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KOF Swiss Economic Institute

The KOF Education System Factbook: Serbia

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KOF

ETH Zurich
KOF Swiss Economic Institute
LEE G 116
Leonhardstrasse 21
8092 Zurich, Switzerland

Phone +41 44 632 42 39
Fax +41 44 632 12 18
www.kof.ethz.ch
kof@kof.ethz.ch

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LIST OF ABBREVIATIONS

ADA	Austrian Development Agency
BMZ	German Federal Ministry for Economic Cooperation and Development
CAQA	Commission for Accreditation and Quality Assurance
CARDS	Community Assistance for Reconstruction, Development and Stabilisation
CCIS	Chamber of Commerce and Industry of Serbia
CSU	Conference of Serbian Universities
CVEAE	Council for Vocational Education and Adult Education
ECTS	European Credit Transfer System
EQARF	European Quality Assurance Reference Framework for VET
EQAVET	European Quality Assurance in Vocational Education and Training
ETF	European Training Foundation
GCI	Global Competitiveness Index
GII	Global Innovation Index
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
GPA	Grade Point Average
GDP	Gross Domestic Product
E2E	From Education to Employability
IEQE	Institute for Education Quality and Evaluation
IIE	Institute for the Improvement of Education
ISCED	International Standard Classification of Education
IPA	Instrument for Pre-accession Assistance
KOF	Swiss Economic Institute
MoES	Ministry of Education and Sports
MoESTD	Ministry of Education, Science and Technological Development
NCHE	National Council for Higher Education
NEC	National Education Council
OECD	Organisation for Economic Co-operation and Development
PET	Professional Education and Training
PPP	Preschool Preparatory Programme

RSA	Regional School Administration
SDC	Swiss Agency for Development and Cooperation
SSC	Sector Skills Council
UNESCO	United Nations Educational, Scientific and Cultural Organization
VET	Vocational Education and Training
VPET	Vocational Professional Education and Training
VPETA	Vocational and Professional Education and Training Act
WEF	World Economic Forum
WIIW	The Vienna Institute for International Economic Studies
WKÖ	Austrian Federal Economic Chamber
YLMI	Youth Labour Market Index

FOREWORD

The increasing competitiveness of the world economy as well as the high youth unemployment rates after the worldwide economic crises have put pressure on countries to upgrade the skills of their workforces. Consequently, vocational education and training (VET) has received growing attention in recent years, especially amongst policy-makers. For example, the European Commission defined common objectives and an action plan for the development of VET systems in European countries in the *Bruges Communiqué on Enhanced European Cooperation in Vocational Education and Training for 2011-2020* (European Commission, 2010). In addition, a growing number of US states and other industrialized, transition, and developing countries (for example Hong Kong, Singapore, Chile, Costa Rica, Benin and Nepal) are interested in either implementing VET systems or making their VET system more labor-market oriented.

The appealing outcome of the VET system is that it improves the transition of young people into the labor market by simultaneously providing work experience, remuneration and formal education degrees at the secondary education level. If the VET system is optimally designed, VET providers are in constant dialogue with the demand-side of the labor market, i.e. the companies. This close relationship guarantees that the learned skills are in demand on the labor market. Besides practical skills, VET systems also foster soft-skills such as emotional intelligence, reliability, accuracy, precision, and responsibility, which are important attributes for success in the labor market. Depending on the design and permeability of the education system, VET may also provide access to tertiary level education (according to the ISCED classification): either general education at the tertiary A level or professional education and training (PET) at the tertiary B level. PET provides occupation-specific qualifications that prepare students for highly technical and managerial positions. VET and PET systems are often referred to together as “vocational and professional education training (VPET)” systems.

Few countries have elaborate and efficient VPET systems. Among these is the Swiss VPET system, which is an example of an education system that successfully matches market supply and demand. The Swiss VPET system efficiently introduces adolescents to the labor market, as shown by Switzerland’s 2007-2017 average youth unemployment rate of 8.1 percent compared to 14.8 percent for the OECD average (OECD, 2017).

Though not many countries have VPET systems that are comparable to Switzerland’s in terms of quality, efficiency and permeability, many have education pathways that involve some kind of practical or school-based vocational education. The purpose of the KOF Education System Factbook Series is to provide information about the education systems of countries across the world, with a special focus on vocational and professional education and training.

In the KOF Education System Factbook: Serbia, we describe Serbia's vocational system and discuss the characteristics that are crucial to the functioning of the system. Essential components comprise the regulatory framework and the governance of the VPET system, the involved actors, and their competencies and duties. The Factbook also provides information regarding the financing of the system and describes the process of curriculum development and the involved actors.

The Factbook is structured as follows: First, we provide an overview of Serbia's economy, labor market, and political system. The second part is dedicated to the description of the formal education system. The third section explains Serbia's vocational education system. The last section offers a perspective on Serbia's recent education reforms and challenges to be faced in the future.

EDITING AND ACKNOWLEDGEMENTS

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The KOF Education System Factbooks has to be regarded as work in progress. The authors do not claim completeness of the information which has been collected carefully and in all conscience. Any suggestions for improvement are highly welcome!

Contact: factbook@kof.ethz.ch

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1. Serbia's Economy and its Political System

One of the main purposes of an education system is to provide the future workforce with the skills needed in the labour market. The particularities of a country's economy and labour market are important factors determining the current and future demand for skills. Therefore, these will briefly be described in the first part of this Factbook. In addition, this part provides an overview of Serbia's political system with emphasis on the description of the education politics.

1.1 Serbia's Economy

Serbia has a small open economy (World Bank, 2015b). In 2015, its Gross Domestic Product (GDP) per capita amounted to $13,482[1] (World Bank, 2016d). The World Bank (2016c) classifies the country as an "upper-middle-income economy", while the International Monetary Fund (IMF, 2016, p. 36) categorises it as part of "emerging and developing Europe", which also includes, amongst others, Albania, Poland and Turkey.

Following the breakup of the Social Federalist Republic of Yugoslavia, the 1990s were a "lost decade" for Serbia, characterized by the Yugoslav Wars and economic troubles (World Bank, 2015b). In 2001, while Serbia was still part of the Federal Republic of Yugoslavia, the country started moving towards a democratic state and market economy (Radovic-Stojanovic, 2012; World Bank, 2015b). From 2001 to 2008, Serbia's annual real GDP growth averaged more than 5 percent, which was consistently higher than the OECD average. Soon after, the Eurozone crisis and weather shocks, such as the flooding in May 2014, had a negative effect on the Serbian economy (Arandarenko, 2011; World Bank, 2015b).

In 2009, the growth rates for both Serbia and the OECD states' average decreased strongly (a drop of 0.2 percent to -3.5 percent for the OECD states and 5.4 percent to -3.1 percent for Serbia). The OECD economies have experienced a faster recovery than Serbia and their annual growth rate has surpassed Serbia's every year bar 2013. In 2015, Serbia's GDP growth amounted to 0.7 percent, falling short of the OECD's 2.0 percent (World Bank, 2016d).

[1] Constant purchasing power parity, current international dollars.

Table 1: Value added and employment by sector, 2015

Sector	Serbia: Value added (%)	EU-28: Value added[2] (%)	Serbia: Employment (%) (2013)	EU-28: Employment (%)
Primary sector	8.4	1.5	21.3	4.8
Agriculture, hunting and forestry, fishing	8.4	1.5	21.3	4.8
Secondary sector	31.4	24.4	25.9	21.8
Manufacturing, mining and quarrying and other industrial activities	25.7	19.0	n/a	15.5
of which: Manufacturing	18.8	15.6	n/a	13.9
Construction	5.7	5.4	n/a	6.3
Tertiary sector	59.3	74.0	52.9	73.4
Wholesale and retail trade, repairs; hotels and restaurants; transport; information and communication	23.2	24.0	n/a	27.6
Financial intermediation; real estate, renting & business activities	19.4	27.3	n/a	16.1
Public administration, defence, education, health, and other service activities	16.7	22.7	n/a	29.7

Sources: Eurostat (2015a; 2015b), World Bank (2016d).

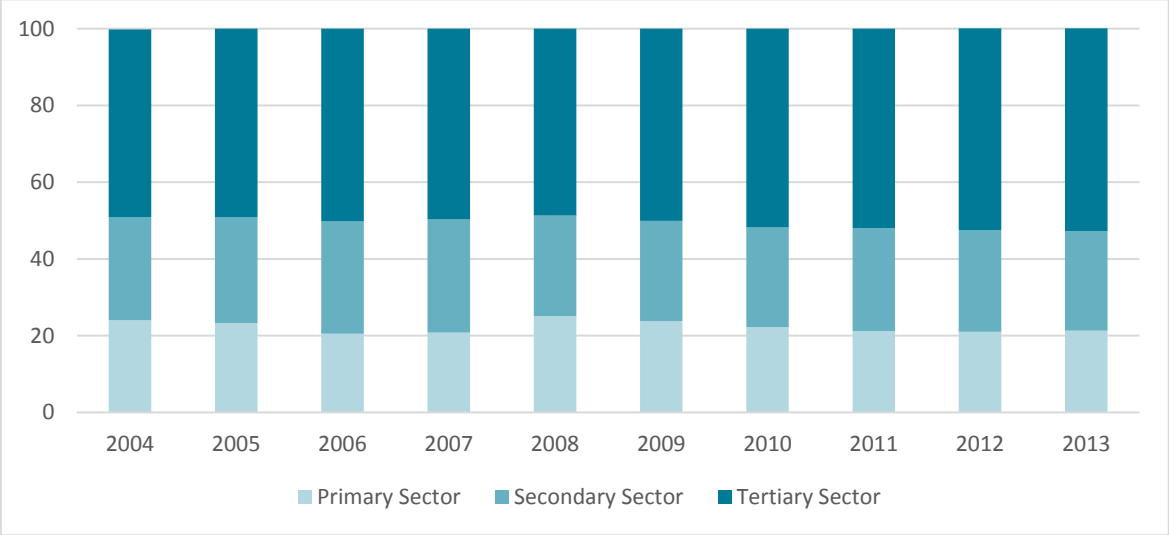
Table 1 summarises the value added and employment by sector for Serbia and the member states of the European Union (EU). Serbia and the EU-28 show similar patterns for all three sectors in terms of value added and employment. The tertiary sector is most critical to both value added and employment, followed by the secondary sector. The primary sector accounts for the lowest percentages in both value added and employment for both Serbia and the EU.

While the ranking of the importance of these three sectors is similar for Serbia and the EU member states, the percentages themselves show variation. This is especially true for the primary sector. In the EU-28, the primary sector makes up only 1.5 percent of the member states' value added and for 4.8 percent of employment, whereas Serbia's primary sector accounted for 8.4 percent (of value added) and 21.3 percent (of employment). Thus, the agricultural sector is of greater importance to the Serbian economy (World Bank, 2015a), which is a characteristic feature of the Balkan states (WIIW, 2010). Considering these high numbers, it is unsurprising "how vulnerable Serbia's economy is to weather and climatic shocks" (World Bank, 2015b).

The secondary sector is also more relevant in Serbia than in the EU member states, reflecting the strength of Serbia's automotive industry, which produces the country's main exports (World Bank, 2016b).

[2] Due to rounding differences, the sum of all sectors falls below 100 percent.

Figure 1: Employment by sector (as % of total employment), 2004-2013



Source: World Bank (2016d).

As Figure 1 shows Serbia's employment structure by sector did not substantially change between 2004 and 2013. However, a small increase in the tertiary sector is visible, with the percentage of employment in the other two sectors decreasing accordingly.

In the Global Competitiveness Index (GCI) of the World Economic Forum (WEF, 2015), Serbia ranks 94th most competitive country worldwide. According to the GCI, Serbia fares relatively well with respect to technology, infrastructure, health, and education. Conversely, the competitiveness of the Serbian economy is mainly reduced by deficient business sophistication, market inefficiencies, and an unfavourable macroeconomic environment (WEF, 2015).

The Global Innovation Index (GII), which ranks countries according to their capacity to enable innovations, places Serbia at rank 63 (Dutta et al. 2015). In accordance with the GCI, Serbia's economy does well regarding knowledge and technology, as well as infrastructure. On the other hand, the GII points to a lack of market and business sophistication (Dutta et al. 2015), once again matching the results of the GCI.

1.2 The Labour Market

In the first part of this section, we will describe the general situation of Serbia's labour market. In the second part, we will refer to the youth labour market in particular.

1.2.1 Overview of the Serbian Labour Market

As mentioned above, Serbia experienced substantial GDP growth after the turn of the millennium, starting with the beginning of the transition to a market economy and ending with

the global financial crisis. In spite of this growth, Serbia's employment rate decreased during this period, primarily due to a restructuring of the public sector (WIIW, 2010).

Regarding labour market efficiency, the GCI places Serbia at rank 118th worldwide, which is a relatively low ranking compared with the other countries in the "emerging and developing Europe" category (IMF, 2016, p. 36; see above), of which only Turkey (127th) and Bosnia and Herzegovina (131th) fare worse (WEF, 2015).

According to the *Doing Business* indicators of the World Bank (2016a), the minimum wage in Serbia amounts to US$ 234 per month. In 2010, Serbia's trade union density of 35 percent was double the OECD countries' average of 17.7 (Eurofound, 2012; OECD, 2016b). Serbia's high value can be attributed to the country's communist heritage[3], and has been declining since 1990 (Eurofound, 2012).

Table 2: Labour force participation rate, unemployment rate by age, 2014

	Labour force participation rate		Unemployment rate	
Age group	Serbia	OECD average	Serbia	OECD average
Total (15-64 years)	62.4	71.2	18.9	7.5
Youth (15-24 years)	28.0	47.2	46.2	15.0
Adults (25-64 years)	n/a	76.6	16.4	6.5

Sources: ILO (2016b), OECD (2015c).

