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THE UPTAKE OF EUROPEAN PROGRAMMES IN THE CEEPUS COOPERATION AREA

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June 2019

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1. Purpose of this Paper

The purpose of this paper is to provide, firstly, an overview on the uptake of different alternative European programmes and schemes in the so called CEEPUS countries, and, secondly, to compare these programmes and schemes, which provide partly similar or complementary participation opportunities, with CEEPUS. The paper focuses on the following programmes and schemes:

- CEEPUS
- ERASMUS +
- Horizon 2020
- Marie Skłodowska-Curie Actions (MSCA)
- COST

This selection of programmes and schemes does not claim to provide a complete picture. On the other hand the findings show that the previous undoubted USP of CEEPUS in its region of operation has been step by step supplemented by other programmes.

The author also provides some conclusions but does not judge whether or not CEEPUS should be faded-out, because this is at the very end a political decision. This paper, however, should serve as one input for evidence-based decision-making.

2. The Mission, Structure and Performance of CEEPUS

CEEPUS (Central European Exchange Programme for University Studies) was initiated in Austria in 1993 and supports academic mobility and cross-border cooperation between higher education institutions (HEI) in the region of Central and Southeast Europe. The founding members of CEEPUS are Austria, Bulgaria, Hungary, Poland, the Slovak Republic and Slovenia. On Jan 1, 1995 the CEEPUS I Agreement entered into force. At present, CEEPUS unites universities from 16 Central and Southeast European countries (Albania, Austria, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Hungary, Pristhina et al.[1], North Macedonia, Moldova, Montenegro, Poland, Romania, Serbia, the Slovak Republic and Slovenia) within networks consisting of at least three higher education institutions from at least two different treaty countries. Mobility of students and teachers takes primarily place in the framework of such CEEPUS networks.

The highest ranking decision making body is the Joint Committee of Ministers that meets once a year and takes all strategic decisions. Coordination, evaluation, programme development and promotion are the main tasks of the Central CEEPUS Office located in Vienna. The infrastructure required for the fulfilment of the functions of the Central CEEPUS Office including the salaries of the Secretary General and the office staff is financed by the Republic of Austria.

The CEEPUS contracting parties retain full power and control over their respective national budgets endowed for the cooperation. They all established in their countries a National CEEPUS Office which has the following responsibilities:

- Advertising CEEPUS and provision of information on all its aspects, especially on Joint Degrees, in close cooperation with the Central CEEPUS Office and the other National CEEPUS Offices;
- Receiving and formally evaluating applications;
- Preparations for awarding scholarships to applicants;
- Providing scholarships when a place of study has been secured;
- Awarding scholarships as described in the work programme;
- Organizing payments in connection with a scholarship;
- Receiving reports;

[1]. Since CEEPUS refers to the status of Kosovo according to UN Security Council Resolution 1244/99 in its Ministerial Conference as Prishtina et al., this term is also used for this study.

- Conducting a national evaluation of the cooperation and contributing to the overall evaluation, where applicable;
- Reporting annually on the national implementation of the cooperation.

Currently, the CEEPUS III agreement to promote cooperation in the field of higher education is in force since 1st May, 2011. It was renewed in 2018 for a further period of seven years until April 30, 2025.

The cooperation and mobility exchange is basically accomplished in the framework of various subject-related university networks (i.e. CEEPUS networks). Advanced university networks even offer joint-degree programmes. The contracting parties announce the scholarship months for cooperation (the internal "CEEPUS currency") for each following academic year in annual intervals. The minimum CEEPUS currency amount is 100 scholarship months per academic year and country.

CEEPUS primarily supports the mobility of students registered at universities, regardless of their field of study, up to and including the doctoral level. Student exchange within CEEPUS lasts from 3 to 10 months. PhD students or students working on their theses may apply also for a period of one or two months. The study period may be extended once, but may not exceed a total of 10 months. Within a CEEPUS network, incoming students are exempted from paying tuition fees and receive a grant from the host country which depends on the living costs in the country.

CEEPUS III also supports the mobility of faculty members, i.e. the teaching, research and/or artistic staff of a given higher education institution (HEI) in order to promote transnational inter-university cooperation and to enhance the Central European dimension of university curricula. Scholarships may also be granted to students enrolled or teachers employed at a university outside of a CEEPUS III network ("freemovers"), provided that special arrangements for studying or teaching and supervising at such a university exist.

3. Participation in CEEPUS

Since 1995 CEEPUS supported the mobility of more than 50.000 students and teachers.

Tab. 1 shows the number of participations in CEEPUS networks by country. The ratio between the country with the lowest network participation (Prishtina et al.) and the country with the highest network participation (Poland) is only 1:14. This is a rather compact pattern given the very different sizes and R&D capacities of the CEEPUS countries.

In order to 'normalise' the data (and thus to get rid of country size effects), one can relate the number of network participations of a country with its R&D capacity (expressed in R&D personnel in full-time equivalents [FTE]). Tab. 2 clearly shows that especially countries with lower R&D capacity benefit a lot from CEEPUS. Montenegro, North Macedonia and Bosnia-Herzegovina have a high above average relative participation. This would most probably also be true for Prishtina et al., Albania and Moldova, if FTE-data would have been available for these countries. On the other hand, Tab. 2 also shows that the countries with the highest R&D capacity (expressed in R&D personnel in FTE), have the comparatively lowest relative participation (Poland, Austria, Czech Republic). The other countries are in-between.

We can thus generalise that the pervasion of CEEPUS and, thus, its relative importance, is comparatively higher in the Southeast European member countries of CEEPUS because also HEI from Croatia and Serbia show a clear above-average relative participation. Also HEI from Slovenia have a clear above-average relative position which points somehow to the heritage of the former Yugoslavia with still existing relations in the field of higher education and research, some shared cultural overlaps and a similar language space.

Slovakia is another exception with considerably higher above-average participation if related to its R&D capacity measured in terms of R&D personnel in FTE.

By applying this 'normalisation' approach, one can state that the HEI of the countries of the former Yugoslavia as well as Slovakia are – in relation to their R&D capacity – the prime users of CEEPUS.

Tab. 1: CEEPUS networks by country (as of the academic year 2005/2006 until 2019/2020) and network participation related to R&D capacity

Country	Network Participations	R&D personnel (in FTE)	Network participations in % of R&D personnel (in FTE)
Albania	239	n.a	n.a
Austria	1,068	77,880	1.37
Bosnia and Herzegovina	451	1,767	25.25
Bulgaria	632	23,290	2.71
Croatia	1,082	11,778	9.07
Czech Republic	1,397	69,736	1.53
Hungary	1,352	40,432	2.64
Prishtina et al.	105	n.a	n.a
Moldova	140	n.a	n.a
Montenegro	228	624	36.54
North Macedonia	512	1,870	27.38
Poland	1,490	144,103	1.03
Romania	1,420	32,586	4.36
Serbia	1,059	20,788	5.09
Slovakia	1,357	19,011	7.14
Slovenia	834	14,713	5.67
Total	**13,366**	**458,578**	**2.91**

Source: Central CEEPUS Office and Eurostat; 2017; except Montenegro (2016), Bosnia and Herzegovina (2014). In Albania, Prishtina et al. and Moldova the number of R&D personnel in FTE is not reported; own calculations

At average a CEEPUS network consists of around 14 participating HEI (i.e. the so-called participations). CEEPUS cumulated 13,366 participations of HEI from the academic year 2005/2006 until 2019/2020. The highest share of participation has been achieved by Poland (11.15% of all participations in CEEPUS). As shown in Tab. 1 Poland is positioned in a cluster of CEEPUS countries (plus Romania, Czech Republic, Slovakia and Hungary), whose universities frequently participate in CEEPUS networks. A second cluster consists of Croatia, Austria and Serbia (between 8.10% and 7.92%), followed by Slovenia (6.24%). The next cluster consists of Bulgaria, North Macedonia, Bosnia and Herzegovina (between 4.73% und 3.37%), followed by the other CEEPUS countries Albania, Montenegro, Moldova and Prishtina et al.

