How Hard Can It Be?

Findings of the European Catch-Up Index 2018

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March 2019

About EuPI

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Web-site http://www.osis.bg
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About the report

The report "How Hard Can it Be: Findings of the European Catch-Up Index 2018" presents the findings of the European Catch-Up Index project of the European Policies Initiative (EuPI) of the Open Society Institute - Sofia with funding provided by OSI-Sofia. This product is for non-commercial use only. The views expressed in the report are those of the author and do not necessarily reflect the views of the Open Society Institute – Sofia.

Contents

Results of the Catch-Up Index 2018

About the Index 2018[1]

The Catch Up Index measures the performance of 35 countries – the EU member states, the candidate and potential candidate countries across four categories - Economy, Quality of Life, Democracy and Governance, using 47 basic indicators. There are scores for each category and an Overall Score, composed of the scores for the four categories, based on a scale from 100 to 0, highest to lowest. The standardized scores allow for rankings the countries from 1 to 35, highest to lowest position.

The primary goal of the Catch-Up Index is to measure how the newer EU member states (dubbed EU10+1) from Central and Eastern Europe are catching-up with their counterparts to the West, i.e. the older member states (dubbed EU15+2 as Malta and Cyprus are included). The candidate countries – CC – and the Potential Candidate Countries – PCC – are also included in the Index. It is easier to track catching-up in the economy, but the Index methodology allows for comparing the convergence in additional, important areas of development. In short, the Index attempts to measure the "average European levels" that the countries and citizens in the newer member states aspire to reach. The Index results can serve the broader purpose of assessing the processes of convergence and divergence in Europe across the four categories and the multiple indicators, compare countries and groups of countries and look for relationships between different factors.

This is the eight edition of the Catch-Up Index, with the first report released in 2011 and published every year. This allows for multi-year comparisons and registering longer term trends. As the current Index is based mostly on data released in 2018 with the latest available, but not later than 10 January 2019, it is referred to as "Index 2018" though it is published in 2019 and the name convention has been applied for all previous editions of the Index.

The Index uses the term "new member states" to designate the countries of CEE that joined the EU with the fifth wave of enlargement in 2004 and 2007 and Croatia, which joined in 2013. Despite that there is considerable amount of time passed and many countries object being called "new", there are still common characteristics and trends of these countries as a group that make studying their experience valuable.

It should also be noted that the Catch-Up Index registers performance on per capita basis, thus eliminating the size of a country (or the overall country GDP) as a factor. In case the countries have substantial intra-regional differences, they are not taken into account as it is the country average and per capita that matter in this case. The Index does not register internal country regional differences due to methodological and technical complexity, although that was considered when initially designing the Index.

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[1] Disclaimer: The latest used data in the Catch-Up Index 2018 is as of 10 January 2019. Missing data was replaced using imputation procedures as explained in the supplements of this report.

The Context of Index 2018: Will be there a Splendid Self-Isolation of CEE after Brexit?

At the time of writing in late 2018 and early 2019, Brexit seems to be imminent, but not quite there yet. This has been the situation for the past couple of years, leading many to the conclusion that there might not be exit after all. But as things stand now in UK politics, there will be Brexit sooner or later. It will be nothing short of a disaster for both the UK and its EU partners, and the only questions are "when" and "how" it will happen as especially no-deal circumstances will be especially devastating.

The question what will happen after Brexit to the EU and Europe in general is of paramount importance. There are several hypotheses. One of them is that the shock of Brexit would bring about a chain reaction of cooperation and integration among the rest of the EU countries. There are two facts that bring credibility to this line of thinking: the public support for the EU in the remaining countries vastly increased after UK's referendum and that the EU27 have held their unity throughout the negotiations.

However, there is a caveat in this scenario as there are substantial concerns that the growing nationalism and populism might not only put a break to the ambitions of bringing Europe together, but actually undo much of the progress. The upcoming European elections in May 2019 will be a substantial test for different visions of Europe.