In Table 2, Serbia's labour force participation rate and the unemployment rate by age are presented alongside the averages of the OECD member states. Serbia's labour force participation rate is below the OECD average and the difference is especially pronounced for young people (15-24 years). In the same way, Serbia has a higher unemployment rate than the OECD countries, which is particularly the case as far as youth unemployment is concerned.

Serbia's low participation rate is mainly the result of two groups being largely excluded from the labour market. The World Bank (2015b, p. 22) describes them as follows:

> *"(…) (a) the pre-transition generation, aged 40 or more, who either lost their jobs during the transition and never found a proper new job, or entered the labor market as the transition was beginning and never gained a firm foothold; and (b) groups, especially minorities like the Roma and also women generally, who have never been strongly attached to the labor market. These groups now live either on public and private transfers or subsistence farming and are largely excluded from labor markets, especially formal jobs."*

[3] Under the communist regime, membership in a trade union was practically mandatory for all employees (Eurofound, 2012).

The precarious labour-market situation of young people reflects the difficulties in the school-to-work transition and the impact of the global recession (WIIW, 2010).

Table 3: Labour force participation rate, unemployment rate by educational attainment, 2013 (persons aged 25-64)

	Labour force participation rate		Unemployment rate	
Education level	Serbia	OECD average	Serbia	OECD average
Less than upper secondary education	53.8	63.2	36.0	13.5
Upper secondary level education	56.5	79.6	20.6	8.0
Tertiary education	63.4	87.6	17.2	5.3

Sources: ILO (2016a), OECD (2015c).

Table 3 shows the labour force participation rate and the unemployment rate by educational attainment for Serbia and the OECD members. Serbia's labour force participation rate lies below the OECD average for all educational levels. Correspondingly, unemployment rates in Serbia are consistently higher than the OECD average. Just like in the OECD countries, labour force participation increases and unemployment decreases as educational attainment rises.

1.2.2 The Youth Labour Market

The KOF Swiss Economic Institute developed the KOF Youth Labour Market Index (KOF YLMI) to compare how adolescents participate in the labour market across countries (Renold et al., 2014). The foundation for this index is the critique that a single indicator, such as the unemployment rate, does not suffice to describe the youth labour market adequately nor provide enough information for a comprehensive cross-country analysis. To increase the amount of information analysed and to foster a multi-dimensional approach, the KOF YLMI consists of twelve labour market indicators[4] that are grouped into four categories.

[4] The data for these indicators are collected from different international institutions and cover up to 178 countries for the time period between 1991 and 2012.

The first category describes the *activity state* of youth (ages 15-24 years old) in the labour market. Adolescents are classified according to whether they are employed, in education, or neither (unemployed, discouraged and neither in employment nor in education or training; see info box to the right). The category *working conditions* and the corresponding indicators reflect the type and quality of jobs the working youth have. The *education* category accounts for the share of adolescents in education and training and for the relevance of and their skills on the labour market. The fourth category, *transition smoothness*, connects the other three categories by capturing the school-to-work transition phase of the youth. Each country obtains a score of 1 to 7 on each particular indicator of the KOF YLMI. A higher score reflects a more favourable situation regarding the youth labour market and a more efficient integration of the youth into the labour market.

Dimensions of the KOF YLMI
Activity state - Unemployment rate - Relaxed unemployment rate[5] - Neither in employment nor in education or training rate (NEET rate)
Working conditions Rate of adolescents: - with a temporary contract - in involuntary part-time work - in jobs with atypical working hours - **in work at risk of poverty**[6]Vulnerable unemployment rate[7]
Education - Rate of adolescents in formal education and training - Skills mismatch rate
Transition smoothness - Relative unemployment ratio[8] - Long-term unemployment rate[9]
Source: Renold et al. (2014).

One of the major drawbacks of the KOF YLMI is data availability. When data is lacking, a category can occasionally be based on a single indicator or must be omitted entirely when not a single indicator for that category exists in a given country. A lack of indicators can make comparisons across certain countries or groups of countries problematic and sometimes even impossible.

1.2.3 The KOF Youth Labour Market Index (KOF YLMI) for Serbia

The data available for Serbia is limited, which affects the explanatory power of the YLMI. In 2014, six indicators were available for Serbia (the youth unemployment rate, NEET rate, in-work-at-risk-of-poverty rate, vulnerable employment rate, relative unemployment ratio, and incidence of long-term unemployment rate). From the KOF YLM Spiderweb in Figure 2, we see how Serbia performs in comparison to Switzerland, the OECD countries average, and the

[5] It is calculated as the number of unemployed and discouraged workers as a share of the entire labour force. Discouraged workers have given up the search for work (not actively seeking), although they have nor job and are currently available for work (also: "involuntary inactive").
[6] Those who cannot make a decent living out their earnings, being at risk of poverty as a percentage of the working population.
[7] Share of the employed population working on their own account or those working in their family business and thus contributing to the entire family income. Both are less likely to have formal work arrangements and are therefore less protected by labour laws and more exposed to economic risk.
[8] Is defined as the youth unemployment rate (15-24 years) as a share of the adult unemployment rate (25+). If the youth cohort is affected in the same way than the adult group with respect to unemployment, then the relative unemployment ratio will be equal to one. If the youth are relatively more affected, then the ratio will be bigger than one.
[9] Those unemployed for more than one year (52 weeks) in the total number of unemployed (according to the ILO definition).

EU-28 average. Serbia's youth labour market situation is far weaker than those of the comparison groups in all but the relative unemployment ratio. The unemployment rate, the vulnerable employment rate, and the incidence of long-term unemployment in particular indicate a poor integration of young people into the labour market. The spider web graph also illustrates the lack of data on the working conditions of youth and the education dimension in Serbia.

Figure 2: KOF YLM Spiderweb for Serbia, Switzerland, OECD and EU28 in 2014

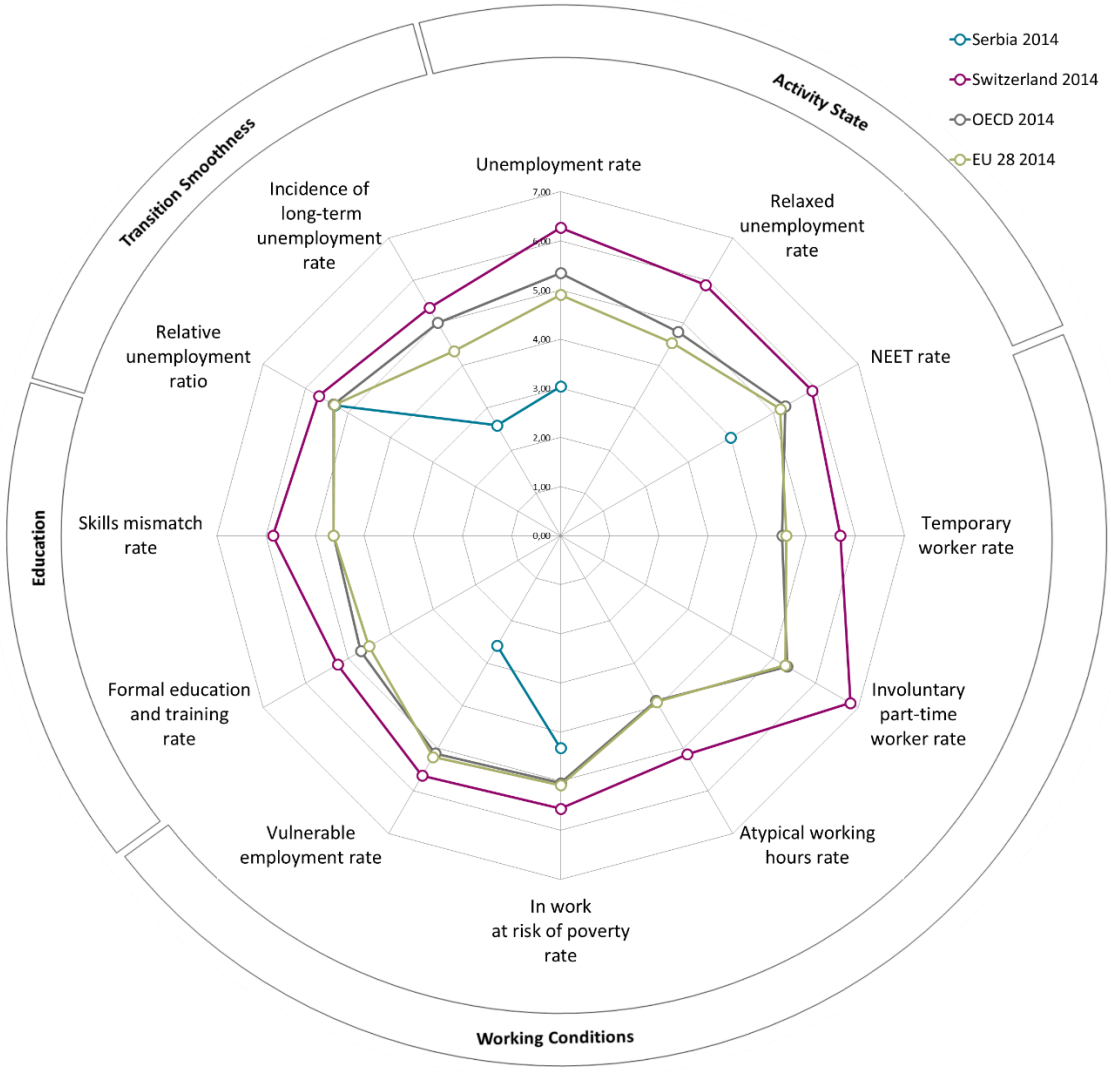
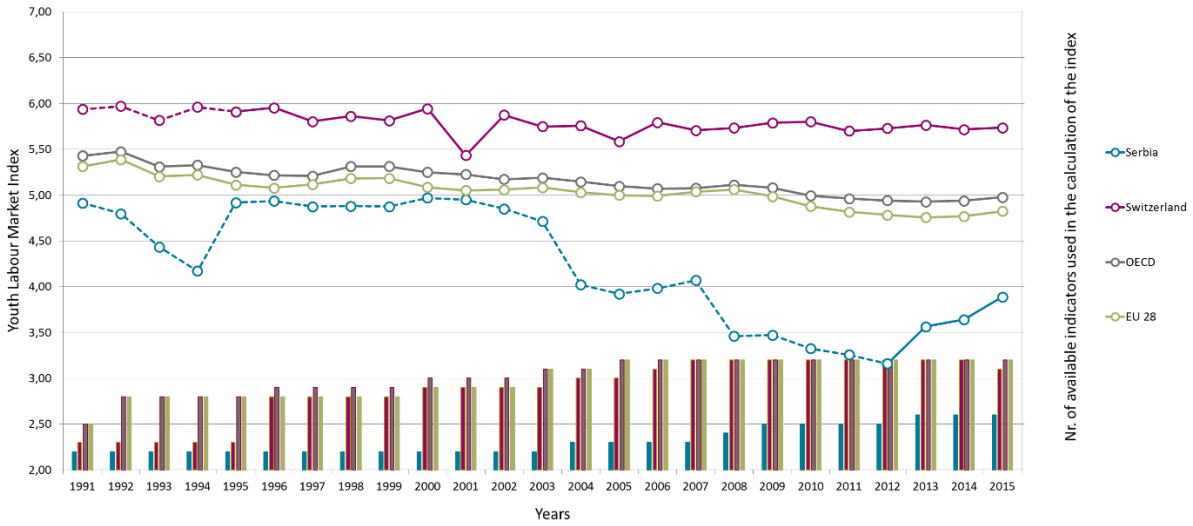


Figure 3: YLM-Index over time, 1991-2015



In Figure 3, the KOF YLMI values for Serbia, Switzerland, the OECD members' average, and the EU-28 average are plotted for the period 1991-2015. The order of these four groups' performance on the indices does not change over time, with Switzerland having the highest YLMI values, followed by the OECD average, the EU-28 average, and then Serbia. However, one needs to consider that the indices are built from different numbers of indicators. To emphasize this issue, the lines representing country performance over time are solid if the index is built from six or more indicators – any less and the lines are dashed.

Serbia's value on the index lies clearly below the others, which highlights the difficult labour market situation for young people (see 1.2.1). However, one should treat this comparison with caution, as Serbia's lack of data leads to scores based on fewer indicators than the other countries.

1.3 The Political System

Understanding the basics of a country's political system and getting to know the political goals with respect to its education system are crucial points for the understanding of the education system in a broader sense. In the first part, we explain Serbia's political system in general. The politics and goals regarding the education system will be referred to in the second part.

1.3.1 Overview of the Serbian Political System

After the end of the Yugoslav federation in the 1990s, Serbia formed a union with Montenegro, (officially the State Union of Serbia and Montenegro), which was de facto only a union with respect to certain aspects such as defence. The two countries became fully independent states in 2006 (BBC, 2016). Serbia is a parliamentary democracy, whose democratisation was fully realised in 2000 (Bochsler, 2010, p. 99). Since then, efforts to establish liberal democratic

standards have had mixed results (Woehrel, 2013). Although talks over Serbia's EU accession began in 2014, the country currently finds itself torn between the West and its traditional ally Russia (BBC, 2016).

The Economist (2016) ranks Serbia as 58th in its Democracy Index 2015, which places it below Bulgaria (46), Poland (48), and Croatia (52), but above Albania (81), Turkey (97), and Bosnia and Herzegovina (104). Reaching an overall score of 6.71, Serbia qualifies as a "flawed democracy". Concerning the different categories of the index, Serbia does relatively well regarding the quality of the electoral process and its pluralism as well as civil liberties. On the other hand, deficits in political culture and the functioning of government lower the country's overall score (Economist, 2016).