The participation numbers are of course also influenced by the number of HEI existing in each single CEEPUS country. This could also provide a piece of explanation to the high participation numbers of Poland and Romania[2] (among others), while in countries with a rather limited number of universities – like in Slovenia for instance – a certain degree of saturation is more easily achieved.

As shown in Tab. 2, the number of CEEPUS networks shows an increasingly upward trend since 2005 (data before 2005 could not be accessed). While in the academic year 2005/2006 35 CEEPUS networks have been operating, the number of operating CEEPUS networks increased to 80 in the academic year 2019/2020.

[2] Although Romania, for instance, has only half the number of R&D personnel than Austria.

Most of these networks were coordinated by Austria (no= 174), which had a central hub function especially in the first years of CEEPUS[3]. Frequent coordination was also performed by Poland, Romania and Slovenia (between 113 and 104 coordinated networks). The next cluster consists of Hungary, Slovakia, the Czech Republic and – with some distance – Serbia (between 90 and 69 coordinated networks). By number of coordination, this cluster is followed by Croatia (54) and Bulgaria (44), while the number of networks coordinated by HEI from Montenegro, Bosnia and Herzegovina and North Macedonia is comparatively very low (between 5 and 1). No coordination of CEEPUS networks from universities from Albania, Prishtina et al. and Moldova could be identified in the data records.

Tab. 2: Development of the number of CEEPUS networks from the academic year 2005/2006 until 2019/2020 and division of CEEPUS network coordination by CEEPUS member states

Academic Years	Granted CEEPUS Networks
Academic Year 2005/2006	35
Academic Year 2006/2007	45
Academic Year 2007/2008	50
Academic Year 2008/2009	52
Academic Year 2009/2010	54
Academic Year 2010/2011	55
Academic Year 2011/2012	61
Academic Year 2012/2013	66
Academic Year 2013/2014	67
Academic Year 2014/2015	69
Academic Year 2015/2016	72
Academic Year 2016/2017	74
Academic Year 2017/2018	79
Academic Year 2018/2019	75
Academic Year 2019/2020	80
Total	**934**

Country	Coordinated Networks
Austria	174
Bosnia and Herzegovina	3
Bulgaria	44
Croatia	54
Czech Republic	81
Hungary	90
Montenegro	5
North Macedonia	1
Poland	113
Romania	109
Serbia	69
Slovakia	87
Slovenia	104
Grand Total	**934**

Source: Central CEEPUS Office

It is interesting to have a look on the ratio between coordination of networks and participation in networks by CEEPUS countries, because frequent coordination could indicate (i) a higher strategic ownership, (ii) available functional network management capacities and/or (iii) some kind of (attributed or self-imposed) leadership attribution. As shown in Tab. 3 we can identify striking differences among the CEEPUS member countries in this respect.

At average the CEEPUS countries have a ratio of around 1 coordination : 14 participations, which means that out of 14 network participations of a country one participation is in the role of an overall network coordination. The countries close to average are Bulgaria, Hungary, Poland, Romania, Serbia, Slovakia and the Czech Republic. Austria and Slovenia, however, have relatively more overall network coordinations than participations. As mentioned above, this could indicate that HEI from these two

[3] And few of these early networks are still in operation.

countries are – in comparison to the other CEEPUS countries – maybe more strategically engaged in CEEPUS. If there is some truth in this statement, than the opposite could be alleged for HEI from those countries which are obviously comparatively much less engaged as network coordinators but primarily involved as regular partners. This is especially true for Albania, Prishtina et al. and Moldova, which show no network coordination at all, and – less evident – also for North Macedonia and Bosnia-Herzegovina. Another, probably more convincing explanation, is that these countries are still less integrated in international cooperation, which, however, could refer back to issues mentioned above such as lack of available functional network management capacities or less international creditability. This indicates structural problems, which have to be primarily solved by domestic policies.

Tab. 3: Participation in CEEPUS networks and ratio between network coordination and network participation differentiated by CEEPUS countries (sum of the academic years 2005/2006 until 2019/2020)

Country	Networks	in %	Ratio between coordination and participation
Albania	239	1.79	n.a.
Austria	1,068	7.99	1:6
Bosnia and Herzegovina	451	3.37	1:150
Bulgaria	632	4.73	1:14
Croatia	1,082	8.10	1:20
Czech Republic	1,397	10.45	1:17
Hungary	1,352	10.12	1:15
Prishtina et al.	105	0.79	n.a.
Moldova, Republic of	140	1.05	n.a.
Montenegro	228	1.71	1:46
North Macedonia, Republic of	512	3.83	1:512
Poland	1,490	11.15	1:13
Romania	1,420	10.62	1:13
Serbia	1,059	7.92	1:15
Slovakia	1,357	10.15	1:16
Slovenia	834	6.24	1:8
Grand Total	**13,366**	**100**	**1:14**

Source: Central CEEPUS Office; own calculations

As of the academic year 2005/2006[4] almost 25,000 students have been exchanged within CEEPUS networks as shown in Tab. 4. Not surprisingly, Poland – the largest CEEPUS country - sent the highest number of students (3,860) in this period abroad, followed by Slovakia (3,341). By comparing the mobility numbers with the absolute number of students enrolled in a country, it becomes obvious how intensively HEI from Slovakia, for instance, are using CEEPUS for sending students abroad. This holds also true for Croatia (2,622) and – to a lesser extent in absolute numbers – for Slovenia (1,401).

On the other hand, Austria (964) and Bulgaria (1,042) are using CEEPUS comparatively less frequently for sending students abroad.

[4] Student mobility existed of course already before this academic year, but we could not access the data.

In terms of incoming students, however, Austria is by far in the lead with 5,231 incoming students within the CEEPUS networks as of the academic year 2005/2006. Overall this is a strikingly unbalanced situation for Austria with 4,267 incoming students more than outgoing ones since 2005/2006[5]. Less obvious, though, this holds also true for Slovenia, which had 1,225 incoming students more than outgoing ones, followed – with some distance – by the Czech Republic with a delta of 488 students. Bulgaria, Hungary, Moldova, and Slovakia have almost balanced incoming/outgoing student numbers. All the other countries had much higher numbers of outgoing students than incoming students.

Tab. 4: Incoming and outgoing students within CEEPUS networks since the academic year 2005/2006 until 2019/2020 differentiated by CEEPUS countries

Person Count	INCOMING																	Balance
OUT-GOING	AL	AT	BA	BG	CZ	HR	HU	MD	ME	MK	PL	RO	RS	SI	SK	XZ	Grand Total	
AL		61	2	10	18	6	20		2		19	3		22	19	1	183	-111
AT	9		5	33	126	162	143		8	7	158	73	41	127	72		964	4267
BA		162		20	35	123	8		1	6	18	12	50	238	19		692	-499
BG	2	220	3		123	50	107	8	35	13	103	124	39	89	125	1	1042	-29
CZ	5	658	11	114		283	200	4	30	18	365	168	52	254	494	4	2660	488
HR	6	618	26	47	439		192			22	241	77	92	587	275		2622	-757
HU	8	811	3	107	215	126	3		9	16	256	287	27	154	209		2231	58
MD		11	3	17	11	8	4			2	16	47	1	5	7		132	7
ME	1	138	4	33	73	35	18			11	38	27	10	111	54		553	-324
MK	2	100	9	40	27	58	24		9		25	5	41	108	19		467	-283
PL	23	609	15	150	685	251	323	82	63	20		280	73	204	1080	2	3860	-1330
RO	6	571	9	142	268	119	546	43	8	14	363		34	97	412		2632	-960
RS		367	45	107	125	181	257	2	11	21	120	123		406	207		1972	-1388
SI	1	375	52	33	207	235	82		7	24	101	39	82		162	1	1401	1225
SK	5	449	5	131	773	218	359		46	9	683	407	42	214			3341	-185
XZ	4	81	1	29	23	10	3			1	24			10	2		188	-179
Grand Total	**72**	**5231**	**193**	**1013**	**3148**	**1865**	**2289**	**139**	**229**	**184**	**2530**	**1672**	**584**	**2626**	**3156**	**9**	**24940**	**0**

Source: Central CEEPUS Office; own calculations

Next to almost 25,000 students, also 20,010 teachers have experienced mobility within CEEPUS networks since the academic year 2005/2006 (data of previous years were not available) (see Tab. 5). Thus, the number of teachers' mobility was almost as frequent as the number of students' mobility, which confirms the dual use of CEEPUS for the benefit of students AND teachers.