But there is another option, which might include a number of EU member states forging ahead with their plans and leaving behind those unwilling or unable to keep pace with them. Logically, the core of Europe around Germany and France might take the lead, as indicated by the Aachen Treaty of 2019 between the two countries affirming their cooperation. A number of other countries might join them or even lead towards such a future, as within the EU even smaller countries can have larger weight.

And while the Catch-Up Index is not meant to gauge the political situation to show those willing and unwilling, it can indicate the capacity of the European states to shape such a new future. Especially, the Index clusters show the groups of countries with identical characteristics and therefore capacity. First of all, there are the Northern and Western European countries that may form such a core – with their developed economies, high standards of living, well governed and with high quality of democracy. The similarity would ensure that the countries can take and pursue more easily decisions. The problem with the departure of the UK is that an influential liberal democracy and big economy would leave and lose its leverage (and very much likeminded to the others, Brexit won with slight majority notwithstanding).

On the other side of the best performers in the Index are the Southeast European states, which are underperforming in the Economy, Quality of Life, Democracy and Governance, some of them EU member states and others are candidate countries. The problem with this (assuming there is no lack of political determination) is that they would have lower implantation capacity in addition to that the countries might have different policy agendas.

In addition to these contrasting groups in Northwest and the Southeast, broadly speaking there are other groups in the EU. One of them might be the Southern European countries, which are often close to the best performers, but are not part of them. And then there are the new EU member states in CEE,

which joined in 2004, 2007 and 2013. Their overall goal was the "return to Europe" and catching-up with their Western counterparts in every respect. Fast forward to the situation in 2019, there seems to be a very different situation with several different characteristics. Firstly, this is not a uniform group by itself. Some countries have continued to pursue the catching-up paradigm the old fashioned way – e.g. recognizing that economic and democratic development is related to good governance and quality of life. Estonia is the example of such a country as it is either first or among the top three in the four categories of the Index in recent years and overall the best performer in the group. Then there are countries such as Hungary and Poland, which governments decided that they will pursue their own path by decoupling for example the Economy and Democracy. In the previous Index 2017 this showed up as they continued to perform well in the Economy, despite their regress in Democracy, which was uncommon pattern (only Turkey has showed such a trend). But in the new Index 2018, the two
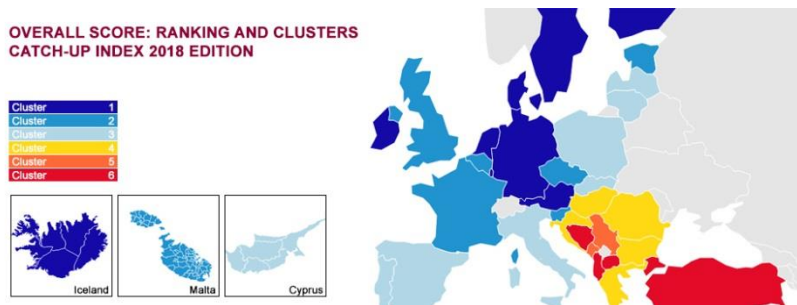
countries, while retaining reasonable performance in Economy, backslid in Quality of Life, Governance and Democracy. It remains to be seen by future Index editions whether this model of keeping good economy and quality of life, but limiting liberal democracy is a viable model or not. With regard to the Index clusters, in Index 2018 Hungary has joined its immediate neighbors in the Balkans in one group. It should be noted that both Hungary and Poland were previously among the better performing countries across the Index indicators, but then changed their approach.

A number of countries have willingly taken on a very different course to that of the European core. Furthermore, they want to gain legitimacy by serving as an alternative to the European core in many respects. There is a risk that if this trajectory continues, a number of CEE countries will assume a self-imposed "splendid isolation" within the EU, as they differ as in policy as well as in performance compared to their Western counterparts. Should the divergences in quality of life, good governance and democracy continue to mount, this will deepen the rifts between former "East" and the former "West", already mired in counterproductive accusations of who is to blame for populist mobilization, and will engulf Brussels and the common institutions and limit the ability to pursue meaningful common action beyond the least common denominator. The divergences will reach far beyond the acceptable levels of differentiation between the EU countries and the outside the legitimate differences of opinion and interests.