In Transparency International's (2015) Corruption Perceptions Index, which measures "perceived levels of public sector corruption in 168 countries/territories around the world", Serbia is placed 71st. This is a relatively low ranking among the countries of the "emerging and developing Europe" category, of which only Kosovo, Albania, and Bosnia and Herzegovina fare worse (Transparency International, 2015). High-level corruption remains one of Serbia's major political problems (Woehrel, 2013).

1.3.2 Politics and Goals of the Education System

Serbia is a unitary state (CCRE, 2014). Consequently, education thought of as a national competence. The main actors in this policy field are the Ministry of Education, Science and Technological Development (MoESTD), which manages the whole education system, and the National Education Council (NEC), which is "the highest body in the area of the development of education and quality assurance" (UNESCO, 2011).

In October 2000, the newly elected government initiated a broad reform process and declared the education sector as an area of priority in order to reform the inefficient, strongly centralized and bureaucratic school system. The reform aimed to modernize and reorganize the education system so that it could contribute to the economic development of the country by providing a well-educated workforce. In addition, the reorganization of the education system was also initiated to enhance Serbia's integration into the European community, with the end goal of joining the European Union.

The reform also aimed to decentralize and democratise school management, while aligning the VET system to the future needs of the economy, innovating the curricula, and giving local stakeholders more power to manage the education system.

In this reform process, Serbia was not only supported by European (e.g. European Training Foundation) and international organizations (e.g. World Bank, UNESCO), but also by expert

teams from national organizations from Austria, Denmark, France, Germany, Greece, Italy, Switzerland, The United Kingdom, and The United States of America.

One example of such international support is the "*EU Assistance to VET in Serbia"* project, which provided financial and technical support to reform Serbia's VET system. This project ran until 2016 and was financed by the Instrument for Pre-accession Assistance (IPA) of the European Union, through which the EU supports reforms in the "enlargement countries". This project also supported the creation of a National Qualifications Framework (NQF), which is still being developed further (see Section 3 for more details). Other examples include national organizations, such as the Swiss Agency for Development and Cooperation (SDC) and the Austrian Development Agency, which run projects aiming to improve Serbia's vocational education and training system (for more details, see Section 3.1.2). However, many actors running different projects can lead to a level of discoordination.

The broad education system reform, although already underway, has not yet been completed in many parts of the education system, including the VPET system. Despite past efforts, major improvements to the Serbian education system still need to take place.

As far as the main problems of the education system are concerned, the World Bank (2015a) points to the inefficiency of public spending and the quality of student achievements, which can be considered below average when compared internationally. Different studies indicate a lack in quality in the Serbian education system, "particularly when it comes to vocational training and to a lesser extent in the case of secondary and higher education" (WIIW, 2010, p. 66).

Another challenge is related to skills mismatches between the education system and the labour market (WIIW, 2010; World Bank, 2015b). This means that the education system has difficulties measuring up to the demand for qualified workers by the labour market, as is often the case in other transition countries (WIIW, 2010).

Since the beginning of the transition period, various education initiatives have been put into place, but their general effectiveness has been plagued by their inconsistency (Teodorović et al., 2015). In 2012, the *Strategy for Education Development in Serbia 2020* was adopted. The strategy recognises the education system as a major factor for the further development of the country against the background of an aging population, regional disparities and high unemployment (MoESTD, 2012).

Four broad objectives are stated (MoESTD, 2012, p. 19):

"1) raising the quality of the process and the outcomes of the education to the highest attainable level – one that stems from the scientific knowledge of the education and renowned educational practices;

2) increasing the coverage of the Serbian population on all levels of education, from pre-school education to lifelong learning;

3) reaching and maintaining the relevance of education, especially the form which is entirely or partly funded from public sources, by the harmonizing the structure of the education system with the immediate and developmental needs of individuals, economic, social, cultural, research, education, public, administrative and other systems;

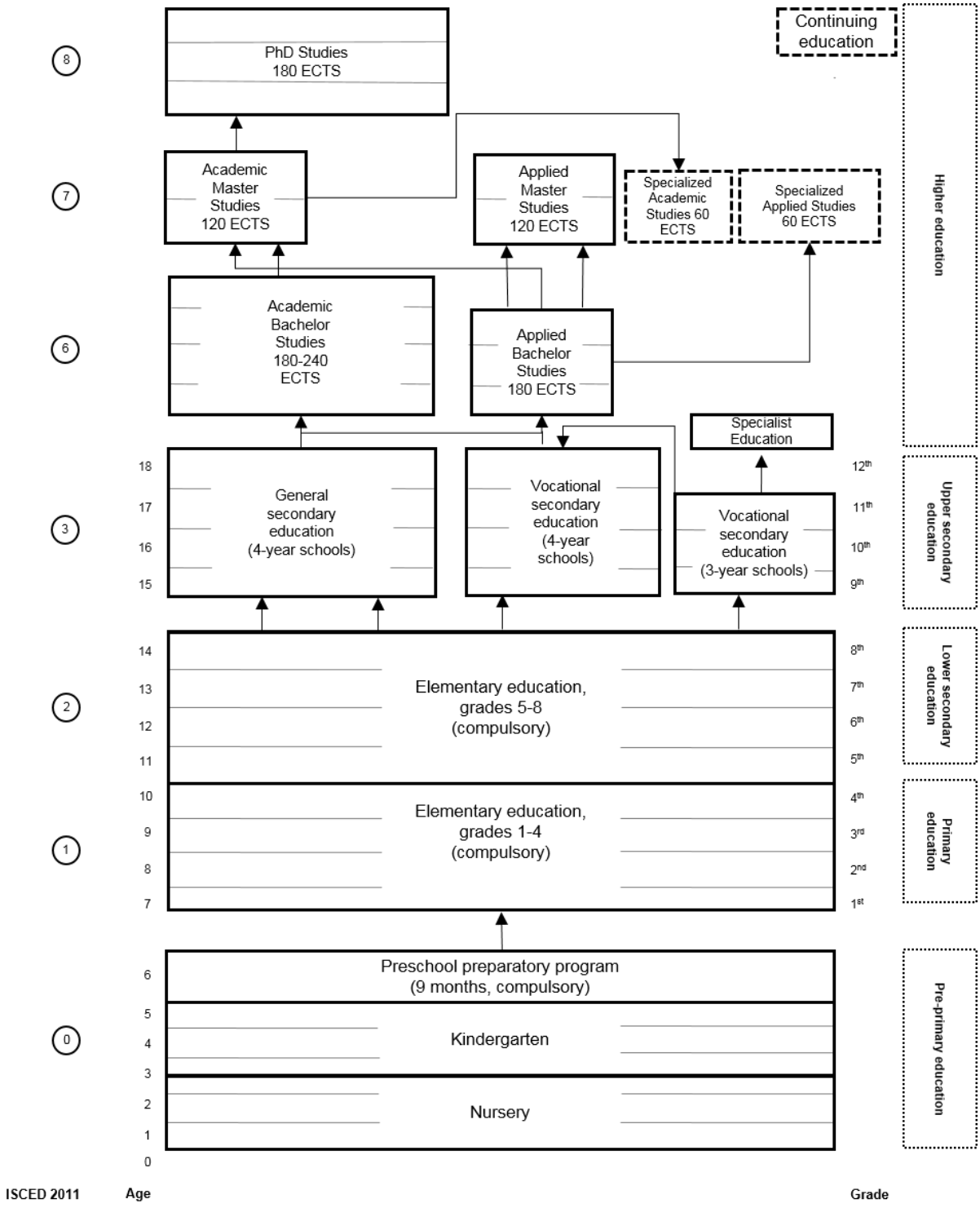
4) increasing the efficiency of the use of educational resources, that is, the completion of education on time, with minimal extension and reduced dropout."

However, as the German Organisation for Development Cooperation (GIZ) states in a study on the Serbian VET system, the actual implementation of these policy measures is still a challenge (GIZ, 2015).

2. Formal System of Education

Figure 4 shows the Serbian education system according to the International Standard Classification of Education (ISCED) 2011. The first education level is preschool education, which is a nine-month program compulsory for children between the age of 5.5 and 6.5 years. It is followed by "elementary education", which also compulsory and lasts 8 years. Elementary education consists of two cycles: 1st to 4th grade (primary education) and 5th to 8th grade (lower secondary education). Students can then attend general or vocational schools for upper secondary education, which takes 3 or 4 years to complete. Higher education is divided into academic and applied studies. Both tracks include Bachelor and Master/Specialised programmes, whereas academic studies additionally allow for subsequent PhD studies (Eurydice, 2016; UNESCO, 2011).

Figure 4: ISCED 2011 Mapping of Serbia's Education System[10]



Source: Own illustration based on UNESCO (2011) and Eurydice (2016).

[10] The size of the boxes does not coincide with the actual size or importance of the program in the education system.

Table 4: Enrolment, net and gross enrolment ratio by educational level, 2014

ISCED 2011	Educational level	Enrolment	Net enrolment ratio (NER)	Gross enrolment ratio (GER)
0	Pre-primary education	157,355	59	59.2
1	Primary education	284,754	96.2	101.1
2-3	Secondary education	548,158	92.2	94.3
2	Lower secondary education	277,802	95.9	99.2
3	Upper secondary education	270,356	85.9	89.8
3	of which: general	67,044	n/a	n/a
3	of which: vocational	203,312	n/a	n/a
6-8	Tertiary education	242,848	n/a	58.1
6	Bachelor or equivalent	200,658	n/a	n/a
6	of which: academic	148,972	n/a	n/a
6	of which: professional	51,686	n/a	n/a
7	Master or equivalent	34,469	n/a	n/a
8	Doctoral or equivalent	7,721	n/a	n/a

Source: UNESCO Institute for Statistics (2016).

Table 4 shows total enrolment (absolute numbers), the gross enrolment ratio (GER) and net enrolment ratio (NER) by education level for the year 2014. The NER quantifies the total number of students in the theoretical age group for a given education level enrolled at that level expressed as a percentage of the total population in that age group. The GER quantifies the number of students enrolled at a given education level— irrespective of their age— as a percentage of the official school-age population corresponding to the same level of education. For example, for the primary education level, the NER tells how many students in the typical primary school age are actually enrolled in primary school, while the GER sets the actual number of students in primary education—irrespective of their age—in relation to those who are in the official age to attend primary education[11]. A gross enrolment ratio of 100 implies that all children in the age of the respective level actually attend school. A ratio below or above 100 implies that an under- or over-proportional part of that age cohort attend school.[12]

Nearly all children in the age of primary, respectively lower secondary school actually attended primary (NER: 96.2 percent), respectively lower secondary school (NER: 95.9) in 2014. This is not astonishing, since this part of the education system is compulsory. However, school enrolment was lower at the upper secondary education level (NER: 85.9). NER and GER for these education levels are rather similar and below 100, suggesting that the Serbian education

[11] A gross enrollment ratio of 100 corresponds to a situation where each child in a given country is enrolled in primary education. A value above 100 could occur due to students who are older than the typical enrolment age for primary education (e.g. have to repeat grade, adult learners). A value below 100 implies that not everyone who is in the typical age for primary education is actually enrolled.

[12] A gross enrolment ratio of above 100 could occur if for example many students retake a grade or if many adult learners are enrolled in that grade.

system does not have a serious problem with grade repeaters. Instead, drop-outs may be a problem (NER and GER below 100).

Gross school enrolment was lower at the upper secondary and much lower at the tertiary level (89.9 and 58.1 percent, respectively) (see Table 4). The low enrolment rate in tertiary education is often considered problematic by international organizations (e.g. The World Bank, the European Union).

Although these numbers are similar to other countries in the region, enrolment in Serbia varies strongly by geography and ethnicity. Rural regions fall short of urban areas with regard to enrolment as well as educational quality. Concerning ethnicity, the lacking inclusion of Roma children – who are often placed in special schools or do not attend school at all – poses a problem for the Serbian education system. On the other hand, gender inequalities have largely been eliminated (UNICEF, 2010; UNESCO, 2011).

2.1 Pre-Primary Education

Pre-primary education targets children from 6 months to 6.5 years. It encompasses nursery, kindergarten and the Preschool Preparatory Programme (PPP). Nurseries are attended by children aged 6 months to 3 years and kindergarten by those 3 to 5.5 years. Attendance to both is voluntary. (Eurydice, 2016; UNESCO, 2011).

PPP is the first part of compulsory education. Children attend it for a minimum of nine months when they are between 5.5 and 6.5 years old. The programme aims to prepare children for primary education, serving as a bridge between nursery/kindergarten and elementary school (Eurydice, 2016).

There are both public and private institutions that provide preschool education, but state-run preschools are far more popular. While fees for nursery and kindergarten are subsidised by the state and income-dependent, PPP is generally free (Eurydice, 2016). Still, access to pre-primary education is a problem because of the low number and uneven geographic distribution of facilities, which affects mainly poor and rural areas, ethnic minorities, and disabled children (UNESCO, 2011). In 2014, only 59 percent of all children in the relevant age attended some form of pre-primary education (see Table 4).

2.2 Primary and Lower Secondary Education

Elementary education starts at the age of 7 and takes 8 years to complete. Like PPP, it is compulsory for all children. It encompasses two 4-year cycles: primary education, which consists of class teaching from the 1st to 4th grade and lower secondary education from 5th to

8th grade, which consist of subject teaching. Class teaching means that one teacher is responsible for teaching nearly all subjects in a class, while subject teaching involves different teachers who are specialised in their subject (Eurydice, 2016; UNESCO, 2011).