The incoming/outgoing patterns, however, look different for the teacher mobility than the student mobility. The countries with the highest numbers of outgoing teachers were Slovakia (3,146), Romania (2,647), Poland (2,599), Hungary (2,119), Serbia (2,113) and the Czech Republic (1,940). A 'middle' group consists of Croatia (1,346), Austria (1,120), and Bulgaria (1,049) followed with some distance by Slovenia (784). The highest number of incoming teachers went to Romania (2,998), Slovakia (2,945),

[5] This should not necessarily be seen as negative, because it has also a lot of advantages, not at least to attract and somehow emotionally bind future elites to a country.

and the Czech Republic (2,668), followed with some distance by Poland (2,290), Hungary (1,939), Austria (1,692) and Croatia (1,529).

The Czech Republic has received 738 teachers more than sent abroad (see Tab. 5). The delta between incoming minus outgoing teachers was also high in the case of Austria (572) and Romania (351). On the other hand, especially Serbia had considerably more outgoing teachers than incoming ones (delta of -1.094).

Tab. 5: Incoming and outgoing teachers within CEEPUS networks since the academic year 2005/2006 until 2019/2020 differentiated by CEEPUS countries

Person Count	INCOMING																Balance
OUT-GOING	AL	AT	BA	BG	CZ	HR	HU	MD	ME	MK	PL	RO	RS	SI	SK	XZ	Grand Total	
AL		24	2	7	7	15	25		4		16	15	4	9	12	9	149	-7
AT	32		18	121	109	104	143	3	12	10	133	177	65	39	120	34	1120	572
BA	1	37		21	27	53	4		16	4	5	24	113	28	15	1	349	23
BG	7	115	16		136	48	83	13	30	29	123	220	66	23	123	17	1049	134
CZ	6	137	12	103		247	149	10	27	11	351	247	54	36	548	2	1940	728
HR	12	152	71	46	300		117	1	11	24	175	112	91	77	147	10	1346	183
HU	15	271	9	48	219	123	2	3	5	12	255	571	139	37	408	2	2119	-180
MD		6		20	18	3	3		2	5	37	125	1	1	17		238	-91
ME	1	8	8	9	16	13	4	1		2	2	8	11	2	6		91	179
MK	2	33	9	36	28	33	15		15		11	14	22	18	22	3	261	-28
PL	26	219	5	186	516	205	212	32	55	20		372	71	42	618	20	2599	-309
RO	14	254	16	218	323	154	506	79	19	35	335		129	26	538	1	2647	351
RS	6	145	174	169	171	172	294	2	31	28	109	418		84	310		2113	-1094
SI	5	135	29	29	84	126	62	2	9	36	56	34	117		57	3	784	-304
SK	13	141	3	156	711	224	317	1	34	16	677	660	136	56		1	3146	-201
XZ	2	15		14	3	9	3			1	5	1		2	4		59	44
Grand Total	**142**	**1,692**	**372**	**1,183**	**2,668**	**1,529**	**1,939**	**147**	**270**	**233**	**2,290**	**2,998**	**1,019**	**480**	**2,945**	**103**	**20010**	**0**

Source: Central CEEPUS Office; own calculations

In addition to the mobility exchange within the CEEPUS networks, also more than 6,500 so called free-movers based on Art. 2, para 6 of the CEEPUS-3 treaty, were supported since the academic year 2005/2006 by CEEPUS.

At average, around 1,571 teachers and 2,106 students (both inclusive free-movers) have gained mobility experiences per academic year from 2005/2006 to 2018/2019, which is an impressive number.

4. Participation of CEEPUS countries in ERASMUS+

ERASMUS+ is the EU's programme to support education, training, youth and sport in Europe. Its budget of €14.7 billion provides opportunities for over 4 million Europeans (of which around 2 million are students and around 800,000 are lecturers, teachers, trainers, and education staff as well as youth workers[6]) to study, train, and gain experience abroad. The aim of ERASMUS+ is to contribute to the Europe 2020 strategy for growth, jobs, social equity and inclusion, as well as the aims of the EU's strategic framework for education and training.[7]

Eligible countries for ERASMUS+ are divided into two groups, Programme countries and Partner countries. Programme countries are eligible for all actions of ERASMUS+, while Partner countries can only take part in some, and are subject to specific conditions. All 28 EU Member States as well as North Macedonia and Serbia[8] are Programme countries. Albania, Bosnia and Herzegovina, Prishtina et al. and Montenegro are Partner countries. The ERASMUS+ programme is managed by the European Commission, the Education, Audiovisual, and Culture Executive Agency (EACEA), a series of National Agencies in Programme countries, and a series of National Offices in some Partner countries.[9]

Tab. 6: Participation of CEEPUS countries which are also ERASMUS+ programme countries in ERASMUS+ (2014/15 – 2016/17) differentiated by outgoing and incoming students/trainees and staff

	Outgoing students and trainees (2014/15 - 2016/17)	Incoming students and trainees (2014/15 - 2016/17)	Balance of students and trainees (incoming minus outgoing)	Outgoing staff (2014/15 - 2016/17)	Incoming staff (2014/15 - 2016/17)	Balance of staff (incoming minus outgoing)	Outgoing staff in % of R&D Personnel in the HES (headcount) (2015)
Austria	21,045	22,522	1,477	4,631	4,855	224	12.62
Bulgaria	7,070	3,919	-3,151	4,569	2,756	-1,813	57.82
Croatia	5,173	5,542	369	2,057	2,678	621	28.10
Czech Republic	24,223	28,536	4,313	8,982	9,128	146	37.48
Hungary	12,957	17,658	4,701	6,727	5,961	-766	43.00
Morth Macedonia	671	253	-418	181	486	305	6.10
Poland	48,939	45,582	-3,357	24,228	12,335	-11,893	34.29
Romania	20,459	9,415	-11,044	10,655	6,622	-4,033	20.36
Slovakia	11,437	5,938	-5,499	4,860	6,180	1,320	29.34
Slovenia	6,036	7,544	1,508	2,357	2,286	-71	56.31
Sum	**158,010**	**146,909**	**-11,101**	**69,247**	**53,287**	**-15,960**	**34.46**

Source: country factsheets published at https://ec.europa.eu/programmes/erasmus-plus/about/factsheets_en; accessed on 23 April 2019; own calculations (total of R&D staff in HES in 2015 in CEEPUS region in headcount is 200,957).