Therefore, it is imperative to follow the "catching-up paradigm" as expected by the citizens of these countries. The "old-fashioned" convergence of EU countries across the main aspects of development – Economy, Quality of Life, Democracy and Governance – should continue. Taken together, these four categories are the fundamentals of EU and its member states development and preventing big rifts will prevent warring camps, policies and visions for the EU.

Index 2018 highlights

- In Index 2018, the five best performing countries by overall score (this is the average of the four categories) are Denmark (1st with 71 points), Sweden (2nd with 70 points), Luxemburg (3rd with 70 points), the Netherlands (4th with 70 points) and Finland (5th with 69 points) in the ranking of 35 countries in on a scale from 100 to 0 points, highest to lowest.

- The five most poorly performing countries by overall score are BiH (35th with 19 points), Turkey (34th with 22 points), Macedonia (33rd with 24 points), Albania (32nd with 25 points) and Serbia (31st with 29 points).

- There are clear geographical patterns in Index 2018 as there is divide especially between the best performing countries in Western core and Northern Europe and those in Southeastern Europe.

- Thus, the Balkan countries, which include the EU candidates (with Turkey too) and EU member states (including the close neighbor Hungary), are lagging behind in almost all respects.

- The long-term trends in the period 2011-2018 show that a number of old EU member states such as Ireland, Portugal and Cyprus as well as Iceland are progressing in recent years, and even Greece shows small signs of improvement, which means many of the crisis-ridden of the 2008 Great Recession countries are recovering.

- The so-called new EU member states (EU10+1) have been converging with the rest, but the process has slowed down in recent years and there are already differences in the group as some are diverging or stagnating in the different categories.

- There are three new EU member states in Index 2018 that are very close to the desired average benchmark of 60 points – Estonia (13th position) with 57 points, the Czech Republic (14th) with 55 points and Slovenia (15th) with 54 points.

- The success stories of the catching-up show that geography is not necessarily destiny and countries can improve their fortunes.

- The trends between 2011 and 2018 show that the paradigm of the catching-up process might be changing as CEE countries have good track record in Economy, but have started to regressing substantially in Democracy, Governance and Quality of Life, such as in the cases of Hungary and Poland.

- Generally, the catching-up in the Economy category remains the most successful and in the Quality of Life category the least successful among the EU10+1 as a group as a number of them fail to translate economic achievements into better quality of life.

- There are already in-group differences among the new EU member states with regard to Governance and Democracy as some countries converge and the others diverge within the period 2011-2018.

- Despite the frustration among new EU member states with the pace of catching-up with the Western counterparts, the comparison to the candidates countries in the Balkans, which all lag behind, show that EU membership offers advantageous framework for their development.

