economy. Countries with a higher level of economic freedom tend to outperform others in terms of economic growth, per-capita income, poverty reduction and overall well-being.\(^65\) Therefore, it is important to assess the current level of economic freedom in the Danube Region. We base our assessment on the “Index of Economic Freedom”, an index and ranking compiled by the Heritage Foundation, a conservative think tank, and The Wall Street Journal since 1995.\(^66\) These institutions define economic freedom as a situation in which “governments allow labour, capital and goods to move freely, and refrain from coercion or constraint of liberty beyond the extent necessary to protect and maintain liberty itself”.\(^67\) The Index of Economic Freedom includes ten different sub-categories of economic freedom and, thus, provides a comprehensive perspective. Some aspects of economic freedom, such as property rights or trade freedom are especially important for the performance of SMEs. There are alternative indicators of economic freedom, like the “Economic Freedom of the World” annual report of the Fraser Institute. However, we prefer the Heritage Foundation’s measure for two reasons. First, it covers a wider range of countries. Second, it does not use data from the “Global Competitiveness Report”, which has been used in other chapters of this report, and thus constitutes an independent data source.

Table 4 gives an overview of the ten sub-categories of economic freedom and an overall score for the whole Danube Region. Regarding the total score - which is the average value of all single indicators - only Member States 1 can


\(^66\) The use of economic freedom indexes has sometimes been criticized, on the grounds that the indexes include subjective judgments and inconsistencies. See, for instance, John R. Hanson, “Proxies in the new political economy: Caveat emptor.” *Economic Inquiry*, Vol. 41 (2003), pp. 639–46.

\(^67\) See http://www.heritage.org/index/about
be regarded as a “mostly free” area. The remainder of the Danube Region is only “moderately free”, and the Neighbouring Countries are even rated as “mostly unfree”.

Table 4: Economic Freedom in the Danube Region 2013

<table>
<thead>
<tr>
<th>Indicator/Category</th>
<th>Member States_1 A, BW, BY</th>
<th>Member States_2 H, CZ, SK, SLO</th>
<th>Member States_3 HR, BG, RO</th>
<th>Acc. Countries</th>
<th>Neighb. Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property Rights</td>
<td>90</td>
<td>61</td>
<td>37</td>
<td>33</td>
<td>35</td>
</tr>
<tr>
<td>Freedom from Corruption</td>
<td>79</td>
<td>47</td>
<td>36</td>
<td>35</td>
<td>26</td>
</tr>
<tr>
<td>Fiscal Freedom</td>
<td>58</td>
<td>78</td>
<td>86</td>
<td>87</td>
<td>83</td>
</tr>
<tr>
<td>Government Spending</td>
<td>33</td>
<td>38</td>
<td>58</td>
<td>36</td>
<td>40</td>
</tr>
<tr>
<td>Business Freedom</td>
<td>86</td>
<td>74</td>
<td>69</td>
<td>62</td>
<td>59</td>
</tr>
<tr>
<td>Labour Freedom</td>
<td>56</td>
<td>66</td>
<td>60</td>
<td>68</td>
<td>45</td>
</tr>
<tr>
<td>Monetary Freedom</td>
<td>81</td>
<td>80</td>
<td>78</td>
<td>75</td>
<td>72</td>
</tr>
<tr>
<td>Trade Freedom</td>
<td>87</td>
<td>87</td>
<td>87</td>
<td>82</td>
<td>82</td>
</tr>
<tr>
<td>Investment Freedom</td>
<td>85</td>
<td>73</td>
<td>70</td>
<td>63</td>
<td>28</td>
</tr>
<tr>
<td>Financial Freedom</td>
<td>70</td>
<td>68</td>
<td>57</td>
<td>53</td>
<td>40</td>
</tr>
<tr>
<td>Overall Score</td>
<td>72 (+1.7)</td>
<td>67 (±0)</td>
<td>64 (+2.8)</td>
<td>60 (+3.5)</td>
<td>51 (-0.9)</td>
</tr>
</tbody>
</table>

Overall Score whole Danube Region 2013: 62.8 (+1.42)

Red (-): Decrease in Score since 2009
Green (+): Improvement in Score since 2009

Source: Heritage Foundation 2013. Calculations and Illustration: IAW

Concerning the sub-categories, the protection of property rights varies strongly between the Danube states, with a high ranking for Member States 1 only. The level of government spending, which represents the share of GDP allocat-
ed by government and not by the market, differs among the Danube Region; a high index – corresponding to a low share of government spending – is obtained only for the countries within the Member States 3 group.⁶⁸ Regarding labour freedom, a measure of the regulatory burden on the labour market, Member States 2, Member States 3 and Accession Countries have moderately free markets, while Member States 1 and the Neighbouring Countries have stringent regulation and are therefore rated as less free. By contrast, trade freedom and monetary freedom are guaranteed in all countries of the Danube area.

The changes in the Economic Freedom Index since 2009, the earliest year for which data are available for all countries, suggest that economic freedom in the Danube Region has moderately increased; however, the development differs between countries. The accession countries have improved their overall score from “mostly unfree” to “moderately free”. The overall score also rose in Member States 3. By contrast, economic freedom stagnated in Member States 2, and the Neighbouring Countries even lost nearly one index point from 2009 to 2013, moving close to a rating as “repressed”. Thus, we observe a divergence in economic freedom in the EU and Accession Countries, on the one hand, and in the Neighbouring Countries, on the other.

**Corruption**

**Data description**

There is a variety of definitions of corruption. We follow the United Nations and define corruption as “an abuse of (public) power for private gain that hampers the public interest”.⁶⁹ Although no measurement of corruption is universally accepted, three are most commonly used: The “Corruption Perception Index” (CPI) by Transparency International, the “Control of Corruption” by the World Bank and “Irregular Pays and Bribes”, a part of the World Competi-

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⁶⁸ For detailed information regarding the used data see Appendix Table 11.

Among these data sources, we use the “Control of Corruption” indicator by the World Bank as our main reference because it includes the broadest definition of corruption and uses the largest number of (methodologically) different sources. In spite of the refined measurement, some caution is needed when interpreting the results. Most of the indicators measure “experienced corruption” as gathered in a survey; thus, the result is subjective and might deviate from the actual level of corruption. Therefore, the exact numbers should not be overstressed, but rather be used to identify patterns and broad differences.

**Corruption in the Danube Region**

Corruption is “one of the most widespread and insidious evils”. According to the European Commission, around 120 Billion Euros each year are lost due to corruption in the EU. While the Danube Region includes countries that are least affected by corruption worldwide, corruption poses a very serious concern for a large part of the region.

Figure 73 contains results from the “Worldwide Governance Indicators” of the World Bank. The values are given as percentile ranks; a percentile rank of 100 means that the country is the top performer worldwide, while a percentile rank of 50 means that the country is at the median position (50% of countries are at least as good and 50% are below).

The percentile ranks of the Danube countries vary from just 15 to over 90. The Danube average is far below the OECD and EU27 averages. The low overall performance is due to the weak position of the Accession and Neighbouring Countries and of Member States 3; their performance is roughly comparable.

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70 The correlation between the measures is very strong. see “Global comparative trend analysis” p. 7


72 [http://www.coe.int/t/dghl/monitoring/greco/general/1.%20the%20fight%20against%20corruption%20-%20priority%20for%20the%20coe_EN.asp](http://www.coe.int/t/dghl/monitoring/greco/general/1.%20the%20fight%20against%20corruption%20-%20priority%20for%20the%20coe_EN.asp)

to countries like Kuwait, Tunisia or South Africa and just above the values for Colombia and China. Although, as mentioned before, the precision of the data should not be overestimated, it is evident that the large differences cannot be explained by bad measurement only.

Since the year 2002, only the Accession Countries have improved their ranking, while the average ranking of the other groups has declined. Similar to economic freedom, there is some indication of a divergence between Accession Countries and Neighbouring Countries, which are substantially lagging behind all other country groups of the Danube Region.

Figure 75: Control of Corruption for Danube Regions

![Figure 75: Control of Corruption for Danube Regions]

Source: World Governance Indicators (2013 and 2003, referring to the years 2012 and 2002). Calculations and

Corruption and SMEs

While corruption is a business constraint for firms of all sizes, it poses particular problems for SMEs. Indeed, the smaller the size of the firm, the more likely is it affected by corruption. Small companies tend to be asked more often for a
bribe, spend a larger share of their annual revenues for bribes and consequently view corruption more frequently as a “major business obstacle”.74

Reasons for the more adverse role of corruption for SMEs include the lack of bargaining power to oppose requests of irregular payments, the greater degree of informality in SME structure, a focus on the short as opposed to the long term, limited financial resources and less attention by the public. The most common form of corruption affecting SMEs is bribery, but there are others. Bribery can take place between the private sector or when dealing with the public sector, e.g. to obtain licenses or grants.

In this section, we use the Enterprise Survey (2009) by the World Bank, a survey conducted among manufacturing firms which are, to a large part, SMEs. Data for Germany and Austria is insufficient; hence, we exclude Member States 1 and do not report averages for the whole Danube Region.

Respondents’ perceptions (see Table 5) vary greatly across the Danube Region. The extent of bribery varies from 4 % of companies affected in the Member States 2 to 28 % in the Neighbouring Countries, with Accession Countries and Member States 3 in between. A similar ranking is obtained with respect to bribing public officials. All in all, half of the respondents from the Neighbouring Countries identify corruption as a major constraint, which is more than double the percentage obtained in Member States 2 and the Accession Countries. It is noteworthy that Member States 3 are trailing well behind not only Member States 2, but also behind the Accession countries with respect to all corruption measures.

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74 The following results are taken from “Corruption prevention to foster small and medium-sized enterprise development. Volume I”, UNIDO, UNODC (2007).
Table 5: Impact of corruption on businesses

<table>
<thead>
<tr>
<th>Indicator/Category</th>
<th>Member States_2 H, CZ, SK, SLO</th>
<th>Member States_3 HR, BG, RO</th>
<th>Acc. Countries</th>
<th>Neighb. Countries</th>
<th>World</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of firms identifying corruption as a major constraint</td>
<td>21,6 (+7)</td>
<td>34,9 (+5)</td>
<td>24,6</td>
<td>45,6 (+17)</td>
<td>36,1</td>
</tr>
<tr>
<td>% of firms expected to give gifts to public officials “to get things done”</td>
<td>9,9 (-28)</td>
<td>19,7 (-23)</td>
<td>13,7</td>
<td>32,7 (-32)</td>
<td>24,4</td>
</tr>
<tr>
<td>Bribery incidence (% of firms experiencing at least one bribe payment request)</td>
<td>4,1</td>
<td>11,8</td>
<td>8,5</td>
<td>28,2</td>
<td>18,9</td>
</tr>
</tbody>
</table>

*Data were not available for Germany and Austria. For Ukraine, the most recent value is from 2008, for Croatia 2007. Values in brackets indicate change compared to 2002; these are reported only if sufficient data was available.

Source: Enterprise Survey (2009), World Bank. Calculations and illustration IAW.

Not all of the indicators could be observed in earlier periods. Some improvements were made with respect to the percent of firms expected to give a gift “to get things done”, which has decreased strongly since 2002, in particular in the Neighbouring Countries. However, the share of companies viewing corruption as a major constraint increased during the same period, suggesting that other forms of corruption than bribery are becoming more widespread.

An important conclusion from the literature is that improving the overall business environment of SMEs helps them to withstand corruption. This includes, among others, reducing red tape, liberalising trade, improving access to finance, and increasing transparency and accountability.

75 “Corruption prevention to foster small and medium-sized enterprise development. Volume I”, UNIDO, UNODC (2007)

76 Mungiu-Pippidi, Alina (2013): „The Good, the Bad and the Ugly: Controlling Corruption in the European Union”, Working Paper No. 35,
to financing and better involvement in public procurement. These issues will be the focus of chapter 3.3.

**Anti-corruption policies**

Good governance has become a focus not only in developing countries but all over the world and many countries have engaged in initiatives to combat corruption at the national and international level. At the international level, an important step was the “United Nations Convention against Corruption” (UNCAC)\(^77\) adopted in 2003 and signed by all Danube countries. Until now it has been ratified by all but the Czech Republic and Germany.\(^78\) Additionally, the OECD members have signed the “OECD Recommendation for Further Combating Bribery of Foreign Public Officials in International Business Transactions” in 2009. These initiatives acknowledge that corruption is a multidimensional phenomenon that requires cooperative action and consultation.

At the EU level, a major step was the setting up the “Group of States against Corruption” (GRECO) in 1999, which currently has 49 members including all Danube countries. The GRECO mainly works by setting European norms and standards, initiating technical co-operation programmes, monitoring the compliance with the standards and offering capacity building to individual countries and regions. Apart from that, GRECO has launched information campaigns and offers legal advice, implemented special anti-corruption projects, and strengthened institutional mechanisms as well as civil organisations. According to the GRECO evaluation report, the overall compliance was satisfactory. By 2012, 78% of member states had fully adopted the recommendations and 98% had at least partly adopted them.\(^79\)

In 2011, the European Commission launched an initiative to monitor the progress made on reducing corruption by means of an “EU Anti-Corruption Re-

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\(^{77}\) General Assembly resolution 58/4 of 31 October 2003 „United Nations Convention against Corruption”


port”. The first report will be published later in 2013 and will give a reflection of the achievements, vulnerabilities, and commitments of all Member States including their weaknesses that need to be addressed.

Some countries take also part in regional initiatives like the “Regional Anti-corruption Initiative (RAI)”\(^80\), a framework to tackle corruption in South-Eastern-Europe. Seven out of the nine members are part of the Danube Region: Bosnia and Herzegovina, Bulgaria, Croatia, Moldova, Montenegro, Romania and Serbia. Additionally, Ukraine also takes part in the “OECD Anti-Corruption Network for Eastern Europe and Central Asia (ACN)”\(^81\) which, with the “Istanbul Action Plan”, has set guidelines to coordinate action against corruption.

Still the feedback from these initiatives is mixed. While obviously plenty of actions have been taken, not all evaluations are positive and many stress the need to intensify policy effort. The European Commission stated that:

“The implementation of the anti-corruption legal framework remains uneven among EU Member States and unsatisfactory overall. The EU anti-corruption legislation is not transposed in all Member States. Some countries have not ratified the most important international anti-corruption instruments. More importantly, even where anti-corruption institutions and legislation are in place its enforcement is often insufficient in practice.”\(^82\)

Similarly the RAI Report states that “despite considerable progress, the current situation is still challenging. In some cases, institutions/agencies are very recently established or under process of being established; in other cases, national systems still present several loopholes and weaknesses. Since the European Report on Corruption is not yet published, until now for most countries we are interested in there lacks a clear way to assess the effect of these policy

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\(^80\) Before 2007 named „Stability Pact Anti-Corruption Initiative (SPAI)”

\(^81\) http://www.oecd.org/corruption/acn/istanbulactionplan/anti-corruption-reforms-eastern-europe-central-asia-2013.htm

\(^82\) Brussels, 6.6.2011 COM(2011) 308 final
efforts. This holds true especially since the guidelines in the various programmes do not formulate any quantifiable targets.”