ERASMUS+ is a powerful programme even if only the field of higher education, as in this paper, is concerned. Tab. 6 shows the number of outgoing students and trainees as well as of staff members[10] from those CEEPUS countries that were also ERASMUS+ Programme countries in the period of 2014/15 until 2016/17. From these countries more than 158,000 students and trainees and more than 69,000

[6] The others are mainly pupils and apprentice.
[7] Information taken from https://ec.europa.eu/programmes/erasmus-plus/
[8] Serbia became Programme country on 5th February 2019.
[9] Information taken from https://ec.europa.eu/programmes/erasmus-plus/
[10] Please take note that the definition of "staff" differs between CEEPUS and ERASMUS+.

staff members were going to other countries in these three years. The incoming figures are in total lower: around 147,000 students and trainees and 53,000 staff members went to the CEEPUS region within the three years under scrutiny. Negative balances of both students/trainees and staff members (incoming minus outgoing) are observable for Bulgaria, Poland, and Romania.

Tab.6 also shows how intensively ERASMUS+ was used by staff members for outgoing mobility. Although ERASMUS+ statistics use a different definition for staff than R&D personnel according to OECD/Eurostat, the relation of the ERASMUS+ staff figures vis-a-vis R&D personnel in the Higher Education Sector (HES) in headcount (2015) gives a first rough approximation about how intensively ERASMUS+ was used for exchange of HES personnel. By deliberately ignoring – but nor forgetting - this haziness in definition one could estimate with caution that at average roughly around a fifth to a quarter[11] of R&D personnel from the CEEPUS countries were making use of ERASMUS+ (outgoing only) between 2014 and 2017. Although the comparability used here is limited, the leverage effect of Erasmus+ on personnel exchange can be considered as very high.

Tab. 7: Participation of CEEPUS countries which are ERASMUS+ partner countries in ERASMUS+ (2015-2018) differentiated by outgoing and incoming students/staff

	Students and staff moving to EU (2015-2018)	Students and staff moving to … (2015-2018)	Balance
Albania	3,434	1,952	-1,482
Bosnia and Herzegovina	3,703	2,185	-1,518
Prishtina et al.	1,866	918	-948
Moldova	1,276	603	-673
Montenegro	1,165	652	-513
Serbia[12]	6,913	4,319	-2,594
Sum	18,357	10,629	-7,728

Source: country factsheets published at https://ec.europa.eu/programmes/erasmus-plus/about/factsheets_en; accessed on 23 April 2019; own calculations

Since such detailed data were not available for those CEEPUS countries, which are not ERASMUS+ Programme countries but Partner countries until the end of 2018, Tab. 7 summarises basic information about the use of ERASMUS+ for these ERASMUS+ Partner countries with aggregated 2015-2018 data. Unfortunately, these data do not allow a differentiation between students and staff. From 2015 to 2018 more than 18,000 students and staff members from Albania, Bosnia and Herzegovina, Prishtina et al., Moldova, Montenegro and Serbia went to other ERASMUS+ countries. During the same period these countries received more than 10,000 incoming students or staff. The balance between incoming and outgoing is clearly negative in these countries.

Tab. 8 shows the student mobility in-between those CEEPUS countries that were also ERASMUS+ Programme countries in the study year 2016/2017. CEEPUS countries which were ERASMUS+ Partner countries are not taken into account because of missing data. As shown in Tab. 8, Austria - for instance - sent 354 students to the other CEEPUS countries under scrutiny in 2016/2017. These are 7.48% of all students sent by Austria. The geographical orientation of Austrian outgoing student mobility towards the CEEPUS region is thus far lower than the average of all CEEPUS countries that were also ERASMUS+ Programme countries in 2016/2017, which was 21.02%. Also the Czech Republic and Poland showed a lower than average outgoing student mobility towards the CEEPUS region, while all the other CEEPUS

[11] One should also bear in mind that one and the same person can have more than just 1 mobility grant in the three academic years under scrutiny (2014/15 - 2016/17) and that staff in ERASMUS+ includes also administrative personnel.

[12] Serbia became Programme country on 5th February 2019.

countries that were also ERASMUS+ Programme Countries in 2016/2017 show a higher than average orientation towards the CEEPUS region. This is especially true for North Macedonia. Almost 60% of the outgoing student mobility of North Macedonia supported under ERASMUS+ went to other CEEPUS countries, which were also ERASMUS+ Programme Countries in 2016/2017. High shares can also be found in Slovakia (40.9%), Croatia (39.14%) and Bulgaria (33.31%).

Tab. 8: Student mobility among CEEPUS countries in 2016/2017, which were also ERASMUS+ Programme Countries

	Receiving Country											
Sending Country	AT	BG	CZ	HR	HU	MK	PL	RO	SI	SK	Sum	CEEPUS-share
AT		10	134	22	32		78	16	47	15	354	7.48
BG	55		108	23	20	2	135	29	8	16	396	33.31
CZ	282	27		58	67	2	249	15	225	81	1,006	17.14
HR	85	3	111		21	3	158	2	70	21	474	39.14
HU	136	15	91	21			155	44	25	21	508	26.74
MK	9	28	6	46			14	22	29	4	158	58.30
PL	267	116	476	283	208	9		106	167	160	1,792	17.85
RO	79	26	131	31	334	3	357		24	37	1,022	27.47
SI	121	4	112	35	12		66	4		11	365	28.38
SK	106	18	455	50	72	2	197	9	69		978	40.90
Sum	1,140	247	1,624	569	766	21	1,409	247	664	366	7,053	21.02

Source: ÖAD; own calculations (in yellow strong relations [>25% of the total sum] are shown)

The yellow colour shows those CEEPUS countries, which are also ERASMUS+ Programme countries, to which more than 25% of all outgoing students of a certain country to another CEEPUS country were going to with the help of an ERASMUS+ mobility grant in 2016/2017. Please take note that this 25% benchmark refers only to outgoing student mobility within the CEEPUS family and not to all outgoing students to all ERASMUS+ Programme countries. One can see, for instance, that more than 25% of all students from Poland who went to another CEEPUS country, which was also an ERASMUS+ Programme country in 2016/2017, went to the Czech Republic. Other strong outgoing students ERASMUS+ relations above the 25% benchmark within the CEEPUS family are:

- students from Austria to the Czech Republic and vice versa (high reciprocity)
- students from Bulgaria to the Czech Republic and Poland
- students from Croatia to Poland
- students from Hungary to Poland and Austria
- students from North Macedonia to Croatia
- students from Poland to the Czech Republic
- students from Romania to Hungary and Poland
- students from Slovenia to Austria and the Czech Republic
- students from Slovakia to the Czech Republic

In general one can conclude that ERASMUS+ is frequently used for student mobility within the CEEPUS countries, which are also ERASMUS+ Programme countries. This statement, however, becomes even more relevant for staff mobility as shown in Tab. 9.

Staff mobility within ERASMUS+ is strongly oriented towards the CEEPUS countries which were also ERASMUS+ Programme countries in 2016/2017. At average, 42.94% of all outgoing ERASMUS+ staff mobility from the CEEPUS countries went to other CEEPUS countries (which were also ERASMUS+ Programme countries in 2016). Only the Austrian staff mobility (again) has a limited geographical orientation (around 16%) towards the other CEEPUS countries. Poland and Romania are slightly below average. Slovakia (75.6%), North Macedonia (67.4%) and Hungary (54.3%) show a clear above average geographical orientation towards the other CEEPUS countries.