As with pre-primary education, the majority of schools are public and free, but private schools also exist (Eurydice, 2016). Enrolment is very high, with the net enrolment rate reaching 96.2percent for primary education and 95.9 percent for lower secondary education in 2014 (see Table 4)

Article 1 of the *Law on Primary Education* states, that the "objective of primary education shall be to provide general education, balanced personality development and the preparation for life and further academic or vocational education". Responsibility for the national curriculum lies with the MoESTD and the Institute for the Improvement of Education (IIE) (Eurydice, 2016).

At the end of the 8th grade, pupils have to take a final exam. Together with the pupil's grade point average (GPA), the results of this exam determine whether elementary education is successfully completed or not. If successful, pupils receive the certificate of completed elementary education (Eurydice, 2016; UNESCO, 2011).

2.3 Upper secondary Education

Students usually start upper secondary school when they are 15 years old, directly after finishing elementary school. It is voluntary and takes 3 to 4 years to complete. The access to the different types of upper secondary schools depends on the results of student's school achievements at the elementary level, as measured by the results of the final exam in the last year of elementary education and the GPA. In addition, some schools require an entrance exam (Eurydice, 2016; UNESCO, 2011).

Different types of secondary schools exist. The main two are general secondary schools and vocational secondary schools[13]. Beyond these, there are also mixed secondary schools (combining general education and vocational education and training), art schools and special education secondary schools (for students with disabilities) (Eurydice, 2016).

General secondary schools, usually called gymnasia, take 4 years to complete and offer general education with an emphasis on either natural or social sciences. Some schools, also know general streams, cover both fields evenly (Eurydice, 2016). Vocational secondary schools last three or four years, and offer general and vocational education programs that prepare students either for work or further education. About 90 percent of students proceed to

[13] Section 3.1 covers vocational secondary schools in more detail.

upper secondary school. About one fourth of these students attend general education – the rest, vocational school (UNESCO, 2011).

Regardless of whether students attended a general or vocational school, students receive the diploma of completed secondary education (*Diploma o stečenom srednem obrazovanju*, also called *Matura, Diploma/Uverenje o položenom maturskom ispitu)*, upon successful completion of the 4th year. This diploma grants them access to the tertiary education sector (general or vocational). Three-year vocational programs conclude with a different diploma (*Diploma o položenom završnom ispitu*), which does not provide access to the general education sector at the tertiary education level, but to the colleges of applied studies if students finish the fourth year of the vocational school (EP Nuffic, 2016).Starting from the school year 2017/18, the graduation and final exams will be displaced by new, standardised exams called the General Final Exam and the Vocational/Arts Exam (Eurydice, 2016).

As with elementary education, the MoESTD and the IIE are responsible for issuing curricula of upper secondary schools. Again, most schools are state-run and free of charge, while private schools are also available (Eurydice, 2016).

2.4 Postsecondary / Higher Education

Besides “classical” universities, art academies, and academies/colleges of applied sciences, one other program is offered at the postsecondary non-tertiary education level, corresponding to the ISCED Level 4 (ISCED 2011 classification). This is described briefly below before addressing the tertiary education sector (ISCED 6 and above).

The program, offered at the postsecondary non-tertiary education level (ISCED 4), is called “specialist education”. The specialist education programs are designed for people with a vocational degree. In order to be admitted to these programs, students need either the Matura or must have finished three years at a VET school. In addition, at least two years of work experience are necessary for admission. These programs are mostly attended by people who want to qualify for higher positions and management or leadership roles (EP Nuffic, 2016).

For admission to programs at the tertiary level of the education system (ISCED 6 plus level), students must complete an entrance exam. The exam is not compulsory for those who have successfully passed the Matura. However, since many higher education institutions pursue a restrictive admission policy by ranking candidates using either their combined Matura exam results and the entrance exam results, or only the Matura exam results, taking an entrance test can be beneficial. Each higher education institution has its own entrance exam (ibid.).

Serbia's higher education system is a two-track system, comprising academic studies offered at universities or art academies and applied (i.e. professional) studies provided by so-called academies or *colleges of applied studies*. The main difference between academic and applied studies is that the latter has a stronger focus on practical, vocational subjects and occupations. As specified in the *Law on Higher Education* and in cooperation with the Bologna Process, the higher education system is based on the European Credit Transfer System (ECTS) (Eurydice, 2016; European Commission, 2012; Kyvik, 2004; Vujacic et al., 2013).

In coordination with the Bologna Process, which Serbia joined in 2003 and fully implemented in 2007, higher education at universities includes three different levels: Bachelor Studies (3 or 4 years), Master (2 years) and PhD Studies (at least 3 years) (Eurydice, 2016; UNESCO, 2011). Bachelor studies at the colleges of applied studies last 3 years (180 ECTS). Subsequently, students can top-up their education with a *Master of Applied Studies* (120 ECTS, 2 years). Holding a Bachelor from a college of applied studies grants access to the continuing education programmes, or *Specialised Applied Studies* (60 ECTS, 1 year), while holding a Master from the academic track grants access to the continuing education programmes *Specialised Studies* (60 ECTS, 1 year) (see the two boxes with the dashed lines in Figure 4) (Eurydice, 2016).

Most students in tertiary education are enrolled in Bachelor programs (83 percent). At this level, almost three times more students are enrolled in academic programs at the university than in colleges of applied studies. For Master studies, only aggregate data is available, indicating that 14.2 percent of students are enrolled in a Master program. Finally, the share of PhD students amounts to 3.2 percent (UNESCO Institute for Statistics, 2016).

Altogether, 10.6 percent of the Serbian population had a tertiary education degree in 2011 (Eurydice, 2016). As in other developed or developing countries, the number of students and institutions have been growing since the 1990s (Foundation Tempus, 2014b).

According to Vujacic et al. (2013), there were about 1,329 accredited studies programs across all universities in Serbia in 2013, of which only 30 were offered at vocational higher education institutions.

The responsibility for higher education lies mainly with the MoESTD and the National Council for Higher Education (NCHE). The MoESTD is responsible for the accreditation of higher education institutions in the university sector, for the recommendation of policies to the government, for planning admission policies for students, and for distributing financial resources to higher education institutions. Furthermore, it supervises the overall higher education development (Eurydice, 2016).

Besides the MoESTD, the second main actor university sector is the NCHE. The NCHE exists since 2005 and is independent from the government. The Conference of Serbian Universities (CSU) and the parliament appoint its 21 members, who are mostly academics. The NCHE is responsible for the strategic planning of the tertiary education system and for ensuring its coherence (Eurydice, 2016; European Commission, 2012; Foundation Tempus, 2014b).

Appointed by the NCHE, the Commission for Accreditation and Quality Assurance (CAQA) is a separate unit consisting of 15 members. Founded in 2006, the CAQA is an independent body within the NCHE. It is responsible for the evaluation of higher education institutions and study programs. The CAQA also supports the MoESTD in the accreditation process (Foundation Tempus, 2013; Foundation Tempus, 2014b; Eurydice, 2016). It carries out external quality assurance and supports institutions in creating internal quality management systems. The Serbian system of quality assurance was developed in accordance with the Standards and Guidelines for Quality Assurance in the European Higher Education Area (European Commission, 2012).

According to the Law on Higher Education, the Conference Serbian Academy of Professional Studies (KASSS) is responsible for the accreditation of higher education institutions in the non-university sector.[14] The institutes represented in the KASS are organized by subject fields. The KASSS is spatially connected through seven regional centres.

Four additional advisory bodies are involved in the governance of the tertiary education system. These are the CSU, the Conference of Non-University Higher Education Institutions and two Students' Conferences, representing students of universities and of non-university higher education institutions (Eurydice, 2016; Foundation Tempus, 2014b).

Special focus: Colleges of applied studies

The establishment of vocational higher education institutions dates back to the period following the Second World War. Until 2005, vocational higher education was not considered a form of tertiary education. Following Serbia's entry into the Bologna Process, the parliament adopted the new *Law on Higher Education*, which practically merged academic and vocational higher education. Previously existing post-secondary vocational schools were "upgraded" to colleges of applied studies, while entirely new colleges were also established (Vujacic et al., 2013; Vukasović, 2006; Foundation Tempus, 2014b). The key new features linked to the Bologna Process included the organisation of study programmes according to the European Credit

[14] It is the legal successor of the Conference of Colleges which it replaced in 2011.

Transfer System and the formation of bodies responsible for quality assurance, mainly the CAQA (Vujacic et al., 2013; Vukasović, 2006; Slavkovic & Kita, 2009).

The purpose of the colleges of applied studies is to prepare students for the labour market. Accordingly, the education at these colleges is much more practically oriented than the education at normal universities. Some colleges cooperate with companies, but this interaction is in general minimal. Unfortunately, not much information about the content of the study programs is available.

Currently, there are about 27 colleges of applied studies in social sciences, 28 technical and technological colleges, 5 medical and, one arts college (KASSS, 2017). Public colleges of applied studies are funded by the state, but they are free to generate additional revenues from other sources, such as tuition and administrative fees, donations, engagement in research projects and consultancy services. While the MoESTD directly allocates the money the colleges receive from the state, they can freely distribute the money they generate themselves. According to the *Law on Higher Education*, higher education institutions are not limited in the amount of money they can accumulate. Some institutions generate such a high income that they are virtually financially autonomous from the state. In general, all higher education institutions are dependent on additional revenues, as state funding is insufficient (Foundation Tempus, 2014b). As is the case with private VET schools, private colleges of applied studies do not receive public funding. They finance themselves mainly through tuition fees (Foundation Tempus, 2014b).

Colleges of applied studies are largely autonomous in defining the curricula of their programmes, as national regulations are very broad and only existent for few subjects (teaching, medicine, and pharmacy) (European Commission, 2012; Eurydice, 2016). There are no national curricula for the programs at colleges of applied studies.

The main challenges regarding the colleges of applied studies is the overall quality and the positioning/organisation of applied studies. Like the VET system, the low quality is primarily attributed to deficiencies in practical training. Furthermore, the criteria for selecting, evaluating and employing teaching staff do not differ substantially between academic and applied studies, leading to a lack of professional knowledge on the part of applied studies teachers. Concerning the organisation and positioning of vocational higher education, the existence of over 60 largely independent and unintegrated colleges poses a problem for developing educational resources (Foundation Tempus, 2014a).

2.5 Continuing Education (Adult Education)

According to the Law on Adult Education, which came into force in January 2014, adult education programs in Serbia can be classified into three different categories: formal and informal education, and informal learning programs.

Formal adult education targets people who have not completed elementary and secondary school. The Law on Adult Education states that formal adult education refers to "organized learning processes delivered based on primary and secondary curricula and syllabi, and based on other forms of vocational education programmes tailored to the adults' needs and competences and to the labour market needs (…)"(Government of Serbia, 2013). Elementary education for adults takes 3 years to complete, while secondary education (general or vocational) lasts at most 4 years (Eurydice, 2016).

According to the law, informal adult education refers to all education programs that comprise "organized learning processes (...) based on special programmes for acquisition of knowledge, values, attitudes, competences and skills focused on personal development, work, employment and social activities of adults." (Government of Serbia, 2013). Examples of this kind of education include company training programs, programs for unemployed people, public and private organisations such as e.g. people's universities and foreign language schools, etc. In contrast, examples for informal learning are the skills learned on the job (not intentionally), at home or during leisure time.

Finally, the law defines informal adult learning as "(…) a process of independent acquisition of knowledge, attitudes, capabilities and skills related to daily life, work and social environment." (Government of Serbia, 2013).

The Law on Adult Education is the general legal basis for adult education. Formal adult education is partially regulated by the laws for elementary and secondary education (i.e. the Law on Elementary Education and the Law on Secondary Education) (European Infonet Adult Education, 2017). As with the other parts of the education system, the MoESTD is responsible for adult education. Other ministries are involved as well, namely the Ministry of Labour, Employment and Social Policy, the Ministry of Finance, and the Ministry of Public Administration and Local Self-Government (Eurydice, 2016).

Currently, the recognition of prior learning is not officially regulated in detail. The Law on Adult Education (Government of Serbia, 2013) defines the recognition of prior learning as one of the paths for acquisition of qualifications, but it shall be operationalized with a Bylaw. This is not yet developed and adopted, but the working group, coordinated by the Institute for Improvement of Education (IIE), has already developed the concept (as of March 2017) (ETF,

2017). The *Law on the Foundation of the Education System* envisages such regulation for the primary and secondary education level (Eurydice, 2016).

The *Specialised Applied Studies* program (60 ECTS, 1 year) is one continuing education option at the higher education level, with the admissions requirement of a bachelor's degree from a college of applied studies. Another continuing education option is the *Specialised Studies* program (60 ECTS, 1 year), which requires holding a master's degree from the academic track (see the two boxes with the dashed lines in Figure 4).

2.6 Teacher Education

The Centre for Professional Development of Education Staff within the IIE regulates teacher education. While teachers in preschool education are required to have a bachelor's degree from a Teacher Faculty (at a university) or a Teacher Training College, teachers of primary, secondary, and adult education need to complete a master's degree at a university. Finally, a PhD degree is required to teach in tertiary education (Eurydice, 2016).

After one year of teaching, all teachers – except those working in tertiary education – have to pass a licencing exam to continue teaching. Thereafter, teachers are required to use a given amount of their working time for professional development (Eurydice, 2016).

3. The System of Vocational and Professional Education and Training

This section of the Factbook describes Serbia's vocational education and training (VET) system at the upper secondary level in more detail. There is no description on professional education and training, as this part is not yet developed in Serbia.