The evidence presented in this chapter does not point to noteworthy improvements in the control of corruption. However, considering that many initiatives have been started only recently, this negative finding may be due to the fact that the actions need more time to unleash their full effects.

**Conclusion**

Corruption is a serious issue for at least a part of the region. This has long been recognised and addressed by policymakers, but national policies have proved to be insufficient. Recently, the issue is also systematically addressed at a supranational level. Although much effort has been taken, there is no clear evidence of an improvement yet.

**Regulation for SMEs**

Due to their importance for the Danube economy, responsive regulation should address the most pressing issues for SMEs.

A central policy concern in this area is cutting “red tape”. A literature survey by the European Commission estimated that the regulatory burden in terms of cost and time for SMEs is 4 to 10 times higher than for large companies. This can lead to competitive disadvantages, both in comparison with larger firms, which can bear the administrative burden more easily, and with foreign firms, producing in countries with less complex requirements. The aim of SME regulation should be to minimise this burden.

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84 Corruption indicators, especially those based on perceptions, typically change very slowly over time. See „A Users’Guide to Measuring Corruption“ UNDP 2008

85 „Models to reduce the disproportionate regulatory burden on SMEs“, Report of the Expert Group (2007)
One major advance in this respect was “The European Charter for Small Enterprises” in 2000 which committed the member states to the implementation of ten principles\textsuperscript{86} easing the regulatory and legal environment for SMEs. This engagement was extended to the “Small Business Act for Europe”\textsuperscript{87} in 2008 and incorporated in the general “Europe 2020”\textsuperscript{88} strategy. Croatia, Montenegro, Bosnia and Herzegovina and Serbia joined the Act in 2003.\textsuperscript{89} With the “Eastern Partnership”\textsuperscript{90} programme launched in 2009, Moldova and Ukraine, and thus the complete Danube Region, also take part in the programme.

Subsequently, all countries have developed own strategies for the implementation of these principles. The main question therefore is which effect the policies have had up to now and where there is still need for improvement.

In the final version of the study, we will analyse the regulatory efforts in the region with special regard to these supranational frameworks. As laid out in the tender report, we will analyse conditions for market entry and burden of bureaucracy, restrictions on foreign trade, strength of intellectual property rights (namely patents), labour regulation (e.g. employment protection), and participation in public procurement. While we have collected most of the data, we are still working on the research of legislative developments. In this report, we only present the first part regarding market entry.

**Market Entry**

The Danube Action Plan demanded “to prioritise the effective implementation of measures provided for under the Small Business Act for Europe.”\textsuperscript{91} It refers specifically to “administrative simplification for starting a business, for obtain-

\textsuperscript{86} http://ec.europa.eu/enterprise/policies/sme/files/charter/docs/charter_en.pdf

\textsuperscript{87} Brussels, 25.6.2008COM(2008) 394 final

\textsuperscript{88} Brussels, 3.3.2010 COM(2010) 2020


\textsuperscript{91} Brussels, 8.12.2010 SEC(2010) 1489 final, p.68
ing business licenses or for filing for bankruptcy92, which is part of Principle IV “Responsive Administration”. A description of all policies realised goes beyond the aim of this report and has been done elsewhere.93 The most important reforms are the implementation of one-stop shops,94 reducing registration fees, promoting eGovernment to make information and registration accessible online, using single identification numbers or applying the silence—is-consent principle.95 The aim is to make the process of registration less complex and require overall less time and money.

The following analysis is based on the progress reports by the European Commission.96 As for the licensing process, the European Union set concrete aims "to reduce the start-up time for new enterprises to 3 days and the cost to €100 by 2012" as well as to introduce fully functional "one-stop shops".97 Table 4 shows the number of countries fulfilling these objectives in 2012.

92 ebenda
94 One-stop-shops are special agencies where entrepreneurs can file all documents necessary for company registration in a single place.
95 “SME Index Western Balkans”
### Table 6: Danube Completion of EU targets by 2012

<table>
<thead>
<tr>
<th>Country</th>
<th>Time</th>
<th>Costs</th>
<th>One-stop Shop&lt;sup&gt;98&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE</td>
<td>✘</td>
<td>✘</td>
<td>✘</td>
</tr>
<tr>
<td>AT</td>
<td>✘</td>
<td>✘</td>
<td>✓</td>
</tr>
<tr>
<td>HU</td>
<td>✓</td>
<td>✓</td>
<td>✘</td>
</tr>
<tr>
<td>CZ</td>
<td>✘</td>
<td>✘</td>
<td>✘</td>
</tr>
<tr>
<td>SK</td>
<td>✘</td>
<td>✘</td>
<td>✘</td>
</tr>
<tr>
<td>SI</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>BG</td>
<td>✘</td>
<td>✘</td>
<td>✓</td>
</tr>
<tr>
<td>RO</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>HR</td>
<td>0</td>
<td>✓</td>
<td>0</td>
</tr>
<tr>
<td>RS</td>
<td>0</td>
<td>✓</td>
<td>0</td>
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<tr>
<td>BA</td>
<td>0</td>
<td>✘</td>
<td>✘</td>
</tr>
<tr>
<td>ME</td>
<td>0</td>
<td>✓</td>
<td>0</td>
</tr>
<tr>
<td>MD</td>
<td>0</td>
<td>✓</td>
<td>0</td>
</tr>
<tr>
<td>UA</td>
<td>✘</td>
<td>✘</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: SME Performance Review (2012), SME Policy Index (2012), Authors' analysis

**Explanation of Symbols:**

- ✓: Criteria was fully met
- ✘: Criteria was not fully met
- ✓: Unclear whether criteria was met<sup>99</sup>
- 0: Unclear whether criteria was met<sup>99</sup>

<sup>98</sup>“A fully functional one-stop-shop”.

<sup>99</sup>
Unfortunately the exact and updated data is yet not available to us for all countries but will be included in a later version of the report. However, taking the data for what it is, we can see that in each category roughly half of the countries have completed their objectives (For individual country performances see Annex Table 14). Partial fulfilment is not counted in the table; for instance, all Danube countries have introduced some sort of one-stop shop. The requirement is still regarded as not met for some countries because the agency does not fulfil all functions or is limited in its geographic scope.

By 2012 only Slovenia and Romania had met all three objectives. As only three countries in the European Union had met these ambitious aims, the Danube countries do not perform worse than countries from other regions. The number of completed targets in the region is roughly at the same level as in EU27.

Obstacles for starting a business from the “Doing Business Report”

In the next section, we use the data of the “Doing Business Report” by the World Bank, which contains measures of the regulatory burden on SMEs and has a number of unique features. The indicators do not only cover the licensing process but the whole registration formalities and thus give a more complete picture. Additionally the data incorporates many years and a large set of countries.

99 For time yellow means: between 1 to 5 days. For one-stop-shop it means „OSS for business registration operates on the basis of multiple windows in one location or with a limited geographic scope”

100 For the table below we use data by the European “SME Performance Review” as well as data from “SME Policy Index” which different methodologies. For example the „SME Policy Index” uses only a scale of five levels for the Cost variable, while the “SME Performance Review” uses values in Euros. Also the definition of a “fully functional one-stop-shop” appears to differ slightly. We have requested the data and for now indicated the values in doubt with the yellow circle.

101 For comparison see http://ec.europa.eu/enterprise/policies/sme/business-environment/start-up-procedures/index_en.htm
Table 7 shows the average world rank for the Danube Region, OECD, EU15, EU27 and the USA in the category “Starting a Business”. Out of the 188 countries in the report, the region takes an average rank of 89, which is well behind the benchmark regions. (See Annex Table 15 for country rankings)

Table 7: Average World Rank\textsuperscript{102} in 2013 in the category „Starting a Business“

<table>
<thead>
<tr>
<th></th>
<th>Danube</th>
<th>OECD</th>
<th>EU 15</th>
<th>EU 27</th>
<th>USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rank</td>
<td>89 (-)</td>
<td>49 (-)</td>
<td>63 (+)</td>
<td>70 (+)</td>
<td>20 (-)</td>
</tr>
</tbody>
</table>

Source: Doing Business (2014), own calculations. Colours\textsuperscript{103} indicate change.

To obtain a more detailed picture, we look at two standard indicators to measure the ease of starting a business: the time and cost. As several studies\textsuperscript{104} illustrate, reducing the time and the cost of these procedures is connected with a higher market entry rate as well as more employment, higher profits of existing firms and lower size of the informal sector.

The objective of the Europe 2020 plan is to reduce the time required for the entire licensing process to one month, i.e. 30 days by 2015.\textsuperscript{105} As can be seen from Figure 74, the procedures were still lengthy in 2003. It took on average 48 days which was 13 days above the OECD average. At the same time, the time to complete registration procedures also declined in the benchmark regions, so that the Danube average is still above the OECD average in 2013. Although we cannot be sure that the methodology of measuring time until completion is

\textsuperscript{102} Colours: green (+) means improvement, red (-) means decline compared to 2012
\textsuperscript{103} Green: improvement, red: decline, black: no change
\textsuperscript{104} See for the literature study of Djankov (2009) or Motta, Oviedo, Santini (2010)
exactly the same, we see evidence that the region is going to exceed the Eu-
rope 2020 goal. According to our data, the target is already met by all Danube
countries except Bosnia & Herzegovina in 2013.

All groups within the region have made progress, but there are still some dis-
crepancies (see Annex Figure 111). Most improvements have been made by
the Member States 2 who cut the time from 64 to 12 days. The average time
in 2013 for the different region ranges from 20 days in the Accession countries
to 12 in the Member States 3. However, since these differences were substan-
tially larger in 2003, the development indicates some degree of convergence.

Figure 76: Time\textsuperscript{106} to complete business-registration procedures

\textsuperscript{106} It measures the median time „necessary in practice to complete a procedure with min-
imum follow-up with government agencies and no extra payments“. The company form is
a limited liability.

See: \url{http://www.doingbusiness.org/methodology/starting-a-business}
A similar picture arises with regard to the cost of the starting a business, measured in relation to annual capita income (see Figure 75).\textsuperscript{107} Compared to 2003, average costs decreased from 17.4% to 5.0% in 2013. The region has caught up with the OECD (4.5%) and EU15 (4.2%) averages and is performing in the highest quarter worldwide.\textsuperscript{108} Again we see some differences among the sub groups. Member and Neighbouring States have costs below 5% while Accession countries figures at 8%. However, the difference between these groups has decreased considerably (see Annex Figure 112). Differences between the Member States are relatively small. Most progress has been done by Member States 2 who have cut the cost from 18.7% to 4.6%.

**Figure 77: Cost\textsuperscript{109} to complete business-registration procedures**

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure77.png}
\caption{Cost\textsuperscript{109} to complete business-registration procedures}
\end{figure}

\begin{itemize}
\item \textsuperscript{107} This cost is measured as percentage of income per capita. It thus accounts for income disparities across the countries and for GDP Growth.
\item \textsuperscript{108} Doing Business report 2014 data
\item \textsuperscript{109} The cost includes all official fees and fees for legal or professional services if such services are required by law. It is calculated as Percentage of income per capita. See: http://www.doingbusiness.org/methodology/starting-a-business
\end{itemize}
Altogether the Danube Region has achieved considerable improvements regarding the obstacles to starting a business. Both the time and the cost of the start-up process have been cut by more than two-thirds. Despite the significant decline, the cost level is not yet as low as for the benchmark country groups of the OECD and EU15.

The third component which we assess is required minimum paid-in capital regulations, i.e. regulations obliging new business to hold a certain amount of capital as deposit in a bank. There is some evidence that these requirements are associated with lower market entry rates.\textsuperscript{110} The central argument in favour of higher capital requirements is that they may increase the security for investors and thus firms themselves\textsuperscript{111}. However, the World Bank finds that higher minimum capital requirements are associated with weaker investor protection.\textsuperscript{112} Also we believe that other measures such as protective bankruptcy legislation can be more effective in guaranteeing investor protection. Thus, we view minimal capital requirements mainly as obstacles to new business formation.

As one can see from Figure 76, the level of these requirements in 2003, 78.5% of income per capita in 2003, was substantial in the Danube Region. Over the years all groups decreased requirements and by now the average is at 12.5% in 2013. This is slightly above the OECD, EU27 and EU15 benchmarks. Leading the way are once more Member States 3 (see Annex Figure 113). Bulgaria, Croatia, Germany, Montenegro, Serbia and Ukraine have abolished them completely.

\textsuperscript{110} “The Effect of Business Regulations on Nascent and Young Business Entrepreneurship” (2007)
\textsuperscript{111} http://www.unescap.org/tdtw/Publications/TFS_pubs/FF-Standard/FF-standard-ch4.pdf
\textsuperscript{112} Doing Business: Why are minimum capital requirements a concern for entrepreneurs? (2014)
Conclusion

All in all, the indicators for market entry show strong improvements in administrative obstacles to starting a business. In 2003, the region was significantly lagging behind the OECD, EU27 EU15 in all measures of regulatory burden. During the past decade, both the time and the cost of business start-up have been cut roughly by two-thirds. Minimum capital requirements have, on average, been cut by one-sixth, and several countries decided to abolish them completely. Still, the 2012 objectives set by the European Commission were not met by most countries. Thus, there is potential and need for further progress.

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113 EU27: in 2003 no value available for Czech Republic, Luxembourg and Malta. Average calculated for the rest
2.2.3.4 Conclusion

Regarding economic freedom, a ranking as “moderately free” predominates in the Danube Region. Over time, there is a divergence between EU Members and Accession Countries, which have made progress during the last 4 years, and Neighbouring Countries, in which economic freedom has decreased and which are rated as “mostly unfree”.

Our analysis highlights that corruption remains a major issue for a large part of the region. There has been policy effort both at national and international level, but this had not (yet) led to any noteworthy improvements in various measurements of corruption.

Our analysis of the regulatory framework focuses on market entry regulations. EU member states, accession countries and Eastern partner countries are subject to a systematic review of the criteria of the “Small Business Act for Europe” regarding the simplification of start-up procedures. Over the last 10 years, the cost and time complete business-registration procedures have been reduced to one-third, and minimum capital requirements to one-sixth. Still, the OECD and EU15 benchmark levels have not been entirely reached in any of the indicators, which leaves room for further reforms.

2.2.3.5 Outlook

For the final report we will finish the section on SME regulation by including the topics laid out in the Tender Report. These will be market exit, burden of bureaucracy, restrictions on foreign trade, labour regulation and participation in public procurement. This assessment will continue to rely mostly on quantifiable indicators from the Doing Business Report, Eurostat and the OECD. Once we receive the raw data from the “SBA Factsheets” and the “SME Policy Index”, these will be included in the analyses.

The Corruption section will be enhanced with the findings of European “Anti-corruption Report” and a section on the informal economy.
2.4 Development of Clusters

2.4.1 Framework and methodology

The importance of geographical localization suggests that competitive advantage is not exclusively created within the company or even within the industry, but it is a consequence of the fact that the industry is located in a favourable region for its development, a self-sustaining process.