Tab. 9: Staff mobility among CEEPUS countries in 2016/2017, which were also ERASMUS+ Programme Countries

	Receiving Country											
Sending Country	AT	BG	CZ	HR	HU	MK	PL	RO	SI	SK	Sum	CEEPUS-share
AT		6	30	13	22	1	28	30	20	4	154	15.99
BG	26		57	18	27	36	118	78	9	23	392	43.70
CZ	57	46		34	69	3	220	45	63	389	926	47.10
HR	11	6	10		11	6	27	1	36	12	120	48.78
HU	49	19	57	9			81	400	22	107	744	54.27
MK	1	7	1	5			3	2	12		31	67.39
PL	49	116	638	128	141	11		144	60	603	1,890	38.45
RO	25	98	43	21	279	6	107		25	47	651	36.47
SI	13	5	32	50	11	11	22	9		17	170	44.62
SK	2	11	404	21	58	3	205	21	15		740	75.59
Sum	233	314	1,272	299	618	77	811	730	262	1,202	5,818	42.94

Source: ÖAD; own calculations (in yellow strong relations [>25% of the total sum] are shown)

The yellow colour in Tab. 9 shows again those CEEPUS countries, which were also ERASMUS+ Programme countries in 2016/2017, to which more than 25% of all outgoing staff of a certain country under scrutiny, are going to. Please take note that this 25% benchmark refers again only to outgoing staff mobility within the CEEPUS family and not to all outgoing staff to all ERASMUS+ Programme countries. One can see, for instance, that more than 25% of all staff from Romania who went to another CEEPUS country, which was also an ERASMUS+ Programme country in 2016, went to Hungary. Other strong outgoing staff ERASMUS+ relations within the CEEPUS family above the 25% benchmark are:

- staff from Bulgaria to Poland
- staff from the Czech Republic to Slovakia and vice-versa (high reciprocity)
- staff from Croatia to Slovenia and vice-versa (high-reciprocity)
- staff from Hungary to Romania and vice-versa (high reciprocity)
- staff from North Macedonia to Slovenia
- staff from Poland to the Czech Republic
- staff from Poland to Slovakia and vice-versa (high reciprocity)

In general one can conclude, that ERASMUS+ is frequently taken-up by the CEEPUS countries in general, and in particular also for mobility within the CEEPUS region.

5. Participation of the CEEPUS Countries in HORIZON 2020

By the cut-off date of 21.1.2019 all CEEPUS countries together had 10,157 participations in Horizon 2020. 1,370 Horizon 2020 projects were coordinated by institutions from the CEEPUS countries. They were awarded with a financial contribution by the EC amounting to €2,641m. Although this looks impressive, the distribution among the CEEPUS countries varies considerably (see Tab. 10). Austria, the most involved CEEPUS country in Horizon 2020, accounts for 28.74% of all participations, 41.93% of all financial contributions from the EC and 40.73% of all coordinators.

Tab. 10: Participation, funding and coordination of CEEPUS countries in Horizon 2020

Country	No. Participations	In % of all participations from CEEPUS countries	Funding by EC (in 1000 €)	In % of funding received by all CEEPUS countries	No. coordinators	In % of all coordinators from CEEPUS countries
Austria	2,919	28.74	1,107,517	41.93	558	40.73
Poland	1,614	15.89	364,859	13.81	206	15.04
Czech Republic	1,053	10.37	254,229	9.62	114	8.32
Romania	896	8.82	138,515	5.24	57	4.16
Hungary	888	8.74	226,005	8.56	144	10.51
Slovenia	839	8.26	221,229	8.38	114	8.32
Bulgaria	504	4.96	75,294	2.85	43	3.14
Croatia	437	4.30	66,327	2.51	30	2.19
Slovakia	416	4.10	92,091	3.49	46	3.36
Serbia	339	3.34	72,277	2.74	37	2.70
North Macedonia	66	0.65	7,297	0.28	5	0.36
Bosnia and Herzegovina	63	0.62	5,483	0.21	7	0.51
Moldova	56	0.55	5,088	0.19	5	0.36
Montenegro	29	0.29	1,583	0.06	4	0.29
Albania	27	0.27	2,443	0.09	0	0.00
Prishtina et al.	11	0.11	1,127	0.04	0	0.00

Source: eCorda, cut-off date of 21.1.2019

Data in Tab. 10 clearly show that participation of CEEPUS countries in Horizon 2020 is highly skewed. Austria, Poland and the Czech Republic account together for more than 50% of all participations. These countries are followed by a "cluster"- comprised of Romania, Hungary and Slovenia - with almost identical participation shares. The third "cluster" includes Bulgaria, Croatia, Slovak Republic and Serbia.

The absolute participation numbers, however, say little if they are not related to a country's R&D capacity, which – in the following case – is approximated by the number of full-time-equivalents (FTE) of total R&D personnel[13].

[13] Eurostat data from last available year: 2017; except Montenegro (2016), Bosnia and Herzegovina (2014). In Albania, Prishtina et al. and Moldova the number of R&D personnel in FTE is not reported. See also https://ec.europa.eu/eurostat/statistics-explained/index.php/R_%26_D_personnel; accessed on 13 April 2019.

Tab. 11: Participation in Horizon 2020 by 1000 R&D personnel in the CEEPUS countries

Country	SI	ME	AT	HR	BA	MK	RO	HU	SK	BG	RS	CZ	PL
Part. by 1000 R&D personnel	57	46	37	37	36	35	27	22	22	22	16	15	11

Source: Eurostat; 2017; except Montenegro (2016), Bosnia and Herzegovina (2014). In Albania, Prishtina et al. and Moldova the number of R&D personnel in FTE is not reported

Tab. 11 shows the number of participation by 1,000 of R&D personnel in FTE, which makes it more evident, that the participation distribution is much more balanced if we relate it to the country's capacity (expressed in total R&D personnel in FTE). The countries which are using Horizon 2020 in relation to their R&D capacity most efficiently are Slovenia (57 participations by 1,000 R&D personnel in FTE) and Montenegro (46). They are followed by a second cluster consisting of Austria (37), Croatia (37), Bosnia and Herzegovina (36) and North Macedonia (35). The third cluster consist of Romania (27), Hungary (22), Slovak Republic (22) and Bulgaria (22), followed by Serbia (16), Czech Republic (15) and Poland (11). FTE data are not available for Albania, Prishtina et al. and Moldova. This leads to the conclusion that in relation to the available R&D capacity, Horizon 2020 is not a programme for researchers coming only from the so called group of EU-15 member states, but that also a number of smaller countries from Central Europe and South-East Europe are efficient users and beneficiaries.

Tab. 12: GERD in mio. € per participation in Horizon 2020 and GERD by 1 € funding received from Horizon 2020 in the CEEPUS countries

Country	ME	MK	BA	BG	SI	HR	RS	RO	SK	HU	PL	CZ	AT
GERD in mio. € per particip.	0.44	0.54	0.58	0.77	0.95	0.97	1.01	1.05	1.80	1.88	3.00	3.26	4.0
x € GERD by 1 € H2020 funding	8.11	4.88	6.69	5.16	3.62	6.39	4.74	6.82	8.13	7.40	13.25	13.50	10.55

Source: Eurostat; 2017; except Montenegro (2016), Bosnia and Herzegovina (2014). Data about Albania, Prishtina et al. and Moldova are not reported by Eurostat.

Another different picture is shown in Tab. 12 when, firstly, the number of participations in Horizon 2020 is related to the general internal expenditures for R&D (GERD) in million Euro across all sectors in a country under scrutiny. Also GERD can be considered as a proxy for a country's R&D potential and capacity. This relational indicator shows the hypothetical investment of a country expressed in millions of Euros to achieve one single participation in Horizon 2020. This indicator is clearly positively skewed towards those countries whose GERD is low. According to this indicator, Montenegro hypothetically invests just €0.44m to achieve one single participation, while Austria - on the other side of the spectrum - invests hypothetically €4m for one single participation. The Austrian effort expressed in GERD is thus hypothetically 9 times higher than the one of Montenegro. This indicator clearly has its weaknesses and should thus be interpreted with care, because low GERD, which could lead to the believe of a high efficiency in this context, is in fact detrimental to a functional national R&I system.