Catch-Up Index 2018

Group	Country	Economy Score (100-0)	Quality of Life Score (100-0)	Democracy Score (100-0)	Governance Score (100-0)	Overall Score (100-0)	Overall Ranking (1-35)
EU15+2	Denmark	71	67	74	71	71	1
EU15+2	Sweden	68	67	74	72	70	2
EU15+2	Luxembourg	73	67	69	71	70	3
EU15+2	Netherlands	68	69	71	72	70	4
EU15+2	Finland	60	70	74	73	69	5
PCC	Iceland	63	69	71	70	68	6
EU15+2	Ireland	69	65	68	65	67	7
EU15+2	Germany	66	67	64	68	66	8
EU15+2	Austria	62	65	63	69	65	9
EU15+2	UK	61	64	59	65	62	10
EU15+2	Belgium	55	67	62	59	61	11
EU15+2	France	56	64	54	59	58	12
EU10+1	Estonia	57	53	60	56	57	13
EU10+1	Czech Republic	54	56	54	57	55	14
EU15+2	Malta	56	51	55	56	55	15
EU10+1	Slovenia	50	58	52	56	54	16
EU15+2	Portugal	42	49	59	61	53	17
EU15+2	Spain	48	53	53	53	52	18
EU15+2	Cyprus	47	56	51	52	51	19
EU10+1	Lithuania	52	46	51	48	49	20
EU10+1	Latvia	50	44	51	47	48	21
EU10+1	Slovakia	47	47	48	47	47	22
EU10+1	Poland	46	48	46	46	46	23
EU15+2	Italy	41	53	49	42	46	24
EU10+1	Hungary	44	43	36	43	41	25
EU10+1	Croatia	40	42	40	42	41	26
EU10+1	Romania	42	33	39	35	37	27
EU15+2	Greece	32	44	38	35	37	28
EU10+1	Bulgaria	40	30	36	37	36	29
CC	Montenegro	32	33	31	24	30	30
CC	Serbia	29	26	34	27	29	31
CC	Albania	27	23	26	24	25	32
CC	Macedonia	35	18	20	24	24	33
CC	Turkey	39	26	11	14	22	34
PCC	BiH	22	22	18	13	19	35

The ranking is based on the Index 2018 Overall Scores. The scores are from 100 to 0, highest to lowest. The ranking is from 1 to 35, highest to lowest position. The groups of countries are: the EU15+2 are the fifteen old EU member states and Cyprus and Malta; the EU10+1 are the new EU member states from CEE and Croatia, which joined in 2004, 2007 and 2013. The candidate countries are designated as CC and the PCC are the potential candidate countries.