The typology of spatial planning deems industrial agglomerations as an immediate result of economic activity, which have, in turn, a direct impact, favourable or not, on the economic performance. The modern concept has been substantially developed and applied to competition analysis by Michael Porter (1990, 1998) and Michael Enright (2001), adding to an old and prolific intellectual tradition that reunites among others Marshall with Principles of Economics (1890), Isard with Location and Space-Economy (1956) and Hirschman with The Strategy of Economic Development (1958).

Porter defines clusters as “geographic concentrations of interconnected companies and institutions in a particular field” (Porter, 1998). Clusters include a series of related industries, as well as other entities which are important in terms of competition, such as: clients, specialized suppliers, service providers, companies in related industries and associated institutions (universities, various government agencies, professional training centres and commercial associations). Porter explains these competitive agglomerations as a new spatial form of organization, which is significantly different from the traditional integration of companies on the market. They represent a new way of organizing a value chain. The fact that the companies are clustered together in one region and that the on-going exchanges among them foster good communication and mutual trust produces advantages in terms of production efficiency and flexibility in drawing up competitive strategies.

While acknowledging the difference between industrial agglomerations (simple concentration of industry) and clusters (inter-connected companies along value chains), the approach proposed here will use the terms interchangeable in the broad sense by using the term cluster.
Furthermore, the analysis will use a framework that acknowledges the conceptual and practical differences between clusters, clusters organizations and networks, as set recently in the literature\textsuperscript{114}:

- **Clusters** are geographically co-located firms and other institutions engaged in economic activities in a set of related industries, connected through externalities and other type of linkages. Collaboration may or may not take place, and could focus either on broader competitiveness upgrading or on specific projects.

- **Cluster organisations** are focused on a specific geography, oriented towards a set of related industries (also called a ‘cluster category’), and they provide a structure for actual collaboration;

- **Networks** of firms may or may not be confined to a specific geography and set of industries. They are by definition structures specifically created for active collaboration. This collaboration could be open-ended or focused on a specific project task, Cluster organisations are a specific type of network.

The importance of cluster-based activity is growing in the Danube Region. While there are several sources of data indicating successful cluster experiences, there was no attempt so far to carry a mapping/benchmarking exercise for the entire region.

Including cluster/network-related data in a regional scoreboard would be a useful step in setting the right framework for fruitful cooperation within the entire Danube area, as inter-cluster cooperation may be a very efficient way to connect local business ecosystems across the region.

This chapter will try to cover three dimensions related to cluster / network development, as follows:

- Mapping the potential for cluster development in common sectors of economic interest (quantitative approach)
- Assessing the existence and maturity of cluster organisations/initiatives as potential sources of inter-cluster cooperation (qualitative approach)
- Reviewing existing cluster or cluster related networking in the Danube area

The final purpose of the analysis is to provide evidence-based recommendations for how to reinforce competitiveness in the Danube area by enhancing cluster development and inter-cluster cooperation across member countries.

**Dimension 1 - Quantitative mapping of clusters**

The first activity of this task is to take stock of the existing clusters in the Danube Region. The most useful methodology and data set for the above purpose can be drawn from the European Cluster Observatory (ECO) platform.

Data is available for the following countries in the Danube Region: Germany, Austria, Czech Republic, Slovakia, Hungary, Croatia, Slovenia, Serbia, Bosnia and Herzegovina, Bulgaria, Romania, Ukraine\(^{115}\).

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\(^{115}\) Data is unavailable for Montenegro and Moldova;
Box: European Cluster Observatory methodology

Methodology

The amount and quality of knowledge circulating and spilling over between firms, located in a cluster, is dependent upon the cluster’s size, the degree to which it is specialised and the extent to which the locality (the region) is focused upon production in the relevant industries comprising the cluster. The European Cluster Observatory shows the extent to which clusters have achieved this specialised critical mass by employing measures of these three factors as described below, and assigning each cluster 0, 1, 2 or 3 Stars depending on how many of the below criteria are met.

- **Size Star**: if employment reaches a sufficient share of total European employment, it is more likely that meaningful economic effects of clusters will be present. The size measure shows whether a cluster is in the top 10% of all clusters in Europe within the same cluster category in terms of the number of employees.

- **Specialisation Star**: if a region is more specialised in a specific cluster category than the overall economy across all regions, this is likely to be an indication that the economic effects of the regional cluster have been strong enough to attract related economic activity from other regions to this location, and that spillovers and linkages will be stronger. The specialisation measure compares the proportion of employment in a cluster category in a region over the total employment in the same region, to the proportion of total European employment in that cluster category over total European employment. The measure needs to be at least 2 to receive a star.

- **Focus Star**: if a cluster accounts for a larger share of a region’s overall employment, it is more likely that spillover effects and linkages will actually occur instead of being drowned in the economic interaction of other parts of the regional economy. The focus measure shows the extent to which the regional economy is focused upon the industries comprising the cluster category and relates employment in the cluster to total employment in the region. The top 10% of clusters which account for the largest proportion of their region’s total employment receive a star.

Data allows a cross-country comparison at the level of year 2011 allowing a quantitative benchmarking of economic agglomerations based on the following structure:

- **NACE 3 digit sectoral classification (41 sectors – see Annex Table 17)**
- **NUTS 2 regional classification (subnational level)**
- **Size, Specialization and Focus of agglomerations (including the Cluster Observatory star rating derived from the 3 variables)**
- **Number of employees and number of enterprises**

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116 Most data is in fact 2010 or older, which is a limitation in terms of data availability;

117 For Germany and Ukraine selected data is related only to Danubian NUTS 2 areas (DE: Baden-Wuerttemberg, Bayern; UA: Odesa, Chernivtsy, Ivano-Frankivsk, ZAkarpattya);
The quantitative data provides an overview of the sectoral agglomerations per each country, which reflects cluster potential. Moreover, it provides a relevant basis for assessing cross-country cooperation/networking potential between sectoral agglomerations with similar profile (e.g. automotive sector cooperation across all countries with relevant agglomerations in this sector).

We start with ECO data for the whole Danube Region and we identify the most relevant clusters (2 & 3 stars) in all sectors, at NUTS 2 level. This first filtering process may eliminate several relevant emerging clusters (1 star), but helps focusing the research on those clusters that are already above a threshold of country relevance.

We then apply a second filter, keeping only the sectors, which have clusters from at least five NUTS 2 areas in at least three countries of the Danube Region. This filtering criterion also follows the aim of the report, which is to identify actual/potential cooperation within the Danube Region, thus implying more than bilateral relations. The results are available in Table 18 in the Annex.

There are 21 out of the 41 ‘standard’ NACE 3 sectors that show potential for inter-cluster cooperation at NUTS 2 level in between clusters that have at least 2 stars, according to ECO methodology. Interestingly, if an additional filtering were to be processed, restricting the lists only to 3 star clusters, only 3 sectors would be selected (automotive, metal manufacturing, transportation & logistics).

Although it is rather difficult to classify the selected 21 sectors in terms of their clustering importance, there are a few features that may be interesting to analyse.

In terms of the number of employees put together by the filtered clusters, the automotive and the metal manufacturing sectors are topping the list, with around 500k employees each. A second group four of sectors gather around 300k employees each - production technology, construction, processed food and transportation and logistics. There are also niche sectors with less than 50k employees gathered in selected clusters – biotech, sporting, recreational and children’s goods, leather products, lightning and electrical equipment, oil and gas. This distribution suggests that cooperation in between clusters in different sectors may have different social impact. If job creation is a critical
target of the Danube Strategy as part of the people and skills priority, then more attention can be oriented towards the cooperation of more labour intensive clusters. On the other hand, cooperation in niche sectors may prove to be key to competitive growth, so trans-cluster biotech reinforcement would be advisable, as a solution for regional enhancement.

Same logic applies in factoring the number of enterprises gathered by clusters in different sectors. Size matters in certain sectors, so in biotech or oil & gas there are less than 200 enterprises forming the respective agglomerations. At the other end of the spectrum, there are more than 45k enterprises in metal manufacturing or more than 30k enterprises in construction. This implies a high density of small-sized companies, which may prove more flexibility in difficult times than larger entities. This can also be taken into account in shaping the best-suited policy for Danube Region cooperation.

As regards the involvement of different countries, there are sectors that gather clusters from up to 8 countries out of the 12 taken into account – such as metal manufacturing, building fixtures, equipment & services and processed food. Such sectors should be easier to promote as part of the Danube cluster agenda, as they will have a majority of member countries involved. However, there are sectors were despite the fact that clusters are originated from a minimum number of countries (only 3 countries as origin for 2&3 star clusters in furniture, productive technology, construction, biotech, IT, farming or sporting & recreational), the stake for those respective countries is high enough to justify their promotion as part of the Danube cluster cooperation agenda. Moreover, from a normative perspective, it may be rewarding to promote cooperation in such sectors in order to get more emergent clusters on board from other countries, especially in high-tech fields such as IT or biotech.

Last but not least, in several of the sectors, some countries have a larger stake than others, in the sense that clusters originating from a particular country are relatively dominating the respective sectoral cluster bundling. This seems valid for Romania in the case of apparel, footwear, furniture and construction, Germany as regards automotive, IT, biotech or production technology, Czech Republic related to building fixtures equipment & services or lightning & electrical equipment, or Bulgaria in the case of farming and animal husbandry. Such situation may imply that countries might choose to reinforce their
dominating sectors, but it may also be the case that current low-tech oriented countries would consider more cluster cooperation in high-tech sectors, as a way to upgrade their economic structure towards higher value-added activities.

To resume this stage of analysis, we narrowed down the ECO database to a list of sectors based on the presence of the most vigorous clusters, with a clear regional (NUTS 2) localisation. At this point, we do not have any information about existing cooperation among such clusters; however, we have checked the first part of the proposed methodology – quantitative analysis of cluster potential in the Danube Region.

It is worth mentioning that from a policy perspective, there is a shortcut to the rather elaborate effort of quantitative mapping of potential. The alternative would be to simply carry a survey within the countries of the Danube Region and ask them what clusters/sectors they wish to develop. In fact, as part of the work carried within the Working Group for Cluster Excellence in PA 8 of the EUSD, TMG Upper Austria, under the coordination of Dr. Sigrid Winkler, has applied a survey on sectors and specialisations of cluster initiatives. The results suggest that automotive, ICT, wood processing, food and textiles are the most common sectors for clusters across the region (see Table 19 in the Annex). Nevertheless, regardless the quality of the survey, such alternative would tend to be subjective, or normative, as both public officials and cluster members would consider developing the trendiest clusters for the future, not necessarily reflecting objectively the existing critical mass. This is why the quantitative approach used in this report prevails in terms of objectiveness. Moreover, the differences are not considerable, with some exceptions, such as the ICT, environment and health care sectors, which tend to be underrepresented in the quantitative approach.

Dimension 2 – Qualitative validation of the existence of cluster organisations

The second step in our analysis is to see if there are any existent structures that may engage in inter-cluster cooperation at the level of the Danube Region.
The data gathered for the previous activity is not providing a list of clusters per se, but only indicating cluster potential. In some countries there might be several institutionalized clusters in the same sector/region, in others the clustering process may be just emergent or informal.

This is a critical issue from a policy perspective, as the development of cluster organisations is a prerequisite for reinforcing cluster cooperation. Ad-hoc cooperation may already take place under the form of FDI or inter-firm trade relations, but the sum of such relations cannot be considered as cluster cooperation.

As a result, the analysis would require at this point mapping all existing cluster organisations that relate to the 214 clusters selected as part of the previous step of the analysis. This is obviously a huge effort, as it involves an investigation in all the 12 countries for which ECO data was available, as described before.

Instead, for this second progress report, we will present a case study related to mapping cluster organisations in Romania that would illustrate the approach that may be replicated for the other 11 countries.

**Case study - Cluster organisations in Romania related to identified potential clusters**

According to the first step of the analysis, there were 41 clusters (2&3 stars) from Romania that can be grouped in the following table at region (NUTS 2) level:

**Table 8: Clusters in Romania**

<table>
<thead>
<tr>
<th>Code</th>
<th>Region (NUTS 2)</th>
<th>No of clusters</th>
<th>Clusters</th>
</tr>
</thead>
<tbody>
<tr>
<td>RO11</td>
<td>Nord-Vest</td>
<td>5</td>
<td>apparel, footwear, furniture, heavy machinery, construction</td>
</tr>
<tr>
<td>RO12</td>
<td>Centru</td>
<td>8</td>
<td>apparel, footwear, leather products, furniture, automotive, building fixtures, equipment &amp; services, oil &amp; gas, processed food</td>
</tr>
<tr>
<td>RO21</td>
<td>Nord-Est</td>
<td>5</td>
<td>apparel, textiles, footwear, construction, processed</td>
</tr>
</tbody>
</table>
In terms of cluster organisations active in Romania, the most relevant data source is the Department for Industrial Policy within the Ministry of Economy. According to this institution, as of September 2013, there are 47 cluster organisations\(^{118}\) that manifested their presence at national level (see Table 20 in the Annex).

By overlapping the cluster organisations and the clusters identified through using the ECO database, we may arrive in one of the following three situations:

1. There is a cluster organisation in a cluster that was not ranked 2 or 3 stars in ECO;
   In this case, we have one or several emergent clusters which have already decided to create a structure to promote their activity. The cluster may currently lack critical mass; therefore the aim of the cluster organisation is to push for growth and expansion. Inter-cluster cooperation may be useful for guiding the cluster towards further development.

2. There is a cluster organisation for one of the clusters mapped through ECO.

\(^{118}\) some of the clusters are self-entitled “competitiveness poles”, in order to become eligible to a specific line of public funding through ERDF – SOP Competitiveness, 1.3.1;
This is a great confirmation that the ECO mapping was correct. The creation of a cluster structure is meant to reinforce the cluster potential and provides great opportunities for inter-cluster cooperation.

3. There is no cluster organisation for the clusters mapped through ECO. This shows that local stakeholders and actors have not yet organised themselves as a cluster structure. This may be the result of lack of awareness about the benefits of such organisation, or the consequence of lacking a trust-based ecosystem conducive to cooperation.

Out of the 47 cluster organisations existing in Romania, 18 are matching the 41 clusters identified through the ECO database (see again Table 20 in the Annex). This ratio is remarkable, as it leaves only a little more than half clusters identified in the first step of the analysis without an already founded coordination structure.

There are regional specificities that should be taken into account. For instance, 7 cluster organisations that match are located in the Centre NUTS 2 development region. This is due to increased awareness and organisational skills, especially within the municipality of Sfantu Gheorghe, where the local business community is more united due to its minority status\textsuperscript{119}.

Several of the cluster organisations that correspond to clusters not ranked 2 or 3 stars by ECO are trying to emerge in the fields of renewable energy (6 cluster organisations) and tourism (7 cluster organisations). Next on the list are emerging cluster organisations in IT outside the capital city of Bucharest (4 cluster organisations) or in creative industries (3 cluster organisations). All these fields are high on the public policy agenda, and have received or are promised to receive support.