In Tab. 12 we alternatively also put the general internal expenditures for R&D (GERD) in million Euro across all sectors in a country under scrutiny in relation to the funding received through Horizon 2020. This indicator shows how many Euros, which a country under scrutiny invests in R&D (GERD), generate – again hypothetically - one Euro of EC funding via Horizon 2020. Here we have on one side of the spectrum Slovenia with a 3.62 : 1 relation. This is caused by Slovenia's relatively high funding inflow from Horizon 2020 based on its successful participations as well as by its relatively low absolute GERD.

On the other side of the spectrum one can find the Czech Republic with a 13.50 : 1 ratio. The reason for this is that the Czech Republic receives only slightly more funding from Horizon 2020 than Slovenia, but invests 4.2 times more GERD absolutely. It is also fair to say that the Czech Republic has 4.7 times more R&D personnel than Slovenia.

A cautious conclusion of these two indicators is, that the striking imbalance shown in table 10, which is based on absolute numbers, and which seems to confirm the general opinion that the European Framework Programme one-sidedly favours the "old member states"[14] cannot be hold up so simply if we relate the numbers to the available R&D capacities of the countries, either expressed in R&D personnel in FTE or in GERD.

6. Participation of CEEPUS countries in Marie Skłodowska-Curie Actions

While we could show in the previous section that Horizon 2020 is not as negative for most CEEPUS countries as often depicted in public and policy discussions, if we fair enough relate the participation in Horizon 2020 to the available national capacities, we also need to stress that the majority of Horizon 2020 funding still goes to collaborative research and innovation projects, which are not comparable to what CEEPUS networks are usually doing. CEEPUS networks, however, can of course make use of Horizon 2020 especially if they want to enlarge their activities towards collaborative research endeavours. By purpose they already constitute a nucleus of network partners, which could facilitate the formation of Horizon 2020 consortia.

Within Horizon 2020 the Marie Skłodowska-Curie Actions (MSCA) are a more comparable and probably also a more logical step for the extension and potential transition of CEEPUS networks. The Marie Skłodowska-Curie Actions consist of the following sub-instruments[15]:

1. Co-funding of regional, national and international programmes that finance fellowships involving mobility to or from another country (COFUND): COFUND offers additional funding to regional, national and international programmes for research training and career development. The scheme can support doctoral and fellowship programmes.
2. Individual Fellowship (IF): IF supports the mobility of researchers within and beyond Europe - as well as helping to attract the best foreign researchers to work in the EU.
3. International Training Network (ITN): ITNs support competitively selected joint research training and/or doctoral programmes, implemented by European partnerships of universities, research institutions, and non-academic organisations.
4. International and inter-sectoral cooperation through the Research and Innovation Staff Exchanges (RISE): RISE supports short-term mobility of research and innovation staff at all career levels, from the most junior (post-graduate) to the most senior (management), including also administrative and technical staff. It is open to partnerships of universities, research institutions, and non-academic organisations both within and beyond Europe.
5. The European Researchers' Night (NIGHT): It is a Europe-wide public event to stimulate interest in research careers, especially among young people. It is not considered in this analysis!

The analysis of data shown in Tab. 13 shows several interesting aspects:

Firstly, MSCA supported mobility is a given fact throughout the CEEPUS region, but participation of CEEPUS countries in MSCA is uneven. We can distinguish the following clusters:

[14] See for instance: Fresco et al., 2015; MIRRIS, 2016, Harrap and Doussineau, 2017, Ukrainsky et al., 2018, Özbolat and Harrap, 2018; Rauch and Sommer-Ulrich, 2012; Schuch, 2014.

[15] Definitions taken from https://ec.europa.eu/programmes/horizon2020/en/h2020-section/marie-sklodowska-curie-actions.

a) Poland and Austria have the highest engagement numbers (and corresponding funding inflow). These engagement numbers are influenced by the size or capacity of the country.
b) In the second cluster we find a number of mid-sized "new" member states, namely Romania, the Czech Republic, Slovak Republic, Hungary, and Bulgaria as well as the smaller-sized Slovenia.
c) Serbia and Croatia are the most involved countries from the so called "Western Balkan" region.
d) All other countries, maybe except Moldova, show very low involvement rates.

Secondly, only Austria has a positive inward-outward balance. All the other countries (except Prishtina et al., which is statistically not significant due to the very low absolute numbers) show more outgoing than incoming researchers.

Thirdly, the average success rate in MSCA among the EU Member States is 13.12%, among the Associated Countries 12.66% and among the Third Countries 21.06%. Considerably higher success rates have been achieved by Bosnia and Herzegovina and Bulgaria and considerably lower ones by North Macedonia, Slovenia and Prishtina et al. All the others, i.e. the majority of CEEPUS countries, meander around the average rates.

Tab. 13: Participation, success rates, networks and EU contribution received by CEEPUS countries in MSCA

CEEPUS Country	No. of domestic re-searchers funded by MSCA	No. of re-searchers going to …	Inward-outward difference	EU contribution to domestic org-anisations (in mio. €)	Success rate	CEEPUS countries among the top 10 incoming and outgoing countries	R&D person-nel (in FTE)	Sum of inward + outward mobility by 1000 R&D personnel
AL	24	4	-20	0.08	11.54	AT	N/A	N/A
AT	249	565	316	91.63	13.84	PL, SK, RO	77,880	10.45
BA	30	7	-23	0.98	27.78	SL, RS, BA, AT, HR	1,767	20.94
BG	158	81	-77	6.07	20.21		23,290	10.26
CZ	206	141	-65	27.51	10.05	SK, PL, AT	69,736	4.98
HR	108	44	-64	6.37	11.62	BA, RS, RO, SK, AT	11,778	12.91
HU	178	85	-93	14.24	10.26	SK, RS, AT,	40,432	6.50
MD	35	23	-12	1.24	10.99	RO	N/A	N/A
ME	10	0	-10	0.08	13.04	HU, SK	624	16.03
MK	18	0	-18	0.28	5.56	AT, CZ	1,870	9.63
PL	654	343	-311	51.52	13.76	SL, SK, CZ	144,103	6.92
RO	253	97	-156	10.26	14.26	HR, AT	32,586	10.74
RS	182	40	-142	5.65	16.5	BA, SK	20,788	10.68
SL	150	118	-32	13.76	8.19	PL, AT	14,713	18.22
SK	154	126	-28	7.58	12.5	CZ, HU, PL, RS, AT,	19,011	14.73
XK	1	4	3	N/A	8.33		N/A	N/A

Source: data published in country sheets by EC: https://ec.europa.eu/research/mariecurieactions/msca-numbers_en. Last refresh date: 5/12/18; 8/01/19

Fourth, MSCA is already used for exchange among the CEEPUS countries too, although with large differences between the countries. Bosnia and Herzegovina, Croatia and Slovak Republic organise

mobility exchanges through MSCA in the CEEPUS area quite intensively, while Bulgaria and Prishtina et al. show non-CEEPUS countries' related mobility patterns.

Fifth, if we relate the sum of inward and outward mobility of each CEEPUS country to its capacity approximated by the number of R&D personnel in full-time equivalents, then we can see that Bosnia and Herzegovina, Slovenia, Montenegro and the Slovak Republic are those CEEPUS countries, which relatively make most efficient use of MSCA. The Czech Republic, Hungary and Poland are – in relation to their number of R&D personnel in full-time equivalents – positioned on the other side of the spectrum.

We can conclude that, in general, MSCA is partially an alternative already used by CEEPUS countries to support mobility of researchers, although it is one of the most competitive sub-programmes in Horizon 2020. The absolute numbers, however, are still very marginal in the smaller so called Western Balkan countries, which, however, is mostly caused by their limited capacities. Probably one could increase the number of mobility also by better information provision, training and match-making between potential partners.