3.1 Vocational Education and Training (VET; Upper Secondary Education Level)

3.1.1 Description of Serbia's VET System

After successfully completing elementary education, students can enter vocational schools at the upper secondary education level (VET schools). VET schools last either three or four years. Similar to the general education schools at the upper secondary level, some VET schools require an entry exam besides the certificate of completed elementary education. While the entry requirement to be admitted to a four-year program at a VET school is the same as for the general education schools, access to the three-year VET program is less competitive (in

terms of GPA and performance in an eventual entry exam). The VET system is of high importance for Serbia, as 75 percent of students in upper secondary education attended VET schools in the school year 2013/14. 81 percent of these students attended a four-year program, whereas 19 percent attended a three-year VET program. According to the GIZ (2015), 166 of the 287 profiles were offered in four-year programs, while 121 in three-year programs in 2013/2014. The 287 occupational profiles can be grouped in 15 different fields; for example, *Economics, Law and Administration* or *Natural Sciences and Mathematics, Electrical Engineering* or *Chemistry, Non-metals and Graphic*. The most popular field is *Economy, Law and Administration*, which 14.5 percent of all students in vocational secondary education choose. It is followed by *Electrical Engineering* (9.8 percent), *Medicine* (9.5 percent), *Mechanical Engineering* (9.0 percent) and *Trade, Catering and Tourism* (8.5 percent (GIZ, 2015). The different occupational profiles are offered by about 350 VET schools. Most of these schools are public and free of charge, but private schools also exist.

The MoESTD and the IIE are responsible for issuing curricula, as is the case with elementary education and general secondary education. Curricula are nationally standardised and vary from field to field. A part of each curriculum is congruent with general secondary education curricula and is accordingly devoted to general subjects, such as reading, mathematics, Information and Communications Technology (ICT), and foreign languages. Curricula relating to general education amounts to 35 percent of curricula in three-year schools and 45 percent in four-year schools. Vocational subjects, which vary with the respective area and feature practical instruction, make up the remainder (Eurydice, 2016; GIZ, 2015). According to the *Law on the Foundation of the Education System*, practical learning should make up a significant amount of VET programs. In reality, however, the majority of VET programs in Serbia are school-based, since the law does not specify how the implementation of practical learning should work. Work-based learning in cooperation with companies only exists to a very small extent and will be described in the following (GIZ, 2015).

As mentioned in Section 1.3.2, the government of Serbia started to reform its education system (including VET) in 2000, with the broad support of foreign organizations. Knowledge of these past developments is crucial in order to understand Serbia's current VET system.

In the course of this reform process, several foreign organizations supported pilot projects in different VET schools across Serbia, either by giving financial, expert support, or by developing co-operations between their national schools and Serbian schools. Other national or international organizations supported the development of institutions for the vocational sector or helped to reform the system of curriculum development. Thereby, the European Union, the German Organisation for Development Cooperation (GIZ), the Austrian Development Agency

(ADA), and the Swiss Agency for Development and Cooperation (SDC) contributed to renewing the system of curriculum development.

Serbia's VET system can be grouped into three different models. The best way to differentiate these three models is to describe their practical training content.

The most common VET model, referred to as the "*classical model"*, covers about 160 different occupational profiles. The amount of practical training in the classical model is very low, and mostly occurs in school workshops. In the last two years of the VET education, the training takes place in companies during two weeks at the end of every school year.

The second common model includes about 60 different occupational profiles. We will refer to it as the "*reformed model*". Since 2003, this type of VET has been and is developed with the help of foreign organizations, such as the European Union, the GIZ, ADA and SDC. Throughout this process, the curricula of about 60 of the total of 287 (GIZ, 2015) occupation profiles of Serbia's VET system have already been changed and are being implemented in order to strengthen the cooperation between the schools and companies by providing more training in the workplace.

In the *reformed model*, practical training takes place partly in companies and partly in school workshops. Compared to the *classical model*, the amount of practical training is significantly larger. The curricula for this model are based on competencies and learning outcomes, and have been developed by involving different stakeholders of the VET system, namely the Institute for the Improvement of Education (IIE), company experts from the relevant sector or field, and the MoESTD (see Table 5 for more details). The competencies are developed by the "Developing a Curriculum (DACUM)" method.

The procedure for curriculum development in this second model has to follow the rules and guidelines laid down in the national qualifications framework (NQF). This procedure will be further specified in the *Law on Dual Education* that is currently under review and expected to come into power by the end of 2017 (see Section 3.5.1 for more information). Changing all occupation profiles or creating new ones in the above-mentioned sense is the plan for the future.

The third VET model, the "*dual model*", involves elements of dual education. Practical training in this model occurs mostly in companies, where students are guided by instructors. The amount of practical training in the *dual model* is much larger than in the two other models. Students receive students' contracts and are often only receive a "symbolical payment" by the companies for their time spent in company training. Though the payment is still not obligatory, it will likely become obligatory with the upcoming *Law on Dual Education*. However, the scope

of these *dual model* programs is rather small. Currently, there are only five *dual model* programs, which run under the guidance of foreign partner countries (Austria, Germany and Switzerland), all of which have such dual VET programs in their education system.

As mentioned in Section 2.3, completing the four-year VET program with the Matura grants access to the tertiary general education sector, while the three-year program does not. However, graduates of the three-year VET program can progress to the colleges of applied studies, given that they complete the fourth year of the vocational school. There will be changes to these exams starting from the school year 2017/18 (Eurydice, 2016). The general aim of vocational secondary schools is to prepare students for their entrance into the labour market in the respective field. However, the Serbian VET system has been criticized for not equipping the youth with the skills needed by the labour market, impeding the school-to-work transition and partially contributing to the high youth unemployment rate. In an extensive report about the Serbian VET system, the GIZ (2015) criticises the quality of the Serbian VET system, not least because of its deficiencies in practical, work-based learning. More specifically, VET programmes are regarded as "over-specialised and out-dated, (…) correspond[ing] neither to the state of technological advancement, nor to the needs of modern businesses" (ETF, 2013, p. 11). In this context, the GIZ notes that over 90 percent of graduates from four-year VET schools acquire further education. Furthermore, the VET system is criticised as fostering social exclusion and geographical inequalities, both of which are general problems of the Serbian education system, as mentioned in chapter 2 (GIZ, 2015).

3.1.2 Current Projects Regarding the VET System

Currently, different actors are carrying out projects to improve the Serbian VET system, mostly by attempting to implement a dual system with a significant work-based component. Among them are the German Organisation for Development Cooperation (*Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)*), the Austrian Development Agency (ADA) and the Swiss Agency for Development and Cooperation (SDC).

The ADA's project "Strategic Partnership for Dual VET in Serbia" of the ADA is based on a cooperation between the Austrian Federal Economic Chamber *(*WKÖ) and the Chamber of Commerce and Industry of Serbia (CCIS). It started in May 2016 and will run for five years, ultimately intending to implement a dual VET system. The project's inception phase is expected to run until May 2017 and lays the foundations for the remainder of the project (ADA, 2016). From February 2017 onwards, the professional profile "Trader" is introduced based on dual principles i.e. practical teaching in companies.

The GIZ project "*Reforming Vocational Training in Serbia", Phase V* has already gone one step further since its start in 2013. It was commissioned by the German Federal Ministry for

Economic Cooperation and Development (BMZ) and is supported by the MoESTD of the Republic of Serbia. The GIZ tries to reform the current school-based VET system towards a dual system mainly by increasing cooperation between schools and companies. Within this project, the GIZ has initiated pilot dual VET classes for electricians, industrial mechanics and locksmith welders since September 2014. (GIZ, 2016a; 2016b).

Besides these Austrian and German projects, there is also the Swiss SDC project "*From Education to Employability (E2E): Youth Skills Development and Public-Private Partnership"*. It began in April 2015 and ended in September 2016. Its objectives include the implementation of education programmes containing dual elements with public-private partnerships as a means to reduce youth unemployment (the project supported the introduction of dual elements in the professional profile operator for industrial furniture) (SDC, 2016).

Furthermore, the EU programme "*EU Assistance to VET in Serbia"*, which is part of the Instrument for Pre-accession Assistance (IPA), aims to prepare countries for EU accession. The programme, which has been in place since 2003, ended in 2016. It aimed to improve the VET system by increasing its quality, access, and relevance regarding the labour market (ETF, 2016b; The Delegation from the European Union to the Republic of Serbia, 2016).

3.2 Professional Education and Training (PET; Post-Secondary Level)

Serbia has not established any professional education and training (PET) institutions. The colleges of applied studies, described in Section 2.4, cannot be classified as PET because they belong to the ISCED 6 A sector (ISCED 2011 classification), which is classified as general higher education.

The only program at the post-secondary level is "specialist education". It corresponds to the ISCED Level 4 and is designed for people with a vocational degree. For admission, students either need the Matura or must have finished the three years at a VET school and must have at least two years of work experience. These programs are mostly attended by people who want to qualify for higher positions, where they also have to train other people.

3.3 Regulatory and Institutional Framework of the VET System

3.3.1 Central Elements of VET Legislation

The government of the Republic of Serbia has the authority to regulate the VET system at the upper secondary education level.

The principle statute for the VET system is the *Law on the Foundation of the Education System* (further referred to as *Law on Education*) and the *Law on Secondary Education*. *The Law on*

Education does not exclusively regulate the VET system, but comprises regulations regarding preschool, elementary, secondary education and pedagogy and therefore regulates the VET system as part of the secondary education level. The 2013 *Law on Secondary Education* regulates the organisation of the VET system, including teaching and the organization of the involved actors, institutions, etc., in detail. VET is generally delivered by vocational schools. The law does not regulate in-company training, but it creates opportunities for work-based training. This manifests in Art. 33 of the *Law on Education*, which says that an education institution may perform other work and activities, provided that they do not impair educational work and activities and provided that the students are 15 years of age and older. The managing body of the institution shall decide upon such expanded work and activity in coordination with the ministry. The decision shall contain a plan of revenue and expenditures necessary for the delivery of such expanded work and activities, manner of engaging students and employees, and a plan for the allocation and utilization of the earned funds. The minister prescribes the conditions for the delivery of expanded work and activities in more detail. Art. 32 of the *Law on Secondary Education* states that practical teaching and hands-on training may be implemented in cooperation with the school and a company, institution, or organisation. The timelines, methodology and the terms for the implementation of such practical teaching and hands on training shall be specified under a contract.

In order to monitor, enable the development, and enhance the quality of the education system, the *Law on Education* establishes the National Education Council (NEC) and the Vocational Training and Adult Education Council (CVEAE).

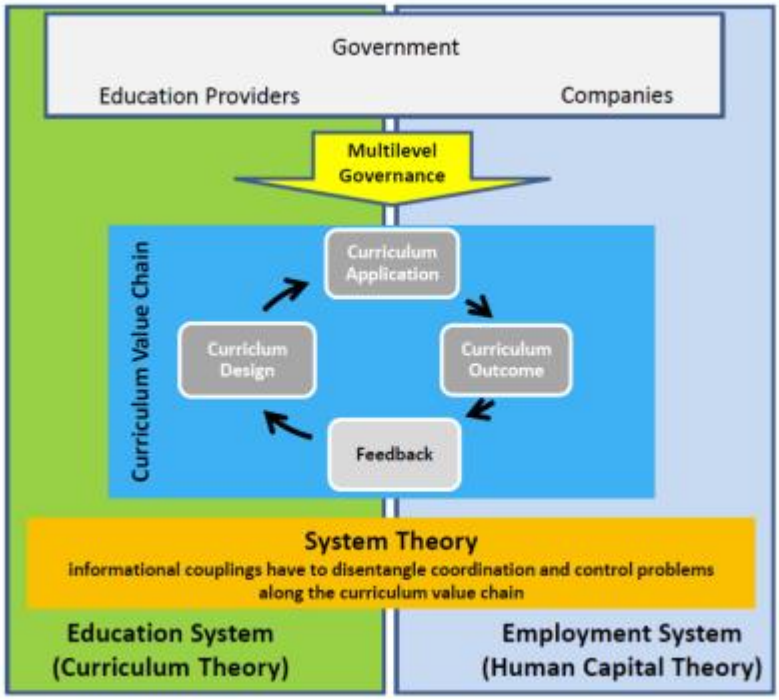
3.3.2 Key Actors of the Vocational Education and Training System

A vocational education and training system is mostly steered by different key actors. Such actors might be the government, educational providers, or companies.

Figure 5 shows how key actors work together to maintain and develop the vocational education and training system. The advantage of this so-called coordinated governance is that all actors are included in developing the curriculum value chain (see Section 3.5), which is at the heart of the VET system.

Serbia's VET system involves actors from the government, the representation and advisory bodies, and the education and training providers. The key actors in the governance of the VET system are the MoESTD, the National Education Council (NEC) and the Council for Vocational Education and Adult Education (CVEAE) (GIZ, 2015).

Figure 5: Swiss Governance



Government

As already mentioned, the MoESTD is the main actor in education policy. Regarding the VET system, the MoESTD has the following responsibilities: “research, planning, inspection and development of secondary education; participation in the development, equipping and maintenance of facilities; professional evaluation and inspection of skills, upgrade of staff at education establishments” (GIZ, 2015, pp. 38-39). Furthermore, the MoESTD accredits VET institutions and programmes, as specified by the *Law on the Foundations of the Education System* and the *Law on Secondary Education* (ETF, 2015).

Within the MoESTD, the Regional School Administrations (RSAs) are responsible for monitoring and evaluating schools, coordinating the in-service training of teachers, and controlling the finances of schools (GIZ, 2015).

Further relevant ministries include the Ministry of Finance (which provides financing of the VET system), the Ministry of Youth and Sports (which is responsible for supporting and subsidising disadvantaged students), and the Ministry of Labour. The cooperation among the different ministries is not institutionalised (GIZ, 2015; ETF, 2015).