One important remark is that the quality and sophistication of a cluster organisation in Romania is not necessarily linked with the importance of the cluster (translated for instance in the numbers of stars received through ECO methodology). Most cluster organisations were founded in the period 2011-2012, largely due to the promise of public funding through ERDF / Cohesion Policy.

\textsuperscript{119} Hungarian minority;
As a comparison, the cluster organisation representing the automotive competitiveness pole backed by Dacia-Renault, the most important automotive player in the country is less active and sophisticated than the newly founded (2012) Cluj IT cluster organisation, which can already be considered a good practice for all other cluster structures.

Some of the more active cluster organisations have sought to pass the benchmarking exercise made available through the European Cluster Excellence Initiative (ECEI). Thus five clusters were granted Bronze Label – ELINCLUS (electronics), Green Energy (energy, environment), IND-AGRO-POL (agromachinery), ROSENC (renewable energy), Romanian Textile Concept (apparel, footwear).

Noteworthy is also the creation in July 2011 of a national association of cluster organisations, the Romanian Cluster Association – CLUSTERO120. Founded initially by 15 cluster organisations, the association aims by its statute to help Romania’s economic recovery and development, by “supporting the creation, development and cooperation between clusters at regional, national and international level”.

Although not all 47 cluster organisations are member of the association, CLUSTERO seems a fitted structure to promote cooperation among clusters in the Danube Region.

**Dimension 3 – Reviewing existing cluster or cluster related networking in the Danube area**

It is clear that a comprehensive mapping of all networking effort in the region is a difficult endeavour. Information is scattered, as networking initiatives may vary in terms of origin, scope, channel etc. Therefore, the following assessment will be qualitative and meant more to explore possible policy tools for the future than to provide a rigorous overview and taxonomy of the current networking endeavours.

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120 more information available on [www.clustero.eu](http://www.clustero.eu);
**Case study – Cluster or cluster-related projects in the DR involving Romanian actors**

In the following we list current or recent international cluster projects in which Romania is represented, relevant for inter-cluster networking at the level of the Danube Region.

**Transnational projects dedicated to the Danube Region as part of EUSDR**

1. **DanuClus (Danube Cluster Networks), 2013 – on going**
   - Aim: to link clusters, cluster managers, cluster experts and cluster policy-makers from the Danube Region, in order to prepare clusters in this geographic area for the new EU funding period of 2014-2020. The stakeholders collect and develop project ideas for clusters and support their implementation with their expertise
   - Project leader: The PA8 Working Group “Clusters of Excellence” provides the framework for cluster cooperation in the EUSDR. Clusterland Upper Austria takes a coordinative role in this area. At the conference "Boosting Innovation Policies with Clusters along the Danube" held on 27-28 June 2013 in Linz Austria, three initiators (Upper Austria, European Commission, Baden Württemberg) officially launched the cooperation initiative DanuClus
   - Romanian participation: Clustero, the association of cluster organisations in Romania has signed the MoU on 12 September 2013 in Vukovar, Croatia
   - Other members from the Danube Region: Baden-Wuerttemberg, DE, Bulgarian Association of Business Clusters (ABC), BG, Croatian Chamber of Commerce, HR, National Association of Clusters in Czech Republic, CZ, Cluster Development Office, MAG, HU, Cluster House, SR, Union of Slovak Clusters, SK, Association of Cluster Centres, SL, Clusterland, Upper Austria, AT.

**Transnational projects co-funded under the European Interregional Cooperation Program INTERREG IV C**
2. **CLUSTERIX project, "Clusters for European Innovation Cross - Linking", 2012-2014**
   - Aim: to enable regional authorities to identify, analyze and explore the potential of strategic future cluster development through the exchange of experiences and best practices between 9 partners from 8 different countries. The overall objective of CLUSTERIX is thus to increase the competitiveness of European regions and their innovation potential through the improvement and strategic re-orientation of cluster policies towards smart specialization.
   - Project leader: Business Agency of Lower Austria, AT
   - Romanian participation: **IND-AGRO-POL cluster** is a member of the consortium through INMA - The National Institute of Research – Development for Machines and Installations designed to Agriculture and Food Industry
   - Other members from the Danube Region: Karlsruhe City - The Economic Development Department, DE, West-Pannon Regional and Economic Development, HU

3. **ECREIN+ project “European Clusters and Regions for Ecoinvestments Network”, 2010-2012**
   - Aim: The ECREIN network was created in 2006 to propose innovative financial instruments and support eco-innovation and SMEs at regional level. It exposed a lack of knowledge, adapted tools and coordination between public and private sectors, and as a consequence, a difficulty for financiers to invest in this specific sector. The main objective of ECREIN+ is develop tools and actions to implement innovative regional policies supporting eco-innovation and eco-businesses, easily adaptable to every European Region.
   - Project leader: Rhone-Alpes Region, France
   - Romanian participation: Romanian Municipalities Association (AMR). There are two Romanian clusters, which registered in the ECREIN+ network: **MECATREC Cluster, Bucharest** and **Green Energy Cluster, Sfantu Gheorghe**.
   - Other members from the Danube Region: Baden-Wuerttemberg, DE.

4. **SMART+ project, 2010-2013**
   - Aim: to analyse, transfer and disseminate the know-how of promoting innovation, research and technological development of SMEs. During the period of 15th October 2010 – 20th December
2010, a call for subprojects was activated for public institutions and their equivalent from the SMART+ partner regions: Aragon (Spain), Saxony (Germany), Malopolska (Poland), West Macedonia (Greece) and Cluj (Romania). As a result, 7 transnational subprojects were selected which will be implemented between 1st May 2011-30th April 2013.

- Romanian participation: The North-West Regional Development Agency participated in 3 out of the 7 subprojects which were finally selected: TREC – Regional Cluster in the domain of renewable energy, STP – Partnership for setting up scientific and technological parks in East Europe and respectively, Regionet – Clusters and networks, successful promoters in guiding the regions on the path of competitiveness and innovation. For the first two subprojects, Northwest RDA was also project leader. As a result of the project, the Cluj IT cluster organisation was successfully created.
- Other members from the Danube Region: The Agency for Promoting Innovation and Technological Transfer from Leipzig, DE

5. PROESC - “Producer Services for the European Sustainability and Competitiveness”, 2010-2012

- Aim: to contribute by raising the awareness as to the significance of producer services for Europe and by assisting regional authorities to identify, develop and share proactive strategies to improve the public support for such services and the enterprises that provide them.¹²¹
- Project leader: Development Corporation Stuttgart Region, DE
- Romanian participation: West Regional Development Agency representing the Automotivest Cluster based in Timisoara.
- Other members from the Danube Region: National Center for Renewable Energy (Slovenia), Regional Innovation Agency West Region Pannonia (Hungary).

¹²¹ this project was a continuation of BeLCAR – “Bench Learning in Cluster management for the Automotive sector in European Regions”, funded through Europe Innova Initiative. BeLCAR focused on building an inter-regional network for joint activities of automotive clusters, transferring the lessons learned to other regions in Europe and promoting innovation diffusion to other sectors, clusters and regions;
Transnational projects co-funded through South East Europe Transnational Cooperation Programme

6. CLOUD project – “Clusters Orientation towards up-to-date technologies and models for common development”, 2013-2014
   o Aim: to establish a transnational platform for the exchange of operational activities for managing clusters in the participating countries, by encouraging the development of innovation and activation potential among SMEs southeastern Europe.
   o Project leader: CNA Regional Association of Emilia Romagna, Italy
   o Romanian participation: UEFISCDI - Executive Agency for Higher Education, Research, Development and Innovation Funding
   o Other partners from the Danube Region: Start-Up and Service Centre Furstenfeld, AT, Business Agency Association, BG, Pannon Business Network Association, HU, Pomurje Technology Park, SL, Belgrade Chamber of Commerce, SR, Sarajevo Economic Region Development Agency, BA.

7. ClusterPoliSEE project – “Developing Smart Specialization Strategies for Cluster Improvement”, 2013-2014
   o Aim: to enhance the capacity of regional policy makers to confront, prevent and anticipate change, developing smart specialization strategies for cluster improvement, thus accelerating differentiation and structural change towards a knowledge-based economy. ClusterPoliSEE aims at defining, developing and implementing regional cluster policies as a corollary of the pooling of resources and integration of activities along the global value chain, matching regional competitive advantages with international synergies.
   o Project leader: LP - Marche Region, Italy
   o Romanian participation: Romanian Ministry of Economy, National Authority for Scientific Research and North-East Development Region are consortium partners.

8. Adriatic Danube Clustering (ADC), 2011-2012
Aim: to go beyond the existing similar productive specialisation among companies in the Adriatic–Danubian area and to strengthen the territorial marketing of the Adriatic–Danubian compound in the global economy by realizing more of its productive skills through the establishment of sectoral cluster networks, suitable to enhance the effective integration of the more competitive transnational value chains and to reduce regional disparities, also by fostering the attractiveness of the area for FDI. Furthermore, the aim of the project is to enhance the knowledge on the potential for cross-border cooperation and to promote it, granting greater visibility of the SMEs in the region.

Project leader: Region of Veneto, Italy

Romanian participation: Institute for Economic Forecasting (IPE), Romania. In addition several Romanian clusters (e.g. ELINCLUS cluster organisation) have registered to the ADC network platform.


Transnational projects co-funded through CIP Project – Competitiveness and Innovation Framework Programme, by the European Union

9. SEENECO, South East Europe Network of Excellence for Cluster, 2011 – 2013

Aim: to improve the cluster efficiency by means of increasing the professionalism level of the people who manage clusters. The project will prepare the tools which will improve the cluster management through trainings, benchmarking, preparation of quality indicators and experience exchange among colleagues, while using the results obtained by the ECE initiative (European Cluster Excellence). Learning, analysis and direct exchange are three key elements, which therefore provide the core of the SEENECO Project – increasing the professionalism level of cluster management will be achieved through trainings, wider opportunities for analysis due to
benchmarking and a more dynamic knowledge transfer, as well as the experience acquired through personal contacts.

- Romanian participation: Ministry of Economy, RO. This project allowed the benchmarking exercise that led to granting the bronze label status to 5 Romanian clusters (see previous section).
- Other partners from the Danube Region: Ministry of Economy and Regional Development and National Agency for Regional Development, SR, Chamber of Commerce, HR, Ministry of Economy, Energy and Tourism, BG

**Transnational projects funded by EU member states**

10. The Balkan Cluster Network project, financed by Denmark through the LEDIB Programme, 2012-2013
   - Aim: Contribution to strategic planning of cluster development in the Balkans. Contribution to comprehensive development in the Balkans. Support to creating the public private dialogue and partnership in the field of cluster development in the Balkan countries. Inter-cluster connecting (C2C), promotion and internationalization of the Balkan clusters.
   - Project leader: Cluster House from Nis, Serbia
   - Romanian participation: ELINCLUS cluster, ICT Oltenia cluster and ASTRICO Textiles cluster have signed the MoU
   - Other partners from the Danube Region: clusters from Bosnia Herzegovina, Serbia, Croatia and Hungary.

**Example of bilateral – cross-border projects financed by the EU**

11. PHARE CBC RO-RS “Promoting economic growth in the border area between Romania and Serbia by strengthening and expanding in a border direction, structures for the cluster type of machine building industry, and in species, for automotive subsector” (RO 2006/018-448.01.01.03)
   - Aim: Creation of a functioning transborder network that will help integrate firms and business support organisations from Serbia

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122 Since November 2012 more than 30 cluster organizations and support institutions joined The Balkan Cluster Network.
with the emerging automotive cluster in West Romania (Automotivest, Timișoara). Cluster Promotion at international and networking with relevant European clusters, particularly with those active at cross-border level.

- Romanian participation: Automotivest Cluster, Timisoara


- Aim: to foster the cross border cooperation between ICT enterprises in the counties of Arad, Timis, Bekes and Csongrad concerning commercial aspects, technology transfer and innovation as well as joint participation of research projects in view of establishing an IT cross border cluster relationship. In this context it supports the cross border cooperation of Romanian and Hungarian IT&C SMEs towards internationalization by enhancing co-operating cluster development. One Romanian and one Hungarian company active R&D leads the project and organizes meetings and workshops enhancing cross-border ICT cooperation.

- Romanian participation: ICT cluster Timisoara/Arad


- Aim: Awareness increase on tourism cluster for sustainable use and conservation of natural resources and environment, including climate change.

- Romanian participation: ONG Mare Nostrum, Constanța representing a potential emerging tourism cluster

- Project partners: Chamber of Commerce and Industry Dobrich, BG and EUREKA, BG

Example of individual cluster bilateral relations within the Danube Region


15. Electrical Engineering Pole – ALL Electric, RO with Forschungszentrum Jülich, DE, “Anghel Kanchev University, Ruse, BG, Kiev National University of Technologies, UA
16. ROSENC cluster, RO with ArhEnerg Hungarian Cluster, HU and Center of Excellence for Renewable Energy, Energy Efficiency and Environment, Vienna, AT

17. ELINCLUS cluster, RO with Omnipack Cluster, HU


Other networks

19. Network of Automotive Excellence - NoAE - open initiative for the automobile and supplier industry. NoAE was founded in 2002 by well-known personalities of the automotive branch and with the collaboration of the European Commission.
   - Romanian participation: ICT - Regional Competitiveness Pole Oltenia Cluster is a member of NoAE.

20. EEN - Enterprise Europe Network
   - Romanian participation: ICT - Regional Competitiveness Pole Oltenia Cluster is a partner and was advised by the local EEN office in Craiova in its creation and development.

The above listed initiatives are not enough to allow for benchmarking across the Danube Region. In order to bring more coherence to the analysis, we will attempt for the final report to classify networking initiatives in the Danube Region by a more elaborate taxonomy, that would take into account, as much as possible, the following:

- Geographic scope (regions within countries, national level, transnational)
- Industry scope (emerging pattern of relatedness across industries, broader set of industries, entire regional economy)
- Specific Issue (regional, national)
- EU-created/based networks (e.g. EEN, EBN etc.)
Based on such classification, an attempt to build a benchmarking index may be tested.

**Projects with no Romanian participation expiring end-2013**

*Accelerating regional competitiveness (ACCESS)*

In the framework of CENTRAL EUROPE, the project ACCESS (ACCelerating regional competitiveness) is a sector-based framework applying innovation management tools and techniques. It is implemented by 11 partner organizations from 8 Central European countries that have a common interest in improving their innovation policy. The project focuses on two specific facets: Which are the tools and techniques of regional innovation management that might be useful to improve innovation capacities? Which potentials might be hidden in a sector-based focus for innovation management?