The comparatively lower income attractiveness, however, remains a striking problem among all CEEPUS countries (with exception of Austria), which most probably can only be solved in the long run by considerable more investments in R&I infrastructures and increasing salaries.

7. Participation of CEEPUS countries in COST actions

COST is the oldest established European research programme and contributes actively to the *'Spreading Excellence and Widening Participation'* goal of HORIZON 2020 with a strong focus on the so called COST Inclusiveness Target Countries (ITC). The ITC subsume all CEEPUS countries with exception of Austria, due to its above average R&I performance, and Prishtina et al., which is not a COST member. Half of COST's total budget should be of direct benefit to the ITC. A strong focus is on the inclusion of early-stage researchers.

Tab. 14: Participation of CEEPUS countries in running COST actions.

CEEPUS Countries	Participations	Chairs	Vice-chairs
Poland	273	7	7
Serbia	261	0	3
Croatia	260	3	6
Austria	247	8	7
Romania	237	0	2
Slovenia	236	1	4
Czech Republic	230	3	6
Hungary	223	1	4
Bosnia and Herzegovina	207	1	1
Bulgaria	197	0	0
North Macedonia	188	0	3
Slovakia	174	0	1
Montenegro	92	0	0
Albania	27	0	0
Moldova	13	0	0

Data from COST (2019) Annual Report 2018, published on April 9, 2019.

The COST programme funds thematic networks which enable cooperation among scientists and researchers (including early-stage career researchers) across Europe. COST is 'bottom-up' and funds thematic networks in all research areas. Scientists and researchers can participate in science and technology networks known as COST Actions through either being part of a new proposal or joining an existing COST Action. COST Actions are basically networking instruments to co-operate and co-ordinate nationally-funded research activities. COST, however, does not fund research itself.

Tab. 14 shows the participation of CEEPUS countries in the 291 running COST actions (in 2018). The high involvement of researchers from all CEEPUS countries is visible. Only Albania and Moldova have comparatively lower participation numbers. As regards the number of chairs and vice-chairs, Austria, Poland, Croatia and the Czech Republic are in the lead. Particularly evident, however, is that no running COST action is chaired by Serbia, Romania and Bulgaria.

Tab. 15 shows data from 2017 taken from COST (2018). Data for Moldova are incomplete, probably caused by the fact that Moldova just became full COST member in November 2018. Although the University of Pristina is participating in one COST action, data for Prishtina et al., which is not a COST member, are not available.

Tab. 15: Participation of CEEPUS countries in COST 2017[16]

CEEPUS country codes	Country representation in COST activities	Leadership position in COST action	Individual participation in all action activities	Budget received by COST for networking activities	R&D personnel (in FTE)	Individual participation by 1000 R&D personnel
AL	49	0	29	23,524.45	N/A	N/A
AT	285	52	734	558,189.60	77,880	9.42
BA	196	8	256	207,025.21	1,767	144.88
BG	213	15	441	343,935.94	23,290	18.94
CZ	253	36	829	625,778.90	69,736	11.89
HR	289	25	753	602,959.64	11,778	63.93
HU	253	26	649	466,505.41	40,432	16.05
MD	40	0	N/A	10,454.08	N/A	N/A
ME	86	1	84	76,668.73	624	134.62
MK	194	17	405	329,770.67	1,870	216.58
PL	313	64	1.284	977,799.12	144,103	8.91
RO	261	15	617	488,156.76	32,586	18.93
RS	286	35	975	797,001.25	20,788	46.90
SI	268	34	659	531,422.77	14,713	44.79
SK	200	7	434	305,050.56	19,011	22.83

Source: COST (2018); data for 2017; https://www.cost.eu/who-we-are/members/v

The results shown in Tab. 15 clearly demonstrate that COST fulfils its intention to spreading excellence and widening participation. The CEEPUS countries, which are also COST members, clearly benefit from the programme. The unique position, which Austria has among the CEEPUS countries in collaborative projects and MSCA in Horizon 2020, is no longer visible in COST. As shown in Tab. 15, COST is intensively used by almost all CEEPUS countries, also in absolute numbers. In relation to the available capacity (approximated by the number of R&D personnel in full-time equivalents) COST is

[16] It seems that in COST (2018) are some data inconsistencies on which we have no influence.

comparatively highest used by North Macedonia, Bosnia and Herzegovina, and Montenegro, followed by a second cluster consisting of Croatia, Serbia and Slovenia.

8. Summary and Conclusions

1. Since 25 years, **CEEPUS has a great impact on capacity development** in the field of higher education in Central and Southeast Europe. **Students and teachers benefit likewise**. **The demand for CEEPUS is not declining despite the competition from other programmes. The procedures of CEEPUS are known and it is a comparatively non-expensive mobility programme with a lean management.**

2. **CEEPUS is utilised by all CEEPUS countries.** There are no obvious outsiders. The ratio between the country with the lowest network participation (Prishtina et al.) and the country with the highest network participation (Poland) is only 1:14. **The use of CEEPUS confirms a rather compact pattern given the very different sizes and R&D capacities of the CEEPUS countries. It also shows that within CEEPUS *"no one has been left behind".***

3. **Normalised by the R&D capacity of each CEEPUS country, the relative highest participation within CEEPUS comes from the successor states of the former Yugoslavia as well as from Slovakia. These countries have a high pervasion of CEEPUS and their HEI are frequently using CEEPUS to maintain "old" networks and establish new one.**

4. Most of the CEEPUS countries have a "regular" ratio of around 1 coordination : 14 participations. **Austria and Slovenia have relatively much higher network coordination shares than participation shares. This could have different causes, such as (i) a higher strategic ownership, (ii) available functional network management capacities and/or (iii) some kind of (attributed or self-imposed) leadership attribution.** Also a historic heritage can be assumed since both countries are CEEPUS founding members.

5. As of the academic year 2005/2006[17] **almost 25,000 students and 20,010 teachers have been exchanged within CEEPUS networks** (without free-movers). Thus, **the number of teachers' mobility was almost as frequent as the number of students' mobility, which confirms the dual use of CEEPUS for the benefit of students AND teachers.**

6. Not surprisingly, Poland – the largest CEEPUS country - sent the highest number of students (3,860) in this period, followed by Slovakia (3,341). By comparing the mobility numbers with the absolute number of students enrolled in a country, **it becomes obvious how intensively the Slovak universities are using CEEPUS for sending students abroad. This holds also true for Croatia and – to a lesser extent in absolute numbers – for Slovenia. On the other hand, Austria and Bulgaria are using CEEPUS comparatively less frequently for sending students abroad.**

7. **In terms of differences between outgoing and incoming students there are striking imbalances among the CEEPUS countries.** Austria, but also to a minor extent Slovenia and the Czech Republic, have considerably more incoming than outgoing students.

8. The incoming/outgoing patterns, however, look different for teacher mobility than for student mobility. **The countries with the highest numbers of outgoing teachers were Slovakia, Romania, Poland, Hungary, Serbia and the Czech Republic. The highest number of incoming teachers went to Romania, Slovakia, and the Czech Republic. The delta between incoming minus outgoing teachers was highest in the case of the Czech Republic, Austria and Romania**.

[17] Student mobility existed of course already before this academic year, but we could not access the data.

On the other hand, especially Serbia had considerably more outgoing teachers than incoming ones.

9. In addition to the mobility exchange within the CEEPUS networks, **also more than 6,500 so called free-movers** based on Art. 2, para 6 of the CEEPUS-3 treaty, **were supported by CEEPUS since the academic year 2005/2006.**

10. **At average, around 1,571 teachers and 2,106 students have gained mobility experiences through the support of CEEPUS per academic year from 2005/2006 to 2018/2019! This is a substantial number, which, however is outnumbered by ERASMUS+** (see the following points).