The IIE – which incorporates the VET Centre – and the Institute for Education Quality and Evaluation (IIEQE) are additional actors. The IIE, the VET Centre and the IIEQE are mainly responsible for setting educational standards. In addition, the VET Centre is involved in the accreditation process of curricula for non-formal adult education (GIZ, 2015; ETF, 2015).

Representation and advisory bodies

The NEC has 42 members. As most of them represent universities or academic associations, the NEC focuses on general education and looks at the VET system from the perspective of the schools. Its responsibilities are specified in Article 14 of the *Law on the Foundations of the Education System*. Accordingly, it has to develop and improve education in general. The NEC can decide autonomously on certain issues, e.g. the establishment of standards for teachers and textbooks, as well as the organisation of schools. It also informs the Serbian parliament of its opinion regarding the current state of affairs in the field of education, at least once annually. As far as the VET system is concerned, the NEC is in charge of all general subjects (GIZ, 2015; NEC, 2009a; 2009b).

The CVEAE has existed since 2010 and is made up of 21 members. It is in charge of the vocational subjects and tries to improve the VET system by promoting the coordination of education and the needs of the labour market. The CVEAE aims to look at the VET system from the perspective of the professions and the economy in general. Unlike the NEC, the CVEAE includes a wide range of actors, namely “representatives of the Serbian Chamber of Commerce and Industry, craftspeople, employers’ association, vocational education experts, representatives of labour, employment and social policy institutions, VET school teachers, and members of representative trade unions” (GIZ, 2015, p. 39). The CVEAE also has a say in the accreditation of schools and programmes (ETF, 2015).

Further actors that were implemented in the past include the Sector Skills Councils (SSCs). These had been established in a pilot phase in order to strengthen industry involvement in areas such as curriculum development, final exams, etc. After the piloting phase, the established SSCs were no longer functional. The establishment of new SSCs has been announced for September 2015 (GIZ, 2015), but no significant steps have been undertaken to reactivate or extend the SSCs until this Factbook was written (GIZ, 2015).

Education and training providers

As mentioned in Section 3.1.1, there are around 350 vocational secondary schools, of which the majority are public (GIZ, 2015; ETF, 2013).

3.4 Educational Finance of the VET System

Since most vocational secondary schools are public, this implies that the VET system is mostly funded by the state. Unfortunately, no detailed data regarding expenditures for the VET system is available (Eurydice, 2016).

Around 80 percent of public expenditure in education stems from the state budget, whereas local municipalities account for the remaining 20 percent (Eurydice, 2016). In 2012, government expenditure per student amounted to US$ 1,603 at the upper secondary level and to US$ 2,470 at the tertiary level.[15] 23.1 percent of public expenditure on education went towards upper secondary education that year, while the share of tertiary education made up 29.1 percent (UNESCO Institute for Statistics, 2016). Note that these figures refer to both general education and vocational education and training at the respective levels, as separate data is not available.

Public VET schools are funded through the central government and local municipalities, whereas private schools depend on their own financial resources. In public schools, salaries are paid for using central government funds, while local governments are responsible for financing the maintenance of buildings, school materials, equipment, and the professional development of teachers. Costs accrue primarily for equipment, teaching material, and the salaries of teachers (GIZ, 2015).

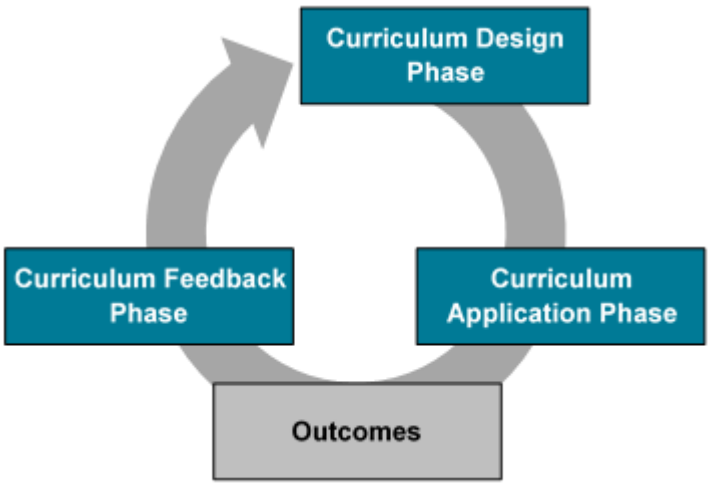
Overall, investments in the VET system are considered low and insufficient. Thus, the quality and relevance of vocational schools is low. This is particularly true for practical instruction because teachers have limited skills and the equipment in schools is outdated, lagging behind practical standards (GIZ, 2015; ETF, 2015; UNESCO, 2011).

3.5 Curriculum Development

The curriculum is a central element for the functioning of a VET system by defining the framework and the (quality) standards for the education system. The development of a curriculum can be decomposed into a three-step process with a curriculum design, a curriculum application and a curriculum feedback phase. This theoretical concept is called the Curriculum Value Chain and is depicted in the picture below (CVC; for more details see Renold, et al., 2016) .

[15] Expressed in constant US dollars.

Figure 6: Curriculum Value Chain (CVC)



Source: (Renold, et al., 2016).

In the curriculum design phase, VET curriculum content and qualification standards are decided upon by the relevant actors. Therefore, the discussion in the respective subchapter below focuses on the degree and the amount of stakeholder participation concerning curriculum design in Serbia. The curriculum application phase revolves around the implementation of the curriculum. Because learning environments differ heavily across countries—especially with respect to the prevalence of workplace learning—the curriculum application phase subchapter in this Factbook focuses those learning environments. Specifically, it addresses where learning takes place and whether the curriculum covers both school and workplace learning or only one of the two. Finally, curriculum outcomes can be collected and analysed in the curriculum feedback phase. This evaluation process is important as it may render a more refined curriculum design than was possible in the first place.

3.5.1 Curriculum Design Phase

The design phase is crucial for the whole curriculum process. To ensure that the skills taught in the VET programmes correspond to the needs of the labour market, experts from companies and/or professional associations should be involved in defining the qualification standards and learning contents of the curricula.

Since the Serbia does not have a PET system, with the exception of the “specialist education”, we only refer to the curriculum development in Serbia’s VET system in this section.

In Serbia, the MoESTD and the IIE – both of which are state actors - are responsible for defining the national VET curriculum (see Section 3.1.1). The curriculum then has to be adopted by the representative bodies NEC and CVEAE. The NEC, which mostly represents

universities and academic associations, is in charge of the general subjects. Conversely, the vocational subjects are under the responsibility of the CVEAE, which consists of, among others, of craftspeople and labour representatives (Eurydice, 2016; GIZ, 2015). The VET curriculum serves as a basis for organizing and providing VET and for reaching the desired learning goals. Specifically, it defines (MoESTD, 2009, p. 9):

- *"objectives, outcomes and contents of education and training,*
- *processes and activities for achieving and realizing of the above mentioned (organizational forms, strategies, models and methods of teaching and learning) and*
- *the ways of and criteria for assessing results."*

As mentioned in Section 3.1.1, the VET curricula are nationally standardised and vary from field to field. Each curriculum consists of a general and a VET part. The general education section includes subjects such as reading, mathematics, ICT and foreign languages. It amounts to 35 percent of curricula at three-year schools and 45 percent at four-year schools. Vocational subjects, which vary with the respective area and which feature practical instruction, make up the remainder (Eurydice, 2016; GIZ, 2015). According to the *Law on the Foundation of the Education System*, practical learning should make up a significant portion of a VET program. However, the majority of VET programs in Serbia are practically school-based, since the law does not specify how the implementation of practical learning should work (GIZ, 2015).

As mentioned in Section 3.1.1, most VET profiles of the so-called *classical model* contain minimal work-based learning in cooperation with companies. In contrast, the profiles modified with the help of foreign organisations, the so-called *reformed model*, contains substantially larger parts of practical training that also takes place in companies. As this model will be extended to other profiles in the future, we will describe the curriculum development process of this model in depth in the following.

The process of curriculum development and definition of qualification standards in the *reformed model* is described in Table 5. Information about the Serbian national qualification standards framework (NQF) can be found in the box below.

National qualifications framework (NQF) in Serbia

Work to develop a national qualifications framework began in 2005. Concepts of learning outcomes, competences, and a NQF were mentioned in the Law on The Foundation of the Education System of 2009 and were supported by the Serbian 2012-2020 strategy for education development.

Until the time this Factbook was written, two separate NQFs have been developed. The first NQF was designed according to the framework for the Bologna Process, and is for the higher education system, comprising the ISCED Levels 6 through 8 (ISCED 2011 classification), This NQF was endorsed by the National Council for Higher education in 2012 and proposed to the MoESTD, which integrated it into the *Law on Higher Education*. The second NQF refers to the VET system, comprising ISCED Levels 1 through 5. It was prepared by the IIE in cooperation with a working group that consisted of 21 experts from a range of institutions such as ministries (education, labour), social partners, and education and training providers. The final draft of this NQF was completed in 2013 and presented to the public by the MoESTD. It was integrated into the *Law on the Foundation of the Education System* (CEDEFOP, 2015).

In 2013, a working group was given the task to unify the two NQFs into one "national qualification framework Serbia (NQFS)", but the two NQFs have not yet been unified until this Factbook was written.

However, a new Law on the National Qualifications Framework is planned to regulate the implementation and further development of the comprehensive NQFS (ETF, 2017).

According to the CEDEFOP (CEDEFOP, 2015), the main policy objectives of the NQF include:

(a) improving transparency of education and training through a clear system of qualifications and progression routes;
(b) improving international comparability of Serbian qualifications with the European qualifications framework (EQF) and supporting student mobility;
(c) promoting competence-based and learning-oriented education;
(d) improving links with the labor market and ensuring that qualifications are aligned with up-to-date occupational standards;
(e) supporting lifelong learning and acquisition of knowledge, skills and competences at all ages and at all levels, through better connections between formal, non-formal and informal learning;
(f) improving quality of education though clearly-defined education standards.

At present, the NQF for VET has descriptors (learning outcomes) for the knowledge, skills, abilities and attitudes for each of the five levels, while the NQF for higher education uses the

Dublin descriptors. The NQF is based on qualification standards and learning outcomes. A qualification standard represents the content of a specific qualification (defined according to the following elements: a qualification name; level according to the NQFS/EQF; type; sector; learning outcomes, scope, etc.) (ETF, 2017).

In general, a NQF consists of several levels that are formulated on the basis of what a person knows and is able to do as a result of a learning process. These learning outcomes are described in the categories “knowledge”, “skills” and “general competences”. The subject- or program-specific learning outcomes are written in syllabi and curricula. The NQF also gives an overview of the formal education system of a country - of its degrees, certificates, etc. (Tuck, 2007), whereas the curricula are the program-specific formulations of the qualification standards of the NQF. Therefore, the introduction or update of a curriculum can lead to the formulation or update of a qualification standard, and vice versa.

Process to implement a new curriculum/qualifications standard or update existing ones

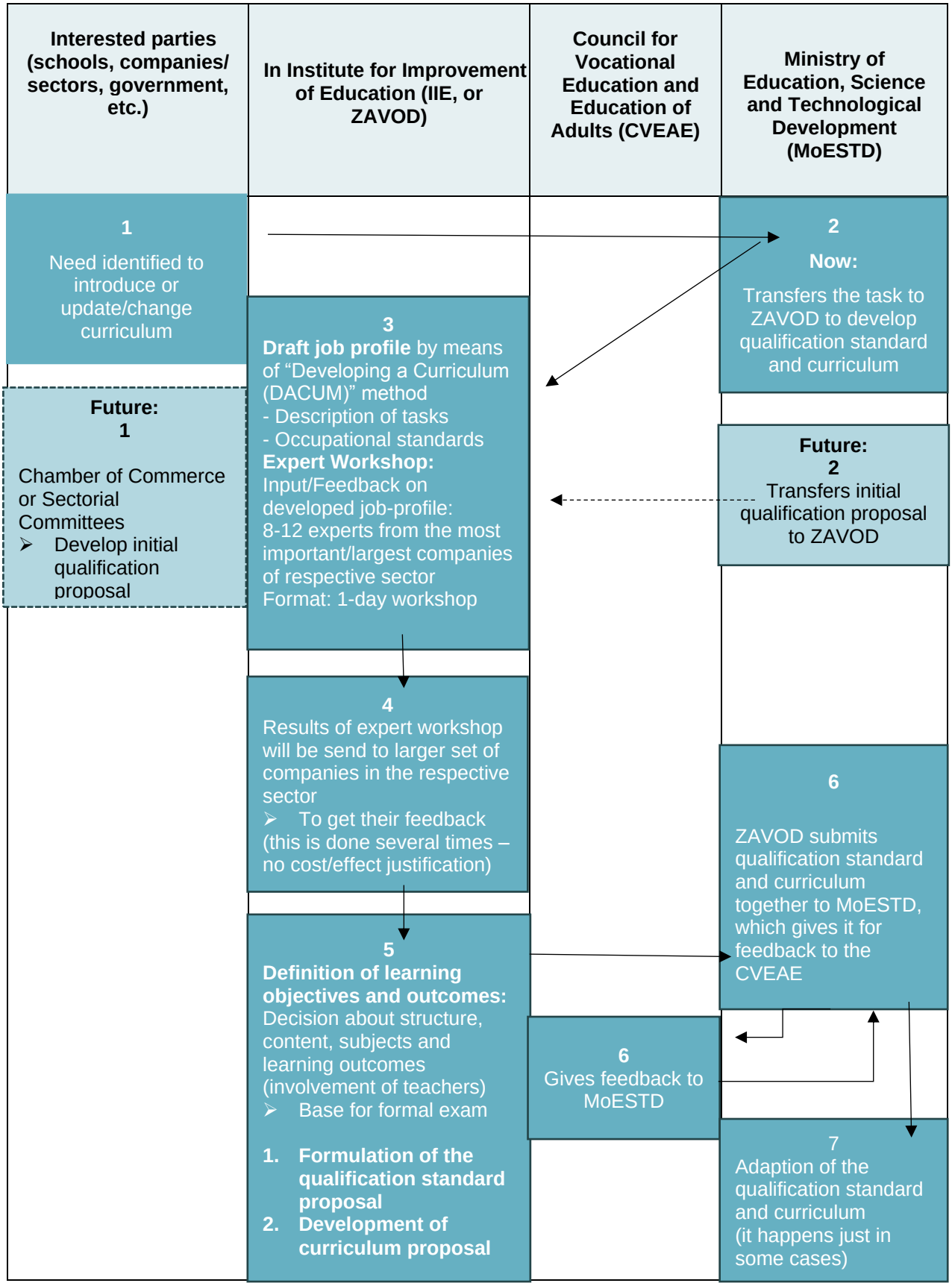
In a first step, any interested actor, such as a school, company, sector organization, or government organization can introduce a curriculum or qualifications standard or update an existing one. In Section 3.1.1, we mentioned the envisaged introduction of a new law on the *reformed* VET model, the so-called *Law on Dual Education,* which should come into power by the end of 2017. According to this law, the Serbian Chamber of Commerce can update or introduce curricula by directly designing an initial draft job profile.