Overview of the Catching-Up of the EU10+1 Countries

Changes in the Ranking of the EU10+1 Countries between 2011 and 2018

Country	2011	2012	2013	2014	2015	2016	2017	2018
Bulgaria	13	13	13	14	13	13	13	13
Croatia	17	15	14	15	14	15	14	14
Czech Republic	18	18	16	16	16	16	15	16
Estonia	21	20	19	18	18	19	19	20
Hungary	22	21	20	21	19	20	21	21
Latvia	23	23	22	22	22	22	22	22
Lithuania	24	24	24	24	24	24	23	23
Poland	26	26	25	25	25	25	25	25
Romania	27	27	26	26	26	26	26	26
Slovakia	28	28	28	29	28	28	27	27
Slovenia	29	29	29	30	29	29	29	29
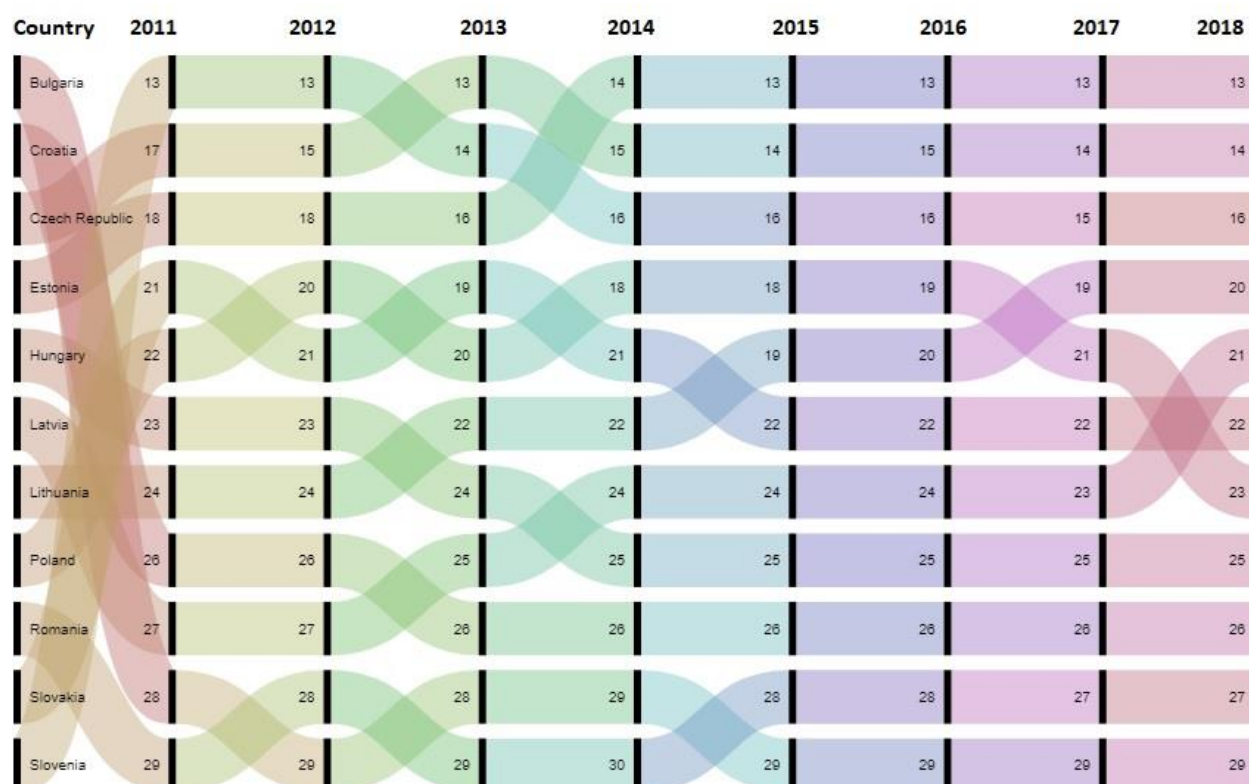
As the Index was started in 2011 and published annually, there is an opportunity to track the progress of the countries over the years. Estonia remains the best performing country in the EU10+1 group as it climbed from 18th position out of 35 in total in 2011 to 13th in 2015 and remains in 2018. The Czech Republic is another top performer, which started 17th in 2011 and is at 14th position in 2018. Slovenia, third in its group of new member states, started from 13th position in 2011 and in Index 2018 it is 16th in the ranking by Overall Score.

In Index 2018, there are three countries that are very close to the desired average benchmark of 60 points – Estonia (13th position) with 57 points, the Czech Republic (14th) with 55 points and Slovenia (15th) with 54 points. Several countries have been making progress – Estonia, the Czech Republic, Lithuania, Latvia, Romania (and to a limited extent Bulgaria with regard to scores). The results of Index 2018 show that the progress and thus the catching-up have time limitations with a slowdown for many countries after 2014 or 2016 in the case of Romania. Along with the countries that converge there are countries that diverge – Slovenia and Slovakia to a lesser extent and much more substantially in the cases of Poland and Hungary. Hungary has been sinking in the ranking compared to 2011-2012 by two positions in the ranking and by minus 5-4 points and after 2013 stayed at this low point. Poland's

performance has decreased most after 2012, reached its lowest in 2014-2015. There are countries that have stagnated – Croatia is the clear example and to a certain extent Bulgaria (in regard to its ranking as it fluctuates).