11. **By the considerable extension of ERASMUS+ to the region under scrutiny, CEEPUS has to a certain extent lost its USP in terms of content (i.e. mobility exchange in HEI networks) as well as in terms of its geographical orientation. This holds especially true for the ERASMUS+ Programme countries.** All 28 EU Member States as well as North Macedonia and Serbia[18] are Programme countries. Albania, Bosnia and Herzegovina, Prishtina et al. and Montenegro are Partner countries.

12. **At average, more than 20,000 teachers and around 50,000 students and trainees from the CEEPUS countries, which are also ERASMUS+ Programme countries, have gained outgoing mobility experiences per academic year from 2014/2015 to 2016/2017**.

13. In terms of incoming mobility, around 50,000 students and trainees and more than 17,000 staff members went to the CEEPUS region per academic year from 2014/2015 to 2016/2017.

14. Thus**, the leverage effect of ERASMUS+ on the exchange of personnel and students can be considered as very high. These outgoing and incoming mobility numbers in ERASMUS+ excel the CEEPUS mobility numbers by far.** However, it has to be noted, that ERASMUS+ mobility is not limited to the CEEPUS region!

15. **Our analysis shows that ERASMUS+ is also frequently used for intra-regional cooperation (i.e. in the CEEPUS region). In the study year 2016/2017**, **at average 21.02% of all outgoing students from the CEEPUS countries, which are also ERASMUS+ Programme countries, were going to another CEEPUS country.** The geographical orientation of Austrian outgoing student mobility within ERASMUS+ towards the CEEPUS region was the lowest among all CEEPUS countries. Also the Czech Republic and Poland showed a lower than average outgoing student mobility towards the CEEPUS region. These three countries have a more expressed "west"-orientation in ERASMUS+ than the others. All the other CEEPUS countries that were also Erasmus+ Programme countries in 2016/2017, show a higher than average orientation towards the CEEPUS region. This is especially true for North Macedonia, Slovakia, Croatia and Bulgaria.

16. Although these numbers have to be treated with care due to definition differences, this would mean that **in 2016 around 10,000 students from CEEPUS countries went to another CEEPUS country by using ERASMUS+. This is up to almost 5 times higher than the corresponding mobility supported by CEEPUS.**

17. **Staff mobility within ERASMUS+ was even more strongly oriented towards the CEEPUS countries**, which were also ERASMUS+ Programme countries, in 2016/2017. **At average, 42.94% of all outgoing ERASMUS+ staff mobility from the CEEPUS countries went to other CEEPUS countries** (which were also ERASMUS+ Programme countries in 2016). **Only the Austrian staff mobility has a limited geographical orientation towards the CEEPUS region**, which underlines the somewhat different profile of Austria. By making use of ERASMUS+, especially staff from Slovakia, North Macedonia and Hungary shows a clear above average geographical orientation towards the other CEEPUS countries.

[18] Serbia became Programme country on 5th February 2019.

18. Although the definition "staff" in ERASMUS+ includes also administrative capacities (while the focus in CEEPUS is on teaching and research), **this would most probably also mean that the exchange within the CEEPUS region of non-student faculty is in absolute numbers more supported by ERASMUS+ than by CEEPUS.**

19. **Clear negative 'incoming minus outgoing balances' of students/trainees and staff members in ERASMUS+ are observable** for Bulgaria, Poland, and Romania as well as in the CEEPUS countries, which are "only" ERASMUS+ Partner countries (including Serbia, which just became ERASMUS+ Programme country early this year).

20. By the cut-off date of 21.1.2019 **all CEEPUS countries together had 10,157 participations in Horizon 2020.** 1,370 Horizon 2020 projects were coordinated by institutions from the CEEPUS countries. They were awarded with a financial contribution of €2,641m by the EC. **Although this looks impressive, the distribution among the CEEPUS countries varies considerably.** Austria, the most involved CEEPUS country in Horizon 2020, accounts for 28.74% of all participations, 41.93% of all financial contributions from the EC and 40.73% of all coordinators. **Austria, Poland and the Czech Republic account together for more than 50% of all participations in the CEEPUS region.**

21. This striking imbalance seems to confirm the often heard opinion that the European Framework Programme one-sidedly favours some countries. If the number of participation, however, is related to a country's R&D capacity (e.g. approximated by R&D personnel in FTE), than it becomes evident, that the participation distribution is much more balanced. The countries which are using Horizon 2020 in relation to their R&D capacity most efficiently are Slovenia (57 participations by 1,000 R&D personnel in FTE) and Montenegro (46). They are followed by a second cluster consisting of Austria (37), Croatia (37), Bosnia and Herzegovina (36) and North Macedonia (35). This leads to the conclusion that in relation to the available R&D capacity, Horizon 2020 is not only a programme for researchers coming from the so called group of EU-15 Member States, but that also **a number of smaller countries from Central Europe and South-East Europe are efficient users and beneficiaries.**

22. Since, however, the majority of Horizon 2020 funding goes to collaborative research and innovation projects, which are not comparable to what CEEPUS networks are usually doing, the **Marie Skłodowska-Curie Actions (MSCA) are a more comparable and probably also a more logical step for the extension and potential transition of CEEPUS networks.**

23. **MSCA supported mobility is already a given fact throughout the CEEPUS region, but participation of CEEPUS countries in MSCA is uneven and much lower than in CEEPUS or ERASMUS+.** Only Austria has a positive inward-outward balance. Moreover, **MSCA in general is mostly not used for exchanges within the CEEPUS region** (exceptions are Bosnia and Herzegovina, Croatia and the Slovak Republic).

24. The average success rate in MSCA among the EU Member States is 13.12% and among the Associated Countries 12.66%. Considerably higher success rates have been achieved by Bosnia and Herzegovina and Bulgaria and considerably lower ones by North Macedonia, Slovenia and Prishtina et al. In general, however, **MSCA is highly competitive and not a safe harbour for making a cooperation or mobility strategy depending on it** (alone)**.**

25. **If the sum of inward and outward mobility achieved under MSCA of each CEEPUS country is related to its capacity approximated by the number of R&D personnel in full-time equivalents, then Bosnia and Herzegovina, Slovenia, Montenegro and the Slovak Republic are those CEEPUS countries, which relatively make most efficient use of MSCA** (but with low absolute numbers compared to the mobility effort supported by CEEPUS or ERASMUS+).

26. **COST has a strong focus on the so called COST Inclusiveness Target Countries (ITC).** The ITC subsume all CEEPUS countries with exception of Austria, due to its above average R&I performance, and Prishtina et al., which is not a COST member.

27. **The involvement of all CEEPUS countries in COST is high.** Only Albania and Moldova have comparatively lower participation numbers. The unique position, which Austria has among the CEEPUS countries in collaborative projects and MSCA in Horizon 2020, is no longer visible in COST.

28. **As regards the number of chairs and vice-chairs in COST actions, Austria, Poland, Croatia and the Czech Republic are in the lead.** Particularly evident, however, is that no running COST action is chaired by Serbia, Romania and Bulgaria.

29. **In relation to the available capacity (approximated by the number of R&D personnel in full-time equivalents) COST is comparatively most efficiently used by North Macedonia, Bosnia and Herzegovina, and Montenegro, followed by a second cluster consisting of Croatia, Serbia and Slovenia.**

30. **In case that CEEPUS should be phased out, ERASMUS+, MSCA and COST still support the mobility of researchers/teachers (including early stage career researchers), but student mobility is mostly only supported then by ERASMUS+** (and a plethora of individual national/regional and philanthropic schemes, but not in networks and often not under joint degree or double degree frameworks).

9. Literature

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