Regardless of who takes the initiative, changes and updates must be send to the MoESTD, which transfers the task of developing qualification standards and curriculum to the IIE in a second step.

In a third step, the IIE designs an initial draft job profile by means of the “Developing a Curriculum (DACUM)” method. This contains a description of tasks and occupational standards (see ETF (ETF, 2017) for more details). In addition, the IIE organizes a one-day expert workshop by inviting 8-12 experts from the most important and largest companies of the respective sector to get input and feedback on the developed job-profile.

In a fourth step, the draft job profile including the results of the expert workshop will be send to a larger set of companies in the respective sector for more feedback. All this can be done several times.

Table 5: Curriculum development in the Serbian VET system in the *reformed model*



In a fifth step, the IIE defines learning objectives and outcomes by involving teachers. They decide the structure, content, subjects, and learning outcomes. These outcomes form the basis of the formal exam. Finally, the IIE formulates a proposal for the qualification standard and curriculum and sends it to the MoESTD.

In a sixth step, the MoESTD gives the draft of the qualification standard proposal and curriculum to the Council for Vocational Education and Education of Adult (CVEAE) for qualitative feedback.

In a last step, the MoESTD decides whether or not to adapt the qualification standard proposal and curriculum. Changes to curricula are still seldom approved.

3.5.2 Curriculum Application Phase

The way in which a curriculum is implemented—especially with respect to learning environments—is important to achieve the intended learning outcome.

As described in Section 3.1, VET programmes in Serbia are largely school-based. On the basis of the VET curriculum, vocational secondary schools issue their school programs, which include (Eurydice, 2016):

- *"A list of compulsory, elective and optional subjects;*
- *Prescribed number of school hours for each subject;*
- *Detailed description of each subject and its aims, objectives, contents, topics and sequence of lessons;*
- *Description and amount of hours planned for any additional curricular (e.g. additional and supplementary classes) or extracurricular activities (e.g. sports and cultural activities, excursions etc.)."*

Most of the updated curricula have been implemented in pilot projects in VET schools that simultaneously offered programs according to the classical model. According to the GIZ (2015) 58 percent of all 350 VET schools had at least one such pilot project, covering about 15 percent of all VET students. It further states that about 70 percent of the graduates of these pilot project found a job within the first three months after graduation.

3.5.3 Curriculum Feedback Phase

The curriculum feedback phase deals with the question of whether and how educational outcomes are analysed. Based on this, the curriculum could be re-worked and improved.

The quality of VET schools is evaluated as specified in the *Law on Secondary Education*. Article 90 envisages both internal and external evaluation, while Article 11 defines the detailed requirements a curriculum must meet (GIZ, 2015).

The NEC has introduced quality indicators for the education system, some of which are relevant for the VET system. The IEQE and educational advisors from the MoESTD are responsible for the external evaluation of VET schools based on these indicators. Recently, the VET Centre and the IEQE proposed the introduction of additional VET standards, based on the European Quality Assurance Reference Framework for VET (EQARF) (ETF, 2015). The EQARF, which was developed by the EU member states and the European Commission, "is designed to promote better vocational education and training by providing authorities with common tools for the management of quality" (EQAVET, 2016).

According to the scheme introduced by Table 5, the IIE, expert groups, the CVEAE, and the MoESTD are responsible for the quality of the curricula under this scheme. According to the *Law on Dual Education,* employers are also responsible for quality assurance of the curricula, but only with respect to work-based learning.

According to the ETF (2017) "one challenge is to link NQF development and implementation to the reform of provision (i.e. modernising curricula) and developing work-based learning in the VET system." Another challenge is the involvement of stakeholders in the process and to make them understand the relevance of providing well-developed qualification standards and curricula.

3.6 Supplying Personnel for the VET System (Teacher Education)

Within the IIE, the Centre for Professional Development of Education Staff regulates teacher education. VET teachers are required to hold a master's degree from a university. After one year of teaching, VET teachers have to pass a licence exam to continue teaching. Thereafter, teachers are required to use a given amount of their working time for professional development (Eurydice, 2016).

The *Law on the Foundations of the Education System* states that "students who plan to work in the teaching profession have to complete at least 30 ECTS in the fields of psychology, pedagogy, and teaching methodology, and at least 6 ECTS of practical work in an educational institution" (Eurydice, 2016).

There are no special educational pathways and institutions for future VET teachers compared to general education teachers (see Section 2.6). The lack of separate regulations for VET teachers is a problem due to the requirement they must have a master's degree, even though there are no master programmes specifically intended for VET teachers. As a result, initial teacher education relies too heavily on theory compared to competences and practical skills.

The same is also true for the continuing professional development of VET teachers (ETF, 2016a).

Table 6: Teachers, pupil-teacher ratio by educational level, 2014

ISCED 2011	Educational level	Teachers	Teachers (in % of total)	Pupil-teacher-ratio
0	Pre-primary education	12,347	11.8%	12.7
1	Primary education	18,126	17.4%	15.7
2-3	Secondary education	63,360	60.8%	8.7
2	Lower secondary education	33,300	31.9%	8.3
3	Upper secondary education	30,060	28.8%	9.0
3	of which: general	6,399	6.1%	10.5
3	of which: vocational	23,661	22.7%	8.6
6-8	Tertiary education	10,459	10.0%	23.2

Source: UNESCO Institute for Statistics (2016).

Out of the total number of teachers, 22.7 percent worked in VET schools in 2014, leading to a pupil-teacher-ratio of 8.6 pupils per teacher. The overall share of teachers in higher education amounted to 10 percent and the corresponding pupil-teacher-ratio was 23.2 (see Table 6).

4. Major Reforms in the Past and Challenges for the Future

4.1 Major reforms

Following the democratic transition and the merging of three ministries (Education, Higher Education and Sports), the newly formed Ministry of Education and Sports (MoES, today's MoESTD) initiated a major education reform in 2001. The first wave of the reform included, among other areas, the VET system (Miljevic, 2004). In this regard, the main goals of the reform were the following (UNESCO, 2011, p. 18):

> *"(i) decentralization and democratic school management; (ii) aligning VET with future needs of the economy; (iii) innovating curriculum delivery and pedagogy (critical thinking, team-work, creative application of knowledge); and (iv) devolving education management to local governments."*

The reform was supported by the German governmental organisation Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ, today's GIZ), the EU programme Community Assistance for Reconstruction, Development and Stabilisation (CARDS) and the European Training Foundation (ETF). It has been followed by a number of further initiatives (Miljevic, 2004), most notably the GIZ project *Reforming Vocational Training in Serbia*, mentioned in Section 3.1.2.

However, most reform efforts to date have been carried out in the form of pilot projects, failing to affect the VET system as a whole and "leaving the country with a fragmented curriculum

structure and unevenly developed schools" (ETF, 2010, p. 11). The major problem remains in finding mechanisms that enable and facilitate the diffusion of successful practices from pilot projects, so that they can be integrated into the entire system (UNESCO, 2005).

4.2 Major challenges

The major challenge of the Serbian VET system lies in its overall poor quality, which is visible when student achievements are compared internationally and which is partially a consequence of deficiencies in practical, work-based learning. In addition, the skills mismatch between the VET system and the labour market causes difficulties in school-to-work transition and contributes to high youth unemployment. More precisely, Serbian VET programmes are considered "over-specialised and out-dated, (…) correspond[ing] neither to the state of technological advancement, nor to the needs of modern businesses" (ETF, 2013, p. 11).

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Regulatory Framework on Vocational Education and Training in Serbia

Dimension	Explanation	Regulatory framework in Serbia
I. Overall governance		**Upper-secondary level**
1. Principal statute	Reference and year of publication	The Law on the Foundations of the Education System, 2009
2. Secondary statute	Reference and year of publication	The Law on Secondary Education, 2013
3. Responsible ministry		Ministry of Education, Science and Technological Development
4. National organisation		
a) Administration	Who is responsible for the nation-wide administration of VET/ PET?	National Education Council (Art. 12-14, Law on the Foundations of the Education System) Vocational Training and Adult Education Council (Art. 12,15 & 16, Law on the Foundations of the Education System)
b) Representation, advice	Are there institutions representing groups such as the "social partners", comprising the employees' as well as the employers' side, vocational teachers, who submit expert opinions regarding VET/ PET to the competent bodies or exercise statutory powers?	Vocational Training and Adult Education Council *The Government shall appoint the members of the council from representatives of the chamber of commerce, craftsmen, employer association, among experts in the field of vocational education and training and education of adults, business community, employment, labor and social policy, youth policy, as well as from teachers from the association of vocational schools and representative unions founded for the territory of the Republic of Serbia dealing with issues in the area of education (Art. 15, Law on the Foundations of the Education System).* Vocational Training and Adult Education Center (organizational unit of the Institute for the Improvement of the Education) (Art. 18 & 20, Law on the Foundation of the Education System)

c) Mandatory representation of:	Do the three groups listed below have a say in the VET/ PET system, i.e. legally specified controlling and voting rights?	
- Employers		Yes, see I.4.b)
- Trade unions		Yes, see I.4.b)
- Vocational teachers		Yes, see I.4.b)
5. Number of training programmes (VET/ PET)	Is there a number of officially recognized VET/ PET occupations/ programmes?	Yes, there is a list of educational profiles. (Art. 16, Law on the Foundations of the Education System)
6. Minimal skill level for admission to VET/PET	A secondary level school-leaving certificate for example	Eligible to enrol into secondary school education are persons: - who have completed primary school - who have completed primary school abroad if they have their diploma validated - who have completed primary music, i.e. ballet, school and persons who have not completed primary school if they pass the examination at the level of the primary school program - who have not completed primary school, but they have completed primary music, i.e. ballet, school, are eligible to enrol into the music, i.e. ballet, school for the purpose of studying artistic and vocational subjects. (Art. 38, Law on Secondary Education) Applicants for enrolment in four-year vocational schools are obliged to take the entrance examination. Applicants for enrolment in art schools, i.e. for educational profile in arts, in schools for students with exceptional skills, schools implementing parts of curriculum in a foreign language, and schools for gifted students are obliged to take the entrance examination. (Art. 42, Law on Secondary Education)

7. Training duration (years)	Is there a minimum training (VET/PET) programme duration?	- Secondary school education shall last for three or four years. - Secondary school education of adults shall last two or three years (Art 95, Law on the Foundation of the Education System)
8. Is there a special sort of training contract for VET/ PET students? Does it guarantee the quality of the VET/ PET programmes, i.e. does it prevent misuse of the contracts for atypical employment relations? And if, what is the regulation guaranteeing this?	One form of misuse of training contracts could be when firms employ workers under a training contract which might be subject to lower hiring and firing regulations, tax exemptions, etc. To guarantee the quality of the VET/ PET training, a minimal skill level could be required.	No, there is no special sort of training contract. However, for practical teaching and hands-on training implemented in cooperation between the school and a company, the timelines, methodology, and the terms for the implementation of practical teaching and hands-on training shall be specified under a contract. (Art. 32, Law on Secondary Education)

II. Regulation of school-based education		
1. Education and Training Providers	Is the competence and capacity of education and training providers legally specified?	Yes. The Republic of Serbia, an autonomous province, a local self-government unit, another legal entity may establish a training institution An institution may be established by the Republic of Serbia, an autonomous province or a local self-government unit, provided that the following conditions are met: - There is a need for education of children, students or adults in a particular area - The existence of a program of education and pedagogy - The existence of funds for establishing and running the institution (Art. 28 and 30, Law on the Foundation of the Education System)
2. Mandatory (part-time) educational segment		
a) In general	Is there a mandatory classroom segment for apprentices in addition to the work-based training (dual system)?	Art. 32 of the Law on Secondary Education states, that practical teaching and hands-on training may be implemented in cooperation between the school and a company, institution or other organisation.
3. Shares of the different instruction segments		
a) In general	Is the share of the different instruction segments legally specified?	Yes. (Art. 72 Law on the Foundation of the Education System)
b) Classroom/off-the-job instruction	What is the share of classroom/off-the-job instruction as % of total time spent in VET/ PET training?	100% in general (see II.2.a)
c) General education	Is the share of general education legally specified? What is the share of general education as % of classroom/off-the-job instruction?	30% for a three-year secondary vocational education and training 40% for a four-year secondary vocational education and training and arts education (Art. 72 Law on the Foundation of the Education System)

4. Specific mandatory educational contents	Are there legally specified standards regarding the content of the classroom instruction segment?	Yes. There are secondary school curricula and education syllabi. The school curricula shall include compulsory and elective school subjects, forms of educational and pedagogical work and activities, as well as annual and weekly numbers of lessons by subject and form. The education syllabi shall include education objectives by subjects, levels, cycles, types of education or education profiles as well as compulsory and elective content of compulsory and elective subjects. (Art. 72 – 74, Law on the Foundation of the Education System and Art. 23 – 26. Law on Secondary Education)
5. Mandatory representation in the decision-making process about the content of VET/ PET training. Involvement of:	Are the following three groups involved in the decision-making process about the content of VET/ PET training?	
a) Employers		Yes
b) Employees		Yes
c) Vocational teachers		Yes
6. Is the involvement of firms/employer associations in the process of curriculum development legally defined?	Yes/ No. if yes of whom and to what extent?	Yes. The Vocational Training and Adult Education Centre is in charge of the preparation or participation in the preparation of the curricula and syllabi for elementary and secondary vocational education and training by by-laws passed by the National Education Council (includes one representative of employers and employees each) or minister. (Art. 20, 24, Law on the Foundation of the Education System). The Council for Vocational Training (includes representatives of employers and employees, see I.4.b) and Education of Adults is in charge of proposing to the minister portion of curricula and syllabi for educational profiles.
1. Work-based training		
a) Compulsory training	Does compulsory work-based training exist?	No. Art. 32 of the Law on Secondary Education states that practical teaching and hands-on training may be implemented in cooperation with the school and a company, institution or organisation. The timelines, methodology and the terms for the implementation of such practical teaching and hands on training shall be specified under a contract.
b) Providers	Is the competency and capacity of work-based training providers legally specified?	No, see III.1.a.