Changes in Ranking of EU10+1 Countries 2018 vs 2017-2011

Changes in Scores of the EU10+1 countries 2018 vs 2017-2011
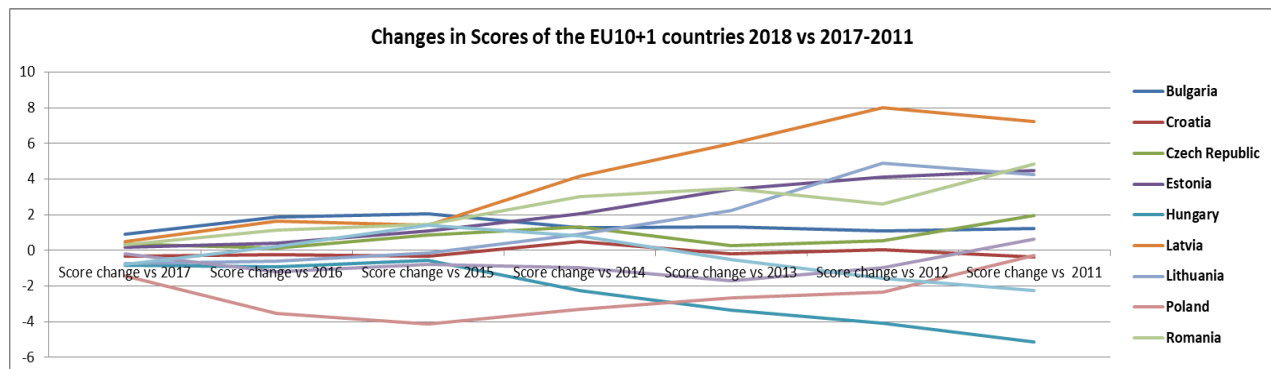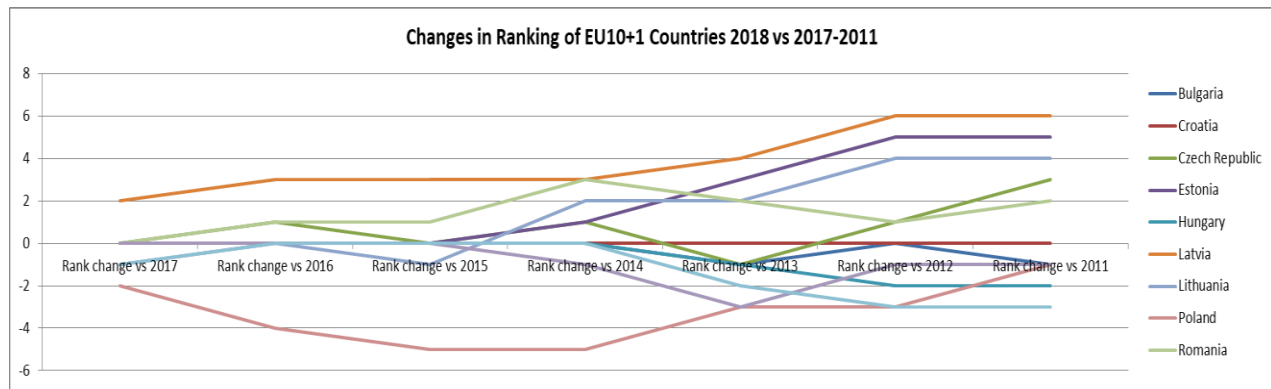
"Catching-up Paradigm" in Flux?

When the different four categories of the Index – Economy, Quality of Life, Democracy and Governance – are viewed in longer-term perspective, e.g. from the first to the latest edition of the Index 2011 to 2018, there are several observable trends. The Economy is generally the most successful category for the catching-up as 7 out of 11 new member states have shown progress. In contrast, Quality of Life has been the least successful area of catching-up as there more limited progress. But Democracy and Governance have started to present their own set of challenges in the catching-up process as over half of the countries have worsened their performance.

There is also a key issue related to the very paradigm of the catching-up. In short, this paradigm meant that when a country was performing well in one category it was performing reasonably well in other categories too, the aspects of development reinforcing each other. Only Turkey, an EU candidate country bucked the trend with better Economic development despite the Democracy failures. In the previous Index 2017, Hungary and Poland seemed to have followed suit as they witnessed good

economic performance despite worsening democratic performance. But the results of Index 2018 show that this may no longer be the case. Both Hungary and Poland have started to show poor performance in Quality of Life, Democracy and Governance for the period 2011-2018. Certainly, their Economy scores remained better than in 2011 and 2012, but start to deteriorate when compared to the period 2013-2017. It remains to be seen what the future trends will confirm to the "catching-up paradigm" or the countries will follow their own patterns.