*CluStrat*

CluStrat was called for and approved within a call for project proposals in the CENTRAL EUROPE Programme 2007 - 2013. It is implemented within the funding priority "Innovation" and the area of intervention "Enhancing Framework Conditions for Innovation" of the programme. The project receives up to 2.946 million EURO from the European Regional Development Fund. The strategic project convenes 18 partners and 7 associated institutions from across CENTRAL EUROPE (Austria, the Czech Republic, Germany, Hungary, Italy, Poland, Slovenia, Slovakia and Ukraine), 7 of which are in the Danube Region. CluStrat is co-ordinated by Steinbeis-Europa-Zentrum (Germany), in close collaboration and with financial support from the Ministry of Finance and Economics Baden-Württemberg. Project duration is October 2011 - September 2014. (http://clustrat.eu)

The CluStrat project strives to develop a Joint Strategy on how to enhance the innovation capacity and competitiveness of clusters in the Central Europa area. At the beginning, an analysis of potentials shows hubs of strategic importance with regard to emerging industries and cross-cutting issues at regional level. Strategy development builds upon this basis. In order to feed the strategy development process, CluStrat partners have initiated a systematic
Policy Dialogue at regional, national and transnational level. The Policy Dialogue is an ongoing process of exchange, discussion and learning which involves cluster policy makers at all levels in the development of new policy approaches and strategy elements. At the same time, sectoral experts, cluster practitioners and members such as companies, universities and other R&D institutions are involved in CluStrat for their expertise and hands-on experience.
3 Progress of Cooperation and Networks to Increase Competitiveness in the Danube Region

The Danube Region represents an innovative mode of territorial cooperation of different regions and nations, with balanced and sustainable development as a shared goal. The Danube Region defined as not being a further institutional level within the European Union (like states, regions, municipalities, etc.) but rather a network, a joint initiative involving several European, national and regional stakeholders, policies and funding programmes.

The aim of this chapter is to provide an overview of the existing organisations and networks related to economic cooperation in the Danube Region and to come to conclusions and recommendations to increase competitiveness. The chapter was written at a point of time when initiatives which formed the European competitiveness programmes for 2007-2013 are coming to an end. It is not clear yet which of the programmes will continue and in what form in the future, thus some of the frameworks mentioned here may become redundant for further analysis.

The chapter is organised into four main sections. First we provide an overview of the existing cooperation initiatives and their relevance for increasing the competitiveness of the DR. Then we present the international financing instruments available to foster competitiveness in the DR (missing part, to be developed at a later stage). The third section presents the existing initiatives to implement the EUSDR in terms of competitiveness. Finally we provide some preliminary conclusions related to the cooperation projects in the DR and also mention some open questions.

3.1 Networks and initiatives: International cooperation of administrative bodies in the Danube region and beyond

The following main areas of international cooperation may foster competitiveness: (1) cooperation organisations of countries in the DR among themselves, (2) beyond the DR with other regions, (3) business network and cluster cooperation frameworks.
3.1.1 Political cooperation networks and EU programmes

Countries and various other administrative bodies cooperate in the Danube Region based on proximity and joint interests. Some of them are part of the European Union; others receive EU support to intensify cooperation as future or potential candidate countries. Regions of the former Soviet Union belong to countries of the European Neighbourhood and the CIS. Cooperation projects both along these division lines and in a broader context. In the following we list those organisations that already have or may have in the future some role in enhancing cooperation in the Danube Region. We cover

**Visegrad Group**

Established in 1991 the Visegrad Group (V4) comprises the Czech Republic, Hungary, Poland and Slovakia – three of which are in the Danube Region. The backbone of this cooperation consists of mutual contacts at all levels, from the highest-level political summits to expert and diplomatic meetings, to activities of the non-governmental associations in the region, think-tanks and research bodies, cultural institutions or numerous networks of individuals. The V4 was a vehicle of EU and NATO accession and remains an important network to support joint interest of members in the European Union. The V4 may set an example what level of cooperation may be achieved in the Danube Region in the various fields of activities. The Hungarian Presidency in the Visegrad Group (2013–2014) set various economic targets from energy security through transport connection to cluster cooperation. The related document states that “the regional cooperation of states in the framework of the EU macroregional strategies like the EUSDR are aiming mainly at the improvement of security, prosperity and the sustainability of the given macro region in a coherent way. These tools stretching across the counties of the Visegrad Group could play an important role during the next budgetary period to achieve major development goals of the V4, in terms of North-South infrastructure connection as well as in boosting growth and rising employment, improvement of R&D capacities and acceleration of the technology transfer. Through a strategic V4 thinking, cooperation and new partnerships, based on shared interest the V4 should enhance the efficiency of these tools in our region, in practice these actions could serve as a bridge concerning the institutional cooperation be-
An activity of the V4 is the ClusterCOOP Project led by the Hungarian Ministry of National Economy in the framework of the EU’s Central Europe Programme. It was initiated on the basis of a Memorandum (signed on 26 November 2009) on cooperation of V4 countries in the field of clusters. It also incorporates Slovene, Italian and German partners. It will terminate by March 2014 after approval of its results by a ministerial conference planned for autumn 2013 in Bratislava. The results are expected to support the preparation for the next Multiannual Financial Framework (MFF) period 2014–2020.

**Central European Initiative (CEI)**

The CEI is an intergovernmental forum promoting political, economic, cultural and scientific cooperation among its Member States. Its core mission is: Regional Cooperation for European Integration. Moreover, the CEI considers itself in a unique position to act as a bridge between macro-regions, such as the Baltic, Danube, Adriatic and Black Sea Regions. Member states include all Danube Region countries minus Germany plus some neighbouring non-EU members. The CEI Cooperation Activities are projects of small scale and limited duration, which mainly take the form of seminars, workshops, short training courses or other kind of meetings. CEI participates in EU Projects, has a Know-how Exchange Programme, a University Network and a Science and Technology Network. [http://www.cei.int](http://www.cei.int)

**Regional Cooperation Council (RCC)**

The Regional Cooperation Council (RCC) was launched by the Ministers of Foreign Affairs of the South-East European Cooperation Process (SEECP) in 2008, as the successor of the Stability Pact for South Eastern Europe. Through a regionally owned and led framework, the RCC focuses on promotion and enhancement of regional cooperation in South East Europe (SEE) and supports European and Euro-Atlantic integration of the aspiring countries. The RCC provides operational capacities to and works under the political guidance of the SEECP. The work of the RCC focuses on the priority areas of economic and social development, energy and infrastructure, justice and home affairs, security cooperation, building human capital, and parliamentary cooperation as an
overarching theme. The organisation develops and maintains close working relationships with all relevant actors and stakeholders in these areas, such as governments, international organisations, international financial institutions, regional organisations, civil society and the private sector. The RCC participants comprise 46 countries, organisations and international financial institutions includes all countries participating in the Danube Region except Germany and Ukraine; further European countries as well as international organisation like the EU and NATO also participate. The activity of the RCC is not directly linked to the EUSDR although most of its member states and policy goals are identical. www.rcc.int

Various activities of RCC cover different sets of countries but the West-Balkan countries comprise the core. In the Economic and Social Development priority area, the RCC is partnering with 10 regional initiatives – four promoting business and investment climate in the SEE as outlined below.

**South East Europe Investment Committee (SEEIC)**

SEEIC is a high-level coordination body that supports the implementation of policies promoting foreign and domestic investment. http://www.seeic.rcc.int

Members of SEEIC include Albania, Bosnia and Herzegovina, Bulgaria, Croatia, The Former Yugoslav Republic of Macedonia, Moldova, Montenegro, Romania, Serbia, with Kosovo* as an observer. SEEIC was empowered to engage in the SEE 2020 vision-building and placed into regional ownership. SEEIC currently has three main objectives:

- Development of the South East Europe 2020 Strategy (jointly with the SEE countries), based on 5 growth pillars: 1) integrated, 2) smart, 3) sustainable and 4) inclusive growth underpinned by 5) governance for growth
- Increasing competitiveness and enhancing regional value chains
- Promoting the SEE region as an attractive investment destination

**Central European Free Trade Agreement 2006 (CEFTA)**

CEFTA, in its current form, came into existence through the Agreement to amend and enlarge the Central European Free Trade Area in 2006 and signed by Albania, Bosnia and Herzegovina, Croatia, Macedonia, Moldova, Montene-
The main objectives of the agreement are to expand trade in goods and services and foster investment by means of fair, stable and predictable rules, eliminate barriers to trade between the members, provide appropriate protection of intellectual property rights in accordance with international standards and harmonise provisions on modern trade policy issues such as competition rules and state aid.

**The Regional Rural Development Standing Working Group of SEE (RRDSWG)**

RRDSWG is an intergovernmental organisation for regional rural development in SEE, which aims to empower and promote sustainable agriculture and rural development through networking and permanent cooperation between stakeholders in the SEE region.

**Transnational programmes under the European Territorial Cooperation Objective**


**Central Europe**

Central Europe is a European Union programme that encourages cooperation among the countries of central Europe to improve innovation, accessibility and the environment and to enhance the competitiveness and attractiveness of their cities and regions (www.central13.eu). The programme is financed by the European Regional Development Fund and runs from 2007 to 2013. CENTRAL EUROPE invests €231 million to provide funding to transnational cooperation projects involving public and private organisations from Austria, the Czech Republic, Germany, Hungary, Italy, Poland, the Slovak Republic, Slovenia and Ukraine (seven countries are part of the Danube Region). The programme has four priority areas supporting projects in these specific areas. Two of them are linked to improving competitiveness.

**Priority 1: Facilitating innovation across Central Europe**

Innovation is a key driver for strengthening Central Europe’s competitiveness and it is a top policy priority for the European Union. Projects under this priority aim at improving the climate for innovation in all regions and enabling them
to make better use of their innovation potential. They create favourable framework conditions for innovation and build up capabilities for the effective transfer and application of innovation. They also foster knowledge development and help people to obtain the qualifications they need for the knowledge-based economy.

Priority 4: Enhancing competitiveness and attractiveness of cities and regions

“European cities and regions attract investment and employment by offering economic opportunities and a high quality of life. Cities and regions can do a lot to improve their attractiveness and competitiveness and, thus, to contribute to economic growth and more and better jobs. Projects under this priority aim at improving the quality of life in cities and regions and promote sustainable urban development. They support polycentric development to avoid disparities within urban areas that are due to social and spatial segregation, and they address demographic and social change, as well as the protection, preservation and exploitation of cultural resources.”

Mediterranean

The transnational cooperation programme supports cooperation projects between Cyprus, France, the United Kingdom, Greece, Italy, Malta, Portugal, Slovenia, Spain (with participation of Croatia, Bosnia and Herzegovina, Montenegro and Albania with IPA funds) for the period 2007-2013.

Alpine Space Programme

This transnational cooperation programme supports cooperation projects between Germany, France, Italy, Austria and Slovenia (with participation from Liechtenstein and Switzerland) for the period 2007-13.

3.1.2 Links of the Danube Region with other regions

The Adriatic-Ionian Macroregion

The Adriatic-Ionian Macroregion is not a geographical region with predefined boundaries; it is a functional area, composed of national, regional, and local bodies coming together to tackle a number of shares issues and it involves in territories in Albania, Bosnia-Herzegovina, Croatia, Greece, Italy, Montenegro,
Serbia and Slovenia. Together with other two European macro-regions, the Baltic Sea and the Danube, the Adriatic-Ionian Macrregion is the connection between Northern and Southern Europe because, since it also includes the central eastern Mediterranean area, it can relieve the congestion of the southeastern access to Europe.

The intergovernmental cooperation among the eight Participating Countries has been constantly upgraded in 2012-2013. Nine projects proposals will be co-financed during 2013. Projects are aimed at increasing cooperation in priority areas such as tourism, rural development, small and medium enterprises and the support to the establishment of the Adriatic and Ionian Macro Region. A further task is the presentation of a new EU Strategy for the Adriatic and Ionian Region before the end of 2014. http://www.aiips.org/index.php/adriatic-ionian-macregion

**BSEC - Organisation of the Black Sea Economic Cooperation**

The BSEC came into existence in 1992 as a multilateral political and economic initiative aimed at fostering interaction and harmony among the Member States (Albania, Armenia, Azerbaijan, Bulgaria, Georgia, Greece, Moldova, Romania, Russia, Serbia, Turkey and Ukraine), as well as to ensure peace, stability and prosperity, encouraging friendly and good-neighbourly relations in the Black Sea region. http://www.bsec-organization.org

EUROLINK-House of Europe is the co-ordinator of the Black Sea - Danube Regional Network for Social & Economic Innovation, which was launched in 2011. Within an institutional partnership with the National Coordinator of the EU Strategy for the Danube Region, the Regional Network plays the role of integrator of initiatives and partnerships from the Black Sea - Danube area.

### 3.1.3 Business and cluster cooperation programmes involving DR countries

Fostering competitiveness is in the focus of activity for several EU and transnational initiatives. One group of initiatives in related to business organisations like chambers of commerce, another type supports the cross-border
cooperation of clusters. In this section we focus on initiatives and not on specific projects which are discussed in chapters 4.2.

3.1.3.1 Business cooperation programmes

*Enterprise Europe Network*

The Enterprise Europe Network is a key instrument in the EU’s strategy to boost growth and jobs. Bringing together close to 600 business support organisations from more than 50 countries, the Network helps small companies seize business opportunities in the EU Single Market. The Network member organisations include chambers of commerce and industry, technology centres, research institutes and development agencies. Most of them have been supporting local businesses for a long time. The members are linked up through powerful databases, sharing their knowledge and sourcing technologies and business partners across all Network countries. They are also closely linked with the European Commission, which enables them to keep abreast of EU policies and to feed small companies' views on them back to Brussels. Services of the Network include:

- Technology transfer
- Access to finance
- Advice on EU law and standards
- Advice on Intellectual Property Rights (IPRs)
- Speak up on EU law
- Research funding – support to companies to find partners for FP7 projects
- Going international – brokerage services

All 14 countries of the Danube Region have Enterprise Europe Network points. There is no sub-network for the Danube Region countries. A list of Network contacts is available on [http://een.ec.europa.eu/about/branches](http://een.ec.europa.eu/about/branches).
European Association of Development Agencies (EURADA)

The EURADA has a membership of about 130 regional development agencies from across the European Union. It runs conferences and seminars and has an extensive publications programme. It keeps its members up-to-date with EU policy developments and provides briefing on critical issues such as state aid rules. It alerts members to funding and contract opportunities and helps with forming and running partnerships. EURADA lobbies and briefs the European Commission on behalf of members and maintains a communications network there. Countries from the Danube area involved are Austria, Bosnia and Herzegovina, Bulgaria, Czech Republic, Romania, Serbia and Slovakia.

Association of the European Chambers of Commerce and Industry (Eurochambers)

Eurochambers represents, serves and promotes member chambers through:

- strengthening the voice and position of European chambers as significant, respected, valued influencers of EU affairs on all major economic issues;
- developing the participation of European chambers in projects of value to business;
- delivering services to the members, and developing a European network of services for enterprises.

All countries from the Danube Region participate in Eurochambers.