2. Content regulation	Who has the competency to regulate the content of the work-based training segments?	No, see III.1.a.
3. Required off-the-job instruction *in* the company	Is the share of off-the-job instruction time *in* the company (i.e. the time the student/ apprentice spends in the company, but not in productive work, e.g. on company-owned training facilities) legally specified?	No, see III.1.a.
4. Mandatory representation of:	Are the following three groups involved in the decision-making process about the content of work-based training?	No, see III.1.a.
d) Employers		
e) Employees		
f) Vocational teachers		
5. Statuary powers	Is the aforementioned body (see above, III.1) competent to:	No, see III.1.a.
a) Trainee certification	- hand out training certifications to students/apprentices?	
b) Validation of employer sponsorship	- validate employer sponsorship (i.e. verify if possible new training companies meet the necessary standards)?	

1. Public subsidies	Is there public funding for:	
a) Classroom instruction?		In an institution founded by the Republic of Serbia, an autonomous province or a local self government unit the following shall be provided free of charge - … - … - Secondary education for full time and part time students under equal conditions, in accordance with this and the particular law (Art. 91 Law on the Foundation of the Education System)
b) Workplace training?		No, see III.1.a.
2. Cost redistribution among employers	Is there an instrument of mandatory levy-grant finance to redistribute the costs of on-the-job training among employers?	No, see III.1.a.
3. Regulation of VET/ PET students' salaries	How are VET/ PET students' salaries/ salary scales determined?	No, see III.1.a.
1. Regulation of VET/ PET teachers' education	Is there regulation on the education of VET/ PET teachers?	Yes (Art. 8, Law on the Foundation of the Education System).
2. Existence of minimal requirements	Does regulation stipulate minimal requirements regarding the education of VET/ PET teachers?	A teacher, preschool teacher and psychologist/pedagogue shall be a person with appropriate higher education: - Acquired through second degree studies (graduate academic studies – master, specialist academic studies or specialist professional studies) in keeping with the Law on Higher Education, as of 10 September 2005.

		- Acquired through initial studies lasting at least four years, pursuant to the regulation regulating higher education until 10 September 2005. Exceptionally, a teacher and preschool teacher shall be a person with appropriate university education acquired through first degree studies (initial academic or initial professional studies), studies lasting for up to three years or college education. The person mentioned above shall have education in psychology, pedagogy and teaching methodical disciplines acquired at a higher education institution during his/her studies or after graduation of at least 30 credits and 6 credits for practice in an institution, in accordance with the European Credit Transfer System. (Art. 8, Law on the Foundation of the Education System)

Regulatory Framework on Higher Education, *Colleges of applied studies*

Dimension	Explanation	Regulatory framework in Serbia
I. Overall governance		***Colleges of applied studies,* Post-secondary level**
1. Principal statute	Reference and year of publication	The Law on Higher education, 2014
2. Secondary statute	Reference and year of publication	
3. Responsible ministry		Ministry of Education, Science and Technological Development
4. National organisation		
d) Administration	Who is responsible for the nation-wide administration of VET/ PET?	National Council for Higher Education
e) Representation, advice	Are there institutions representing groups such as the "social partners", comprising the employees' as well as the employers' side, vocational teachers, who submit expert opinions regarding VET/ PET to the competent bodies or exercise statutory powers?	National Council for Higher Education *The 21 members of the National Council shall be appointed by the National Assembly of the Republic of Serbia, namely:* *twelve members among full professors, top scholars and scientists and/or artists…* *two members among professors from the field of professional career studies* *seven members among prominent scientists or scholars, cultural figures, educators, artists or businessman, three of them at the proposal of the Government of the Republic of Serbia, one of them shall be the representative of Kosovo and Metohija from the University of Pristina and another shall be appointed at the proposal of the competent body of the Autonomous Province of Vojvodina (Art. 10, Law on Higher Education).* Accreditation and Quality Evaluation Commission *The Commission shall consist of 17 members, three members from each particular educational-scientific and/or educational-artistic field from various areas, as provided for In Art. 27 of the Law on Higher Education (here referred to in II.4) and two members among professors of professional career studies (Art. 13, Law on Higher Education).*

f) Mandatory representation of:	Do the three groups listed below have a say in the VET/ PET system, i.e. legally specified controlling and voting rights?	
- Employers		-
- Trade unions		-
- Vocational teachers		-
5. Number of training programmes (VET/ PET)	Is there a number of officially recognized VET/ PET occupations/ programmes?	
6. Minimal skill level for admission to VET/PET	A secondary level school-leaving certificate for example	Higher education institutions (universities, faculties or academies of arts within universities, academies of professional career studies, four-year colleges, four-year colleges of professional career studies): - Persons who have completed their secondary education have the right to higher education. Exceptionally, under the conditions laid down in the Statute of a higher education institution, a person not having a secondary education shall be entitled to higher education if he/she applies for a programme of study in the arts. The higher education institution shall establish, in accordance with the law, the requirements to be fulfilled in screening and selecting successful applicants (academic achievement in previous education, type of education previously completed, special knowledge, skills or aptitude, etc.) (Art. 8, Law on Higher Education). The autonomy of a university and of other higher education institution shall imply the right to determine the rules of study and admission requirements for students (Art. 6, Law on Higher Education).
7. Training duration (years)	Is there a minimum training (VET/PET) programme duration?	In higher education institutions, credits shall be earned according to the European Credit Transfer System (ECTS). For detailed information, see Art. 29 of the Law on Higher Education
8. Is there a special sort of training contract for VET/ PET students? Does it guarantee	One form of misuse of training contracts could be when firms employ workers under a training contract which might be subject	-

the quality of the VET/ PET programmes, i.e. does it prevent misuse of the contracts for atypical employment relations? And if, what is the regulation guaranteeing this?	to lower hiring and firing regulations, tax exemptions, etc. To guarantee the quality of the VET/ PET training, a minimal skill level could be required.	
II. Regulation of school-based education		
1. Education and Training Providers	Is the competence and capacity of education and training providers legally specified?	Yes. An independent higher education institution may be founded by the Republic of Serbia or by a legal entity or a natural person, in accordance with the law (Art. 40, Law on Higher Education). A higher education institution may begin its activities upon the issuance of the work permit by the Ministry. The Ministry shall issue a work permit to the requesting higher education institution it the Commission has given positive advice on: - The content, quality and scope of study programmes taught at academic and/or professional career courses; - The required number of teaching and other staff with appropriate scientific and professional qualifications - Availability of appropriate facilities and equipment corresponding to the number of students to be admitted by the higher education institution and the required quality of studies (Art. 41, Law on Higher Education)
2. Mandatory (part-time) educational segment		
b) In general	Is there a mandatory classroom segment for apprentices in addition to the work-based training (dual system)?	Education training at higher education institution is school based only.

3. Shares of the different instruction segments		
d) In general	Is the share of the different instruction segments legally specified?	-
e) Classroom/off-the-job instruction	What is the share of classroom/off-the-job instruction as % of total time spent in VET/ PET training?	-
f) General education	Is the share of general education legally specified? What is the share of general education as % of classroom/off-the-job instruction?	-
4. Specific mandatory educational contents	Are there legally specified standards regarding the content of the classroom instruction segment?	No, the autonomy of a university and of other higher education institution shall imply the right to decide on study programmes (Art. 6, Law on Higher Education). But the study prorammes shall be carried out in one or more of the following educational-scientific and/or educational-artistic fields: - natural science and mathematics - social studies and humanities - medical science - engineering and chemical engineering - arts (Art. 27, Law on Higher Education)
5. Mandatory representation in the decision-making process about the content of VET/ PET training. Involvement of:	Are the following three groups involved in the decision-making process about the content of VET/ PET training?	
g) Employers		-
h) Employees		-

i) Vocational teachers		-
6. Is the involvement of firms/employer associations in the process of curriculum development legally defined?	Yes/ No. if yes of whom and to what extent?	-
1. Work-based training		-
c) Compulsory training	Does compulsory work-based training exist?	
d) Providers	Is the competency and capacity of work-based training providers legally specified?	-
2. Content regulation	Who has the competency to regulate the content of the work-based training segments?	-
3. Required off-the-job instruction *in* the company	Is the share of off-the-job instruction time *in* the company (i.e. the time the student/ apprentice spends in the company, but not in productive work, e.g. on company-owned training facilities) legally specified?	-
4. Mandatory representation of:	Are the following three groups involved in the decision-making process about the content of work-based training?	-
j) Employers		
k) Employees		
l) Vocational teachers		

5. Statuary powers	Is the aforementioned body (see above, III.1) competent to:	-
c) Trainee certification	- hand out training certifications to students/apprentices?	
d) Validation of employer sponsorship	- validate employer sponsorship (i.e. verify if possible new training companies meet the necessary standards)?	
1. Public subsidies	Is there public funding for:	
c) Classroom instruction?		Yes. The Ministry shall allocate financial resources provided through the budget of the Republic of Serbia earmarked for higher education institutions and control their use (Art. 23, Law on Higher Education). For further details of the financing of higher education institutions, see Art. 57 – 61 of the Law on Higher Education.
d) Workplace training?		-
2. Cost redistribution among employers	Is there an instrument of mandatory levy-grant finance to redistribute the costs of on-the-job training among employers?	-
3. Regulation of VET/ PET students' salaries	How are VET/ PET students' salaries/ salary scales determined?	-
1. Regulation of VET/ PET teachers' education	Is there regulation on the education of VET/ PET teachers?	Yes (Art. 62 - 67, Law Higher Education).
2. Existence of minimal requirements	Does regulation stipulate minimal requirements regarding the education of VET/ PET teachers?	Yes. Art. 64 on Conditions for election to the position of teacher of the Law on Higher Education states: A person that has an appropriate professional, academic and/or scientific title and teaching capacity may be elected to the position of teacher.

		A person that has an academic title of a master or a professional title of specialist may be elected to the position of lecturer A person that has the academic title of doctor (Ph.D. in Science or Arts) may be elected to the position of professor of professional career studies. A person that has higher education of the first level and recognized works of art may also be elected to the position of lecturer or professor of professional career studies. A person that, in addition to the conditions referred to in paragraph 3 of this Article, has also had scientific and/or professional papers published and reviewed in scientific journals or collections may be elected to the position of docent. A person that has higher education of the first level and recognized works of art may be elected to the position of docent in the field of arts. A person that, in addition to the conditions referred to in paragraph 5 of this Article, has had a number of scientific works of importance for the development of science and/or arts in a specific scientific and/or artistic field published and reviewed in international or leading domestic journals, may be elected to the position of associate professor. Also, a person that has an original professional accomplishment (a project, study paper, patent, an original method, a new animal breed/plant variety et al.), or that has directed or participated in scientific projects; published a textbook, monograph, practicum or a collection of problems with solutions in a specific scientific and/or artistic field to which he/she is being elected and has had a number of papers presented at international or domestic scientific conferences, may be elected to the position of associate professor. A person that has higher education of the first level and works of art that render an independent artistic contribution may be elected to the position of associate professor in the field of arts. A person that, in addition to the conditions referred to in paragraph 7 of this Article, has had a large number of scientific works influencing the development of the scientific thought in a specific field published and reviewed in international or leading domestic journals; a large number of scientific works and statements presented at international or domestic scientific conferences; that has published a textbook, monograph or an original professional accomplishment; that has achieved results in the development of junior

		researchers at a faculty or participated in the final works at the specialist and diploma academic studies, may be elected to the position of full professor. A person that has higher education of the first level and exceptional works of art that have significantly influenced the development of culture and arts may be elected to the position of full professor in the field of arts.

References (Appendix)

The Law on the Foundation of the Education System (2009).

The Law on Secondary Education (2013).

The Law on Higher Education (2014).