The Most Recent Catching-Up Trends: 2017 and 2018 Index Results Compared

In addition to the long-term changes in the period 2011-2018, the comparison of the 2017 and 2018 results indicate the most recent trends in the catching-up of the EU10+1. With regard to the year-to-year changes between 2017 and 2018 in terms ranking and scores of the EU10+1 by Overall Score and the four categories, there are the following observations:

- The Overall Scores and ranking show that between 2017 and 2018 most of the countries have stagnated (7 out of 11), three regressed and one progressed with minimal change.
- In the Economy, most of the countries have either stagnated (4 out of 11) or regressed (5 out of 11) with all Visegrad 4 registering decrease in this category and the rest (3 out 11) progressed.
- In the Quality of Life, the annual change showed mostly stagnation of the countries in focus (6 out of 11), with 3 progressing and 2 regressing.
- In Democracy, annual change shows a mixed picture of mostly stagnation (5 out of 11 countries), with progress (3 out of 11) and regress (3 out of 11) in equal measure.
- In Governance, there is the largest share of regress compared to the other categories (5 out of 11 countries) with the rest split among progress (3 out of 11) and regress (3 out of 11).

In terms of overall ranking, 7 out of 11 new member states haven't changed their position (change = 0), 3 countries dropped in the ranking and 1 country moved up. Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Romania and Slovakia stagnated with Hungary also losing a point too in the scores. Poland and to a lesser degree Lithuania and Slovenia dropped down the ranking and lost points too. Latvia is the only country by Overall Score and ranking, which slightly increased its ranking and score and Bulgaria increased its Overall Score by 1 point. In general, the stagnation is dominant in the EU10+1 in the overall ranking, which is the average of the four scores by category, and the changes are minimal.

In terms of changes in the Economy category on year-to-year basis from 2017 to 2018, there are the following results. With regard to ranking, 4 out of 11 EU10+1 countries didn't change their positions in the ranking – Estonia, Latvia, Lithuania and Slovenia. Except Slovenia, which increased its score slightly (1 point), the others did changed their scores. Five countries dropped in ranking – Bulgaria, the Czech Republic, Hungary, Poland and Slovakia. Hungary and Slovakia lost points too and the other did not register change in score at all. Croatia and Romania are the only one to increase their positions in the

ranking with Croatia's score went up by 1 point and Romania's score did not change. In general, the annual change in the Economy is either stagnation or regress, which encompassed mostly the Visegrad 4 countries.

In Quality of Life on year-to-year basis from 2017 to 2018, 6 out of 11 new member states did not change their positions in the ranking – Bulgaria, the Czech Republic, Estonia, Poland, Romania and Slovenia. With regard to their scores, Poland and Slovenia also lost points and the rest registered no change. Two countries dropped in the ranking – Croatia and Hungary – and both lost points too. Three countries – Latvia, Lithuania and Slovakia – registered increase in ranking with Latvia and Slovakia also increasing their scores. Therefore, the annual change from 2017 to 2018 registers mostly stagnation with other three countries increasing and two countries decreasing their performance.

With regard to Democracy, the changes on year-to-year basis from 2017 to 2018 include a mixed picture. Five countries out of the 11 new member states registered no change in the ranking - Bulgaria, Croatia, Hungary, Latvia and Romania. But while Croatia and Romania lose points, the other countries didn't change their scores. Three countries – the Czech Republic, Estonia and Slovakia – climbed up the ranking, but their score results were mixed – the Czech Republic lost points, Estonia gained points and Slovakia did not change its score. Three countries out of 11 – Lithuania, Poland and Slovenia – dropped in the ranking and all three of them lost points too. Thus, the annual change shows a mixed picture of stagnation by 5 of the countries, some progress by three countries (but only Estonia firmly advancing) and three countries regressing.