C.R.E.A.M. Europe PPP Alliance

C.R.E.A.M. Europe PPP Alliance is a European Public Private Partnership Association and the acronym stands for COMMUNITY, REALIZATION, EUROPE-AN, AID, MASTERPLAN. C.R.E.A.M. As a “think tank and learning organisation” it promotes and initiates PPP projects in infrastructure as a sustainable regional development strategy. The network consists of 9 national public private partnership associations and over 200 PPP units worldwide. (www.cream-europe.eu)
Vienna Economic Forum (VEF)

The aim of the VEF is popularising and promoting investment opportunities in the region from the Adriatic to the Black Sea. Providing impulses and pointing out – on the basis of research – the joint projects required in the region for short-term, medium-term and long-term realisation, and promoting their implementation. Becoming a place of definition, encounter, and of realising the public and private interests in connection with the various projects in the region as part of the United Europe. The members are companies and organisations from a wide region covering all Danube Region countries. http://www.vienna-economic-forum.com

Business Advisory Council for Southeastern Europe and Eurasia (BACSEE)

BACSEE is an advisory body composed of some 35 international investors and business representatives from more than 20 countries, whose experience and activities span across a wide range of sectors which are key to regional growth and development. The network calls for effective public-private partnerships and communication on cross-border cooperation, competitiveness, good governance, human capital, infrastructure, and regional trade and investment. BAC works in close cooperation with the European Commission, various IFIs (such as the World Bank and the EBRD) and development organisations (such as OSCE and OECD), as well as regional bodies and local business communities. As such, BAC is regularly invited to contribute to regional and international policy-making forums, and holds meetings and missions in various centers of the region. Annual activities are highlighted by a highly-profiled event, which brings together key policy makers from the sphere of business, finance, politics and academia.

Association of Balkan Chambers (ABC)

The Association of Balkan Chambers of Commerce was established in 1994 with the aim of assisting business activities in the Balkans. Members include Chambers of Commerce and Industry of Albania, Bulgaria, Greece, The Former Yugoslav Republic of Macedonia, Montenegro, Romania, Turkey and Serbia. Its activity thus stretches beyond the SEE and Danube Region. The main priorities of ABC are: development of cooperation among the business communities in the Balkan region, as well as with third parties; encouragement and support of
activities aimed at structural changes in the economies of Balkan countries with the view to EU accession; initiation and implementation of global interest projects for the Balkan region; representing, through the Association, interests of the member Chambers in front of international bodies; joint participation in EU programmes and other partnership programmes.

3.1.3.2 Cluster network cooperation programmes

The international cooperation of clusters has been initiated by the European Commission DG Enterprise and Industry. A network of European cluster institutions and programmes were set up in order to spread the idea and support the cooperation of clusters. Related projects were financed in the 2007-2013 period both by DG Enterprise and DG Regio. These projects have brought together clusters, universities, regional development agencies and other government agencies of several countries on a seemingly ad hoc, voluntary basis. Some of these networks include organisations from the Danube Region and other EU members, while there are also some which operate only in the Danube Region. In the 2007-2013 financing period the EUSDR was not among the cooperation initiatives supported by the European Commission. Initiatives comprising some of the EU member states in the Danube Region were included in the Central Europe Programme. There were also separate programmes in the Transnational Cooperation Programme for South East Europe potential candidate countries as well as programmes for cross-border projects between members and non-members.

Cluster policy at EU level

The European Union cluster policy is based on the idea that: “Clusters are powerful engines of economic development and drivers of innovation in the European Union. They provide a fertile business environment for companies, especially SMEs, to collaborate with research institutions, suppliers, customers and competitors located in the same geographical area.” (http://ec.europa.eu/enterprise/policies/innovation/policy/clusters/index_en.htm) According this website, there are about one thousand clusters in Europe and nearly as many cluster organisations.
More recently, cluster development policy is a part of innovation policy helping companies to perform better and contributing to growth, jobs and sustainability. The Commission's Communication entitled "Towards world-class clusters in the European Union: Implementing the broad-based innovation strategy" is the guiding document for the 2014-2020 financing period. It outlines a policy framework for action aiming to raise the level of excellence and openness of clusters. Besides efforts to improve the framework conditions, specific policy steps aim at:

- establishing a high-level European Cluster Policy Group to explore ways on how to best assist EU countries in supporting clusters;
- expanding the policy dialogue under the European Cluster Alliance;
- fostering transnational cooperation between cluster organisations;
- promoting excellence of cluster organisations;
- developing the European Cluster Observatory into a full-fledged information service on clusters for enterprises and thereby improving the integration of innovative SMEs into clusters.

To improve the performance of cluster collaboration, a new Commission pilot action aims to upgrade the profile of 25 experts working in clusters, so that they can act as 'multipliers' and train many other cluster managers to enable them to better support SMEs who want to trade globally. Some 30 cluster benchmarking evaluators will be trained and 80 clusters organisations are expected to be benchmarked against clusters that are performing elsewhere so they can all learn from each other and perform more effectively. These 80 cluster organisations will also sign up to the European Cluster Collaboration Platform (www.clustercollaboration.eu) which should help them obtain greater international exposure and ultimately new business and export opportunities for their SMEs. The pilot action involves 20 organisations in Greece, Ireland, Hungary and Turkey encompassing further partners from Bulgaria, the Czech Republic, Croatia, Iceland, Poland, Portugal, Romania, Serbia, Slovakia and Spain – seven countries are from the Danube Region.
European Cluster Alliance, ECA

ECA was founded in September 2006 by the partners involved in four cluster policy projects, known as INNO-Nets, funded under the PRO INNO Europe initiative of the European Commission, namely the BSR InnoNet, CEE-ClusterNetwork, CLUNET, and INNET. Since January 2008, it has been opened to a wide audience: any European cluster policy maker or cluster funding agencies willing to share experiences and to develop joint activities with the other partners of the Alliance could join the ECA. Since 2010 new members aim to promote and enhance the contribution of the Alliance to cluster policy dialogue and action at all levels, with the aim of improving the efficiency of existing efforts in order to facilitate the emergence of new competitive industries in Europe through clusters, as well as fostering international cluster cooperation amongst clusters for the benefit of their members (SMEs, research organisations etc.).

The main objectives of the European Cluster Alliance are:

- to share the experience gained so far in cluster policies by public authorities at national and regional level in order to fine-tune existing, or develop new and better cluster policies in the future;
- to go beyond the identification of good cluster policies and to facilitate a true policy dialogue between those who wish to jointly advance the European cluster agenda in areas of common interest;
- to become the single place at EU level for elaborating and exchanging new ideas and practical tools, new funding initiatives for improving cluster policies in Europe and for fostering European cooperation at policy level;
- to raise the level of excellence and efficiency of cluster policies in Europe which will result in the creation of more competitive world-class clusters in Europe, as proposed by the Commission Communication on clusters.

ECA is not all-embracing, but one of the voluntary networks. It principally targets three types of cluster actors: (i) national and regional ministries and agencies that are involved in the design and/or management of innovation and cluster funding support programmes and actions; (ii) trans-national net-
works between clusters (meta-clusters); (iii) international/national cluster associations. ECA members from the Danube Region include mainly (i) type of government agencies and some cluster associations in Austria, Croatia, Czech Republic, Germany, Hungary, Serbia and the Slovak Republic. (http://www.eca-tactics.eu/)

**European Cluster Observatory**

The online platform provides a single access point to information and analysis of clusters and cluster policy in Europe. Launched in 2007, the observatory offers a range of services providing data and analysis on clusters and competitiveness, a cluster library, and a classroom for cluster education. The European Cluster Observatory also produces analysis and reports on regional competitiveness conditions, transnational cluster networks, clusters in emerging industries and studies on better practices in cluster organisations. (www.clusterobservatory.eu)

**European Cluster Collaboration Platform**

This platform provides online quality information and networking support for clusters (organisations and members) aiming to improve their performance and increase their competitiveness through the stimulation of trans-national and international cooperation. (www.clustercollaboration.eu)

**European Secretariat for Cluster Analysis (ESCA)**

ESCA was established by one of the leading German innovation agencies VDI/VDE Innovation + Technik GmbH to offer practical advice to cluster management organisations. ESCA promotes cluster management excellence through benchmarking and quality labelling of clusters and cluster management organisations. ESCA has been mandated by the European Cluster Excellence Initiative (ECEI) to organise the assessment process in the context of the "Cluster Organisation Management Excellence Label GOLD". ESCA also supports cluster policy makers and programme owners with advice on cluster programme development. Until mid-2013, 18 cluster organisations from different European countries have successfully participated in the Gold label assessment: 2 in Austria, 4 in South Germany, none in other Danube Region countries. Bronze Label of the European Cluster Excellence Initiative (ECEI) was achieved by 171 clusters in the Danube Region: Austria 14, Croatia 14, Czech
Republic 13, Germany 105, Hungary 13, Romania 5, Serbia 4, Slovakia 7. This is voluntary, but all clusters having a management can apply. (There is no silver level yet.) http://www.cluster-analysis.org/

**European Strategic Cluster Partnership Initiative**

This is an initiative of the Unit “Clusters and Support for SMEs” in the Directorate General for Enterprise and Industry of the European Commission which calls for the cooperation of cluster organisations with the aim to enter extra-European markets. A launch event of the European Strategic Cluster Partnerships was organised by the European Cluster Collaboration Platform on 16 May 2013 in Linz in the framework of the 2013 Cluster Academy programme of Clusterland Upper Austria. Cluster organisations from across Europe were invited to form such partnerships through a call for the expression of interest that was published on the European Cluster Collaboration Platform (ECCP) in March 2013. (http://www.clustercollaboration.eu)

### 3.2 International financing institutions, development aid and participation in EU programmes

*(To be developed at a later stage)*

### 3.3 Competitiveness initiatives to implement the EUSDR

One of the main objectives of the EU Strategy for the Danube Region is to identify, support and promote projects in the countries of the Danube Region which are of relevance for the implementation of the targets set in the Action Plan for the Priority Area 8th. Projects are to be developed by cluster and business organisation. The Priority Area Coordinators together with the Steering Group established seven thematic Working Groups (WGs). Two of the working groups initiate the cooperation of clusters and of business networks. The WG Cluster of Excellence aims "To foster cooperation and exchange of knowledge between SMEs, academia and the public sector in areas of competence in the Danube Region." The WG Cooperation of Business Organisations
aims "To improve business support to strengthen the capacities of SMEs for cooperation and trade".

The discussion of cluster cooperation and business networks in the Danube Region cannot be restricted to the activity in the framework of the two working groups because international cooperation involving the countries of the region has longer history and a broader scope. European initiatives and multi-country initiatives involving EU members and other countries have developed institutions and networks, the members of which are also part of the Danube Region cooperation. It is not clear yet, how far the Danube Region cooperation networks will replace earlier initiatives or will function side by side to them.

### 3.3.1 Business cooperation networks

The cooperation of business organisations link relevant business support and trade agencies in the Danube Region to develop economic services, trade and commercial cooperation. Relevant business organisations include e.g. Chambers of Commerce and Industry, Federations of Entrepreneurs and Industrialists, Investment and Trade Agencies, associations of entrepreneurs. While clusters are partnerships between various economic, public and NGO actors, the chambers represent the interest of its members in policy dialogues. Clusters aim at utilising synergies in a given economic policy environment, while chambers try to influence economic policy to be more pro-business. Chambers can at the same time be catalysts and partners in cluster building. At the EU level EUROCHAMBRES is the association of national chambers of commerce. There are no special EU programmes in this area of business cooperation.

In the **PA8 there is an Actions Plan** which is aimed “to improve business support to strengthen the capacities of SMEs for cooperation and trade”. Its main aims include:

- Set up a network among business organisations in the region,
- Create a framework of business organisations to exchange experiences and best practices as well as to support capacities of SMEs,
- Create a single platform to establish common projects e.g.:
“To hold annual business forums bringing together Danube Region businesses, governments, regional organisations and academia” – the goal is to strengthen cooperation and business opportunities for SMEs with private sector, public sector as well as academia to stimulate growth and competitiveness

“To strengthen Danube Region entrepreneurs and SMEs” – the goal is to identify innovative approaches to knowledge transfer from academia to SMEs and businesses.

The main target areas and sectors to improve business support for SMEs:

- Information technology – IT sector,
- Automotive industry,
- Electro industry,
- Renewable energy and green energy,
- Innovation for SMEs, services and industry.

The action plan will be implemented through the cooperation of business organisations in the Danube Region. The Danube Chambers of Commerce Association (DCCA) is up to now the only cooperation organisation of chambers which excludes country level chambers. The national chambers in the Danube Region have no specific organisation of their own. The WG Cooperation of Business Organisations in PA8 has been formed by the most active members of the DCCA with the aim to implement specific projects during the 2014-2020 financing period.

_Danube Chambers of Commerce Association (DCCA) www.danubechambers.eu_

The association of 20 regional and municipal chambers of commerce along the river Danube is the main cross-border organisation of such institutions in the Danube Region. It was established in June 2010 and the driving force is the Budapest Chamber of commerce whose president is also the current president of the DCCA. The organisation is not all embracing but has a wider coverage than DanuClus. The members are in towns on or close to the river Danube. There is no member from the more remote provinces of the Danube Region.
countries. It does not cover all organisations in the region and also excludes Moldova and Ukraine.

The DCCA was the driving force to create a new PA8 Working Group, called Business Organisations, was started on 28 October 2013 (Business organisations http://groups interceptions.http://groupspaces.com/Competitiveness/announcements/). The WG includes members from Ulm Chamber of Commerce and Industry, Germany, Varazdin Chamber of Economy, Croatia; Serbian Chamber of Commerce and Industry, Serbia; Ruse Chamber of Commerce and Industry, Vratsa Chamber of Commerce and Industry, Enterprise Europe Network-Bulgarian Business Support Center, Ruse, Bulgaria; Bulgarian-Romanian Chamber of Commerce; Budapest Chamber of Commerce and Industry, Hungary as well as Vienna Chamber of Economy and Belgrade Chamber of Commerce and Industry are our members. The WG decided to draw up the framework of institutional cooperation and suggested some future project proposals in the different areas of fields of businesses.

The WG decided future project proposals included:

- Innovation for SMEs

The Vienna Chamber of Economy as well as Enterprise Europe Network-Bulgarian Business Support Center and experts from Varazdin have drawn up a project proposal which is focusing innovation for SMEs, services and industry.

- New Banking and Financial Instrument for companies and SMEs

Enterprise Europe Network-Bulgarian Business Support Center proposed new instruments for SMEs serving to boost the liquidity of Danube Region micro, small and medium size enterprises.

- Support for SMEs in the delivery of the automotive industry - Supplier Development Programme

The Budapest Chamber of Commerce and Industry and Ruse Chamber of Commerce and Industry proposed a Supplier Development Programme, which is focusing on support for SMEs in the automotive supplier sector.

- Mix Start-Up Pilot Project for competitiveness between Bulgaria and Romania
Bulgarian-Romanian Chamber of Commerce indicated a pilot project, which is focusing on competitiveness of Bulgarian and Romanian start-up companies in the first step.

In the next coming months road maps are to be set up for these proposals. The members and experts came to the meeting from different national chambers and agencies.

**Danube Business Advisory Council (DBAC)**

DBAC is an independent network organisation whose members are promoting or providing high quality innovation support and technology transfer services to firms, with the ultimate aim to develop the knowledge economy and boost the wealth creation process. The network involves decision makers from all over the Danube Region and beyond to establish production networks of companies/research/universities to stay at the cutting-edge of technology, further interaction between different disciplines, sub-sectors, economic fields. A more intensive, systematic and wide-range collaboration between economy, academia and scientific institutions is promoted, as well as public-private initiatives to support the development of Danube Business and Technology platforms. Being in charge to develop and implement the European research and innovation policy, the EC Directorate-General for Research and Innovation ensures the policy coordination of the DBAC’s strategy with a view to achieving the goals of Europe 2020 and the Innovation Union.

[www.danubeinnovationunion.com](http://www.danubeinnovationunion.com)

**Council of Danube Cities and Regions (CODCR)**

Launched in Ulm by the "Deklaration der Donastädte" on 4 July 1998, the CODCR is a major inter-municipal and interregional network, to become an example of cross-border cooperation in the Danube Region. With its political Head Office in Ulm and operational Headquarters and General Secretariat in Bucharest, the Council of Danube Cities and Regions is a bridge that links European, regional and local institutions to the academic, business, financing networks and other representatives of the civil society. [http://www.codcr.com](http://www.codcr.com)
Danube Competence Centre (DCC)

The Danube Competence Centre (DCC) is a regional network of public, private and non-government organisations involved in tourism sector development along the Danube. DCC was founded in early 2010 as the initiative of 22 organisations and is supported by the German Ministry of Economic Cooperation and Development through its agency GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit). It involves 60 members from 9 Danube countries, its mission being strengthening visibility of the Danube Region and enhancing and promoting cross-border cooperation and sustainable tourism development. Countries from the Danube area involved are: Germany, Austria, Slovakia, Hungary, Croatia, Serbia, Romania, Bulgaria, Moldova and Ukraine. http://www.danubecc.org/

Danube Alliance

Danube Alliance is an informal, demand-driven and results-oriented forum for regional cooperation in the Danube macro region that identifies political goals, creates action plans, initiates projects and serves as a platform for the exchange of ideas concerning regional issues of common interest. It is an open and transparent network for cooperation with a multi-stakeholder. Members are various government ministries and agencies from the 14 countries involved in the EUSDR, the European Commission, numerous intergovernmental and non-governmental organisations, academic and financial institutions, as well as local, city and sector networks. It brings together people who are active in a variety of different sectors: transport, energy, tourism and culture, environment, biodiversity, quality of waters, research, education and ICT, competitiveness, institutional capacity and cooperation, security. The Danube Alliance Strategy is currently under development and so is the Danube Alliance Portfolio of Actions and Flagship Projects. The latter are concrete projects that ensure a value-added contribution to regional sustainability and high visibility of the results and outcomes. http://www.eudanube.com

Arge Donauländer

Created in 1990, the Arge Donauländer aims at promoting co-operation among its members for the development of the Danube area to serve the in-
Progress of Cooperation and Networks to Increase Competitiveness in the Danube Region

interests of its inhabitants and to foster peaceful cooperation in Europe. Location of the Secretariat: St Pölten, Land Lower Austria, AT.

Steinbeis Danube Center

This is a non-profit institution for fostering the implementation of Danube Strategy. It acts as the integrative link for all stakeholders of Danube Region. The Center is directly involved in activities of several Steering Groups (PA 7, 8, 9). Its work is based on 17 years of experience in economic promotion and regional development in Middle and Eastern Europe.

3.3.2 Cluster organisation networks

DanuClus (Danube Cluster Networks)

The PA8 Working Group “Clusters of Excellence” provides the framework for cluster cooperation in the EUSDR. Clusterland Upper Austria takes a coordinative role in this area. At the conference "Boosting Innovation Policies with Clusters along the Danube" held on 27-28 June 2013 in Linz Austria, three initiators (Upper Austria, European Commission, Baden-Wuerttemberg) officially launched the cooperation initiative DanuClus (Danube Cluster Networks). DanuClus aims to link clusters, cluster managers, cluster experts and cluster policy-makers from the Danube Region, in order to prepare clusters in this geographic area for the new EU funding period of 2014-2020. The stakeholders collect and develop project ideas for clusters and support their implementation with their expertise. (http://groupspaces.com/Competitiveness)

On 12 September 2013 the Working Group Clusters of Excellence met in Vukovar, Croatia. The goal of the meeting was to work on a common cluster strategy for the Danube Region and to make progress in the development of the project DanuClus. A Memorandum of Understanding on cooperation of cluster organisations was signed by the Associations of 6 countries (CZ, SK, RO, BG, SRB, CR) has signed a document and three other countries are interested to join the network (HU, DE, AT).
A roundtable discussion brought the following results:

- The attendees offered a list of economic sectors in which their strongest clusters operate. These clusters are most ready for international cooperation in the framework of Danube Region cluster projects. Many of the strongest clusters are active in sectors such as automotive, ICT, wood processing and furniture, textiles and apparels.

- A cross-sectoral approach for cluster projects is the new trend to foster innovation, which also allows for a transfer of knowledge to more traditional industries and for developing a smart specialisation strategy that goes beyond national borders. The attendees therefore proposed common projects in the areas of active ageing, energy efficiency, service innovation, creative industries and social innovation.

- For cooperation with clusters from other countries, the quality of the cooperation partner needs to be assured. Therefore the attendees proposed a EUSDR cluster label with minimum quality requirements, going beyond simple benchmarking of cluster management skills.

- Nevertheless, some clusters and cluster policies are still not living up to their potential in the Danube Region. The working group therefore proposed to work on new curricula for cluster training, aiming at a larger target group of not only cluster managers, but also national cluster associations and policy makers.

- The six national cluster associations present at the meeting in Vukovar decided to sign a Memorandum of Understanding in which they agreed to work together on cluster development, common projects, knowledge and experience exchanges, and cooperation with the project DanuClus.

**Danubiz**

The company “local global GmbH” in Stuttgart has developed the concept of Danubiz to promote sustainable business development in the Danube Region.
It works towards fostering competitiveness in an effort to deliver improvement in the business performance of small and medium enterprises. They envision Danubiz as an expanding entity that comes as a natural response to the current informational and economic impediments that are holding SMEs back from expanding outside their national environment towards international markets. (danubiz.eu)

3.4 Development prospects, first conclusions and open questions

Clusters and chambers of commerce are now widespread over the Danube Region. Their associations are at different levels of development. The chambers support start-up businesses, develop cross-border cooperation of businesses. Their association plans to implement various projects which would strengthen the position of SMEs. Cluster organisations are first of all active to improve the capacities of clusters and their international networking. Part of the Central Europe and SEE cluster projects could be turned into EUSDR projects. This would mean an integration of the financing frameworks at the EU level. Also cross-border cooperation projects could go into this wider framework. For the countries outside the EU, CBC provides for a partnership like before. Still there is no sign that any organisation in Moldova and Ukraine has been involved in the activities of RD8.

Cluster cooperation activity in the framework of the Danube Region has been financed by national governments and organisations. In general, the cost of cooperation like the organisation of meetings, assessments, jobs, etc. dwells on the states or the participating organisations. Organisations of better-off countries are more experienced and also better funded thus able to take more initiative than organisations from new member-states. Non-members are in inferior position as they have access to even less funds and have hardly any cooperation experience with EU members. Thus there is no matching of aims and means that would make the Danube Region a cooperation of equals.

Business and clusters networks in the DR expect that their various initiatives would be supported in the 2014-2020 financing period. EU regional funds are expected to finance initiatives to a larger extent especially in the less developed regions of members and non-members.
Further expectations were voiced by stakeholders based on a questionnaire survey of wiiw, September 2013. The three organisations which answered expressed their view on the further development of business and cluster network programmes in the Danube Region. They are expecting new opportunities for financing cooperation projects from EU funds.

**Upper Austrian Technology and Marketing Company (TMG Group)**

Together with Clusterland Oberösterreich, CATT Innovation Management and tech2b, the Upper Austria Technology and Marketing Company forms the TMG Group and hence Upper Austrian’s business agency. The aim of the TMG Group is to boost the competitiveness of Upper Austrian business and industry in the global location contest. It constitutes the region’s network for location development and marketing, company foundations and settlement, innovation and cooperation. TMG coordinates the working group “Clusters of Excellence” in Priority Area 8 of the EU Strategy for the Danube Region.

- Clusters in the Danube Region are very diverse, ranking from mature clusters with ample experience as instruments of innovation, to newly established and embryonic efforts with little funding or political backing. Cluster cooperation projects in DanuClus therefore need to cater to the needs of this large spectrum of clusters in order to increase the innovative potential in the Danube Region.

- A certain level of comparison is essential (e.g. quality of cluster management). Thus the labelling process of ESCA should be taken as a basis and to adapt the indicators tailor-made to the needs of Eastern European Clusters. These adaptations could possibly already been integrated into the development of the upcoming silver label. Consequently not completely new labels need to be developed.

**Union of Slovak Clusters (UKS)**

USK is active member of Steering Group of PA8, and member of working groups Clusters of Excellence and Technology Transfer. UKS is a financing partner in EUSDR flagship project CLUSTERAT. UKS is a partner in the project
ClusterPoliSEE. Expectations of UKS regarding cluster cooperation in the Danube Region:

- Joint efforts in developing and promoting cluster policies;
- Transfer of knowledge in cluster policies to national and regional governments;
- Creation of new projects and partnerships within Danube Region;
- Exchange of knowledge and experience in cluster related areas across the Danube Region and transfer to clusters in home countries;
- Development of new cluster concepts;
- Networking of related but also cross-sector clusters in Danube Region.

Cluster House, Nis, Serbia

The organisation was founded upon the initiative of seven clusters from South-East Serbia and with technical support of the Danish Programme for Local Economic Development in the Balkans LEDIB, in January 2011. Cluster House has 60 member clusters in agriculture, construction, textile, ICT, automotive industry, creative industries, metal industry, mechanical engineering industry, environmental protection and recycling, tourism, wood processing, medical, old crafts. The manager Danka Milojković wrote to wiw “Cluster House is not directly involved in activities related to the EUSDR Priority Area 8 because of its geographical location which is not appropriate for applying. Cluster House expects to get the right to be an applicant. It can see new opportunities to develop the competitiveness of its members through participating in the EUSDR. Projects should focus on regional level with international approach to competitiveness. Capacity Building projects should involve all cluster actors (triple helix model).”
4 Annex

The Mannheim Firm Panel (MUP)

The Mannheim Enterprise Panel (MUP) of the Centre for European Economic Research (ZEW) is probably the most extensive micro database on firms in Germany. Since its establishment, ZEW cooperates with Creditreform (Verband der Vereine Creditreform), the largest credit rating agency in Germany. Twice a year Creditreform gives a complete copy of its extensive data base covering economic information on companies located in Germany – including closed businesses – for scientific purposes to ZEW. The series of individual cross-sectional data form the basis for the MUP, which is created and maintained at ZEW. The storage of the individual cross-sections as panel dataset enables ZEW to also perform longitudinal analyses.

The MUP represents the total population of companies in Germany – including micro-enterprises and self-employed freelancers. The statistical unit of the MUP is the legally independent company. Creditreform records all companies in Germany which are enlisted in a publicly accessible register like the Commercial Register or are “sufficiently” economically active meaning that owners/founders generally run their businesses in fulltime. Sideline businesses are underreported as they are not the aim of Creditreform’s survey routines.

The information contained in the MUP forms the basis for sampling of enterprise surveys and extrapolation forecasts of data collected in sectors in which the official statistics fail to provide information on the total population of businesses. The MUP is designed to retrace the dynamics of job creation within companies and to analyse start-ups and market exits.
**Table 9: Population and population growth rates in the Danube Region and its subgroups**

<table>
<thead>
<tr>
<th>Population</th>
<th>2003</th>
<th>2011</th>
<th>Growth 2003-2012 (in %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANUBE</td>
<td>156,316,884</td>
<td>153,664,049</td>
<td>-1.7</td>
</tr>
<tr>
<td>Member Area 1</td>
<td>31,183,423</td>
<td>31,745,635</td>
<td>1.8</td>
</tr>
<tr>
<td>Member Area 2</td>
<td>27,712,254</td>
<td>27,919,042</td>
<td>0.8</td>
</tr>
<tr>
<td>Member Area 3</td>
<td>34,005,570</td>
<td>33,013,760</td>
<td>-2.9</td>
</tr>
<tr>
<td>Accession Countries</td>
<td>11,989,818</td>
<td>11,718,711</td>
<td>-2.3</td>
</tr>
<tr>
<td>Neighbouring Countries</td>
<td>51,425,819</td>
<td>49,266,901</td>
<td>-4.2</td>
</tr>
</tbody>
</table>

Source: World Bank, Genesis Online Datenbank. Calculation and illustration: IAW.

**Figure 79: Real GDP (constant 2005€) in 2003**

Source: Eurostat, UNdata, World Bank, Statistische Ämter des Bundes und der Länder. Calculation and illustration: IAW.
Figure 80: Real GDP growth within the region (%)

Source: Eurostat, UNdata, World Bank, Statistische Ämter des Bundes und der Länder. Calculation and illustration: IAW.

Figure 78 shows real GDP growth calculated as percentage change in the previous year from 2004 until 2011 for the subgroups within the Danube Region. It is especially interesting to compare the consequences of the financial crisis on each of these areas. In the graph it can be observed how the Member States have experienced a negative real GDP growth rate of approx. -6% in 2009, while Accession countries exhibit a negative growth rate of "only" approx. -3.5%. The Neighbouring Countries have suffered the consequences of the financial crisis more intensively, presenting a negative growth rate of -14% in 2009.
Figure 81: GDP per capita, PPP adjusted

Source: OECD, Penn World Tables, World Bank, GENESIS online Datenbank. Calculation and illustration: IAW. Since data for the years 2010 and 2011 for BW and BY were not available, to develop a time series for the Member States 1 including these years is not possible.

Figure 79 shows real GDP per capita, PPP adjusted for the five main regions within the Danube area. GDP per capita (PPP adjusted) is a measure for prosperity within an economy. The order of GDP per capita (PPP adjusted) starting with the highest level is: Member State Area 1, Member State Area 2, Member State Area 3, Accession Countries and Neighbouring Countries. There is a tendency for GDP per capita for all subgroups to rise (except for Member State Area 1), which implies that the people enjoy higher welfare.
The graphic shows the growth rates of real GDP per capita, PPP adjusted for the Danube Region compared with EU-27 and OECD. The growth rate of the Danube Region is pretty high in the pre-crisis era and has suffered a deep decline during the economic crisis. OECD and EU-27 also underwent a notable decline during the economic crisis and reached the lowest point in 2009. After 2009 OECD recovered rapidly and moved back to its pre-crisis level.
The graphic shows the growth rates of real GDP per capita (PPP adjusted) of the five main subgroups within the Danube Region. GDP per capita is a good indicator for prosperity. For all subgroups of the Danube Region the growth rates turned negative from 2007 until 2009. After 2009 the growth rates recovered and turned positive again. The Neighbouring countries especially had a deep decline of GDP per capita growth, but also a fast and steep recovery.

The Member State Area 3 had a steep rise of the growth rate from 2004 to 2005, while all the other subgroups had a more or less parallel co-movement over time.
The series for the Danube Region presents a higher volatility with respect to EU-27 and OECD, meaning that private consumption growth is higher in the Danube Region in times of an economic boom while it is lower in times of an economic crisis. Private consumption growth in the Danube Region reaches its peak in 2006 with a rate of ca. 4% and reaches its lowest value in 2009 with a negative growth rate of ca. -2.5%. Recovery from the financial crisis in the Danube Region with respect to the evolution of private consumption real growth rates seems to be faster than in the countries of the OECD and the EU-27. Moreover, real consumption growth in the Danube area exceeded the corresponding growth in the OECD and EU27 area in six out of eight years during the observation period.

The analysis of Figure 83 yields one striking observation: in contrast to the other GDP components (private consumption, investment, imports and exports), public consumption growth increases in 2008, coinciding with the burst of the financial crisis.

For the period from 2004 until 2007, public consumption growth in the Danube Region lies below public consumption growth in the countries of the OECD and EU-27. During the crisis, however, public consumption growth in the Danube Region is higher than in the EU-27 and even higher than in the OECD. The public consumption growth peak is reached in 2008 with approx. 3.5% and its lowest value dates back to 2004 with a growth rate of approximately 0%.
Investment, together with imports and exports, are generally the most volatile GDP components.

The Danube Region exhibits positive and increasing investment growth rates from 2005 until 2006. The peak is reached in 2006 with an investment growth rate of ca. 14%. After 2006 a sharp decrease in investment growth starts. In 2009 a negative growth rate of approximately -17% is reached and the fact that in 2010 growth rates lie again in the positive range points to an incipient recovery from the financial crisis.

Differences and similarities with respect to the development of investment growth rates in the OECD and the EU-27 need to be pointed out. Growth rates in the Danube Region in the years before the financial crisis are higher than in the OECD or EU-27. Furthermore, growth rates in the Danube Region start dropping already in 2007 while in the OECD and EU-27 the biggest drop does not occur before 2008.
However, the reaction of investment growth to the financial crisis and the posterior recovery show the same degree of intensity in all three regions (Danube, EU-27 and OECD).

**Figure 87: Real export growth**

![Graph showing real export growth](image)


In the years before the financial crisis the Danube Region exhibits export growth rates of ca. 10%, in 2007 export growth already starts dropping reaching its lowest value in 2009 with a negative growth rate of -15%. Export growth however, seems to have recovered fully from the financial crisis since in 2010 positive growth rates of ca. 15% are reached.

Differences with respect to the evolution of export growth in the EU-27 and OECD are minimal. In times of economic boom, export growth in the Danube Region is around 2 percentage points higher than in the OECD and EU-27, while it is around 2 percentage point lower during the financial crisis. All three series evolve in a parallel manner.
The development of import growth rates in the Danube Region, OECD and EU-27 occurs in a parallel manner, and growth rates differ only slightly, therefore we focus solely on the Danube Region.

In the years before the burst of the financial crisis, the Danube Region exhibits import growth rates that lie over 5% reaching their peak in 2007 with a rate of ca. 11%. From 2007 until 2009 a sharp drop in import growth rates takes place, the lowest value being -10%. Analogously to export growth, import growth seems to have recovered fully by 2010, despite a new slight drop that can be observed in 2011.
Comparing component shares of GDP in the Danube Region between 2004 and 2010, it can be pointed out that the shares of net exports and public consumption have increased by 0.4 and 0.7 percentage points respectively, while the shares of investment and private consumption have decreased by 1.4 and 0.5 percentage points respectively.
Figure 90: GDP components in 2004

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Source: Eurostat, UNdata, World Bank, Bayerisches Landesamt für Statistik, Landesamt für Statistik Baden-Württemberg, Statistische Ämter des Bundes und der Länder. Calculation and illustration: IAW. 2003: First year with complete data availability. For Member State Area 1, 100 % is not reached because for Bavaria and Baden-Württemberg proxies have been used for net exports.
**Figure 91: GDP sectors in 2003**

- **Source**: Eurostat, World Bank, Statistische Ämter der Länder. Calculation and illustration: IAW.

**Figure 92: GDP sectors in 2003**

- **Source**: Eurostat, World Bank, Statistische Ämter der Länder. Calculation and illustration: IAW.
Figure 93: FDI Stock, inward within the Danube region

Source: UNCTAD. For Bavaria and Baden-Wuerttemberg: Deutsche Bundesbank. Calculation and illustration: IAW

Figure 94: FDI stock, outward within the Danube Region

Source: UNCTAD. For Bavaria and Baden-Wuerttemberg: Deutsche Bundesbank. Calculation and illustration: IAW
Figure 95: Domestic Investment within the Danube Region

Source: Eurostat, Worldbank, Statistische Ämter des Bundes und der Länder. Calculation and illustration: IAW.

Figure 96: World Export Market Shares NAFTA for comparison with Danube

Source: UNCTAD. Calculation and illustration: IAW.
Figure 97: World Export Market Share EU27 for comparison with Danube

Source: UNCTAD. Calculation and illustration: IAW.

Figure 98: World Export Market Shares Services within the Danube Region

Source: UNCTAD. Calculation and illustration: IAW.
Figure 99: World Export Market Shares Goods within the Danube Region

Figure 100: Trade Intensity within the Danube Region

Source: UNCTAD. Calculation and illustration: IAW.
Figure 101: Labour productivity (GDP per person employed)

Source: Penn World Tables, OECD, Arbeitskreis VGL. Calculation and illustration: IAW. Data for BW and BY for 2010 and 2011 is not yet available. Data for Montenegro for 2003 and 2004 is not available.
This figure depicts the labour productivity growth (% change from the previous year) for the Danube Region in comparison with EU-27 and OECD. Growth rates for the Danube Region in the pre-crisis era have been well above OECD and EU-27, which could be linked to a low base effect. During the economic crisis, especially for 2009, we can see a deep drop for all three regional aggregates towards more than -4%.
Figure 103: Labour productivity (GDP per person employed)

The figure shows labour productivity calculated as real GDP, PPP adjusted per person engaged. More specifically, the percentage deviation of a selection of regions from the Danube average is represented. As we can see, Member State Area 1’s productivity is nearly double that of the Danube Region average, while Member State Area 2 also lies 20% above the regional average. Accession Countries and Neighbouring Countries lie closely together, but underneath the Danube average. As we can see, the “new” Member States are steeply rising. Especially since 2007 (year of EU accession of Romania and Bulgaria) their average labour productivity has overtaken the labour productivity of the Accession Countries. In the meantime, Neighbouring Countries swing around - 60% of the Danube average.

Source: Penn World Tables, OECD, Arbeitskreis VGL. Calculation and illustration: IAW. Data was not available for BW and BY for the years 2010 and 2011. Data was not available for Montenegro for the years 2003 and 2004. This fact prevented the creation of the Danube average for the mentioned years, and thus also the creation of the percentage deviation from this average.
This figure demonstrates the labour productivity, measured in € per hour worked. This is a reliable measure for productivity, due to the fact that it takes the volume of work into account. This data is available just for member states because the measurement and the reliability of the variable “hours worked per person engaged”, are dubious. We see the development of the single sub-groups of the member state region over time (from 2003-2011). Member State Area 1 lies clearly above the Member States as a whole (at around 40€ per hour worked), while Member State Area 2 lies below the entire Member State average by approximately 5€ per hour worked at around 12€-13€ per hour worked. For Member State Area 3 (without Croatia) Euro per hour worked has the lowest level and takes values at around 5€ per hour worked.

For all member states we can see that labour productivity exhibits a tendency to increase gradually.
Figure 105: Population 0-14 years (share of total population)

Source: Eurostat, OECD.

Figure 106: Population 65 years and over (share of total population)

Source: Eurostat, OECD.
Figure 107: Activity rates - males

Source: Eurostat, OECD.

Figure 108: Activity rates - females

Source: Eurostat, OECD.
Figure 109: Unemployment by regions

Source: Eurostat, OECD.
Figure 110: Employment rates by educational attainment, 2004-2012, %

Low education

Source: Eurostat, OECD and national statistics.
**Figure 111: Activity rates by gender, 2004-2012**

Activity rates, males

Source: Eurostat, OECD and national statistics.

Activity rates, females

Source: Eurostat, OECD and national statistics.
Table 10: Global Competitiveness Report

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Source: Global Competitiveness Report 2008/9 – 2013/14, Illustration IAW.
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Source: Heritage Foundation (2013), illustration IAW
Figure 112: Share of imports and export with EU27

Source: Eurostat, illustration IAW
Table 12: Share of Export with EU27

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## Table 13: Share of Imports with EU27

Import with EU27

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Annex
Table 14: EU 2012 targets: Licensing time and cost for countries

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<th>Time in days</th>
<th>Costs in €</th>
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<td>10 - 50</td>
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Source: SME Performance Review (2012), SME Policy Index (2012), Authors analysis
Table 15: World Rank 2013 by country in the category „Starting a Business“

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<th>RO</th>
<th>HR</th>
<th>SRB</th>
<th>BIH</th>
<th>MTN</th>
<th>MOL</th>
<th>UKR</th>
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<td>+</td>
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</table>

Source: Doing Business 2014, Green (+) means improvement, red (-) decline compared to 2012

Figure 113: Time to complete business-registration procedures by subregion

Source: Doing Business (2004-2014), Calculations and illustration IAW
Figure 114: Cost to complete business-registration procedures by sub-region

Source: Doing Business (2004-2014), Calculations and illustration IAW

Figure 115: Paid-in Minimum Capital Requirements by sub-region

Source: Doing Business (2004-2014), Calculations and illustration IAW
Figure 116: WEF Road Scores 2013

![WEF Road Scores 2013](image)

Figure 117: WEF Railroad Scores 2013

![WEF Railroad Scores 2013](image)
Figure 118: WEF Electricity Score 2013

Figure 119: Taxes on electricity prices (2012)
**Figure 120: Gross inland energy consumption (2010)**

![Gross inland energy consumption (2010)](image)

**Figure 121: Gross electricity generation (2010)**

![Gross electricity generation (2010)](image)
Table 16: National and International SME-Financing Support Programmes and Institutions in the Danube Region

|--------------------------------------------|---------------------|------------------------|-------|---------|---------|---------|--------|---------|---------|--------|---------|-----------|------------|----------|----------|---------|------------------------|

**National Programmes**

- **Austria**
  - AWS Austria Economic Development Bank
  - NPI Hungary Development Bank
- **Hungary**
  - OTP Banka A.D.
  - HIF Hungary Development Bank
- **Germany**
  - KfW (Kreditanstalt für Wiederaufbau)
  - SIL Bank
- **Russia**
  - SOGEI
- **Romania**
  - INOE
  - DNB Romania
- **Hungary**
  - OTP Banka A.D.
  - HIF Hungary Development Bank
- **Serbia**
  - DNB Serbia
- **Slovenia**
  - DNB Slovenia
- **Czech Rep.**
  - DNB Czech Republic
- **Slovak Rep.**
  - DNB Slovakia
- **Croatia**
  - DNB Croatia
- **Montenegro**
  - DNB Montenegro

**Neighbouring Countries**

- **Austria**
  - National Bank of Austria (NADA)
  - AUSTRIAN RAILWays (ARW)
- **Hungary**
  - Hungarian Railways (MÁV)
  - Hungarian Public Railways (MÁV)
- **Germany**
  - German Railways (DB)
  - German Federal Railways (DB)
- **Bulgaria**
  - Bulgarian Railways (BDJ)
- **Romania**
  - Romanian Railways (CUGR)
- **Slovenia**
  - Slovenian Railways (JSŽ)
- **Czech Rep.**
  - Czech Railways (ČD)
- **Slovak Rep.**
  - Slovak Railways (ŠDP)
- **Croatia**
  - Croatian Railways (HZŽ)
- **Montenegro**
  - Montenegrin Railways (MZŽ)
- **Serbia**
  - Serbian Railways (Žagaradži)
Table 17: Sectoral classification of agglomerations based on European Cluster Observatory – Standard sectors

1. Aerospace
2. Agricultural products
3. Apparel
4. Automotive
5. Biotech
6. Building fixtures, equipment and services
7. Business services
8. Chemical products
9. Construction
10. Construction materials
11. Distribution
12. Education and knowledge creation
13. Entertainment
14. Farming and animal husbandry
15. Financial services
16. Footwear
17. Furniture
18. Heavy Machinery
19. Instruments
20. IT
21. Jewellery and precious metals
22. Leather products
23. Lighting and electrical equipment
24. Maritime
25. Media and publishing
26. Medical devices
27. Metal manufacturing
28. Oil and gas
29. Paper products
30. Pharmaceuticals
31. Plastics
32. Power generation and transmission
33. Processed food
34. Production technology
35. Sporting, recreational and children’s goods
36. Stone quarries
37. Telecom
38. Textiles
39. Tobacco
40. Tourism and hospitality
41. Transportation and logistics
Table 18: Quantitative cluster identification approach – NACE 3 sectors with 2&3 star clusters in NUTS 2 areas from at least 3 countries of the Danube Region

1. Apparel

<table>
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<th>Code</th>
<th>Region</th>
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<th>Enterprises</th>
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15. Oil and gas

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5 countries, 7 NUTS 2 regions: 30255, 1764

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6 countries, 11 NUTS 2 regions: 54221, 2010

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3 countries, 8 NUTS 2 regions: 63152, 5347
19. Processed food

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Annex
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### 21. Transportation and logistics

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Source: Danube clusters – striving for excellence, Results of the EUSDR working group on Clusters of Excellence within the Steering Group of PA 8 Competitiveness of Enterprises including Cluster Development, flyer, p.7
Table 20: Mapping cluster organisations – case study Romania

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<th>No.</th>
<th>Code</th>
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<td>Cluj Napoca</td>
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| # | Regiunea | Centru | Localitate | Activitate | Existenta | Clustere
|---|---------|--------|------------|------------|-----------|-----------
| 9 | RO12 | Centru | Odorheiul Secuiesc | Wood processing, Furniture | Yes | REGIOFA Cluster
| 10 | RO12 | Centru | Săcele | Automotive, Mechatronics, Electrotechnics | Yes | Electrotechnical Regional Cluster - ETREC
| 11 | RO12 | Centru | Sfântu Gheorghe | Wood industry | Yes | PRO WOOD Regional Wood Cluster
| 12 | RO12 | Centru | Sfântu Gheorghe | Renewable energy | No | Green energy biomass cluster
| 13 | RO12 | Centru | Sfântu Gheorghe | Agrofood | Yes | AGRO FOOD Regional Cluster
| 14 | RO12 | Centru | Sfântu Gheorghe | Textiles, apparel, fashion | Yes | Transylvania Textile & Fashion Cluster
| 15 | RO12 | Centru | Sfântu Gheorghe | Packaging, printing, design | No | Innovative Regional Cluster Packaging-Printing-Design
| 16 | RO12 | Centru | Sfântu Gheorghe | Ecotourism | No | Ecotourism Cluster
| 17 | RO12 | Centru | Târgu Mureş | Furniture | Yes | Furniture Cluster
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<tr>
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<th>Region</th>
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