With regard to Governance, the changes on year-to-year basis from 2017 to 2018 are the following. Five out the 11 countries in focus regressed- Estonia, Poland, Romania, Slovakia and Slovenia and most of their scores decreased too – only Estonia and Slovenia registered no change in their points. Three countries did not register change in the ranking – Croatia, Hungary and Lithuania – but Hungary and Lithuania lost points and Croatia registered no change in score. Three countries progressed – Bulgaria, the Czech Republic and Latvia with increase in their scores too.

Catching-Up by Indicators in the Catching-Up Process

Catching-Up by Group Scores in the Four Categories
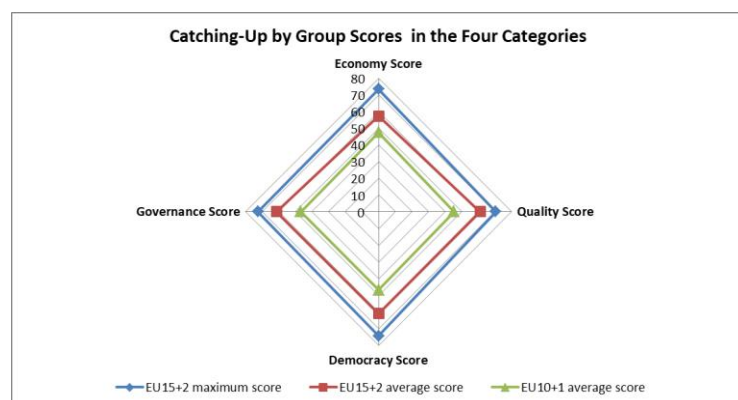
When the catching-up process is viewed in terms of comparisons between group scores of the EU15+2 and EU10+1 respectively, there are the following results. The new member states are catching-up relatively most quickly in the Economy category. Reversely, there are lagging behind most in Quality of Life. In Democracy and Governance, the countries the catching-up process is

similar. As noted, the categories are measured through 47 basic indicators distributed in each of them with different weight attached to them to reflect their significance.

In each category there are indicators that play a bigger role in the progress or regress than others in the catching-up process as far as the EU10+1 are concerned. In the Economy, the most problematic indicator for the new member states is GPD per capita, as they remain far from the desired levels, and slows down their catching-up. Energy efficiency is another indicator where these countries perform poorly. In contrast, low government debt drives the success of the EU10+1 up the ranking of the Index. Market Development is an example of the differences in performance within the group itself – Estonia is 3rd and Croatia is 33rd among the 35 countries.

In Quality of Life, the most problematic indicator for the EU10+1 is the wealth of households (Actual Individual Consumption), as they remain poorer than the old member states. The new member states are also lagging behind in the health indicators, especially in life expectancy, which remains much lower than those of the old member states. There is no indicator, where all EU10+1 state collectively perform well. But there are indicators, where the differences within the group are visible. In education, countries such as Estonia, Slovenia and Poland perform much better than the others in the PISA sub-indicator. In inequality (Gini Index), Slovakia, Slovenia and the Czech Republic perform better due to their lower inequality levels.

In Democracy, Trust in People is one of the problematic indicators, contributing to the poor performance of the group. Satisfaction with democracy in the EU10+1 countries also tends to be low and hindering results. But other indicators show the differences within the group as a couple of countries manage to advance and the other lag behind. In the composite Democracy Indices Hungary is the worst performing country with the others with several other struggling too as Estonia and to lesser extent the Czech Republic are performing well. In Media Freedoms, for example Estonia is outperforming the rest and Bulgaria is lagging behind. In Civil and Political Rights, Estonia is among the best and Hungary among the worst performers.

In Governance, Governance Effectiveness, Corruption, E-government are among the problematic indicators, hindering the EU10+1 performance (Estonia is an exception in Corruption and E-government). Rule of Law and Internal conflict and Crime are other indicators, in which many of the new member states have problems.

Categories, scores and ranks: About the methodology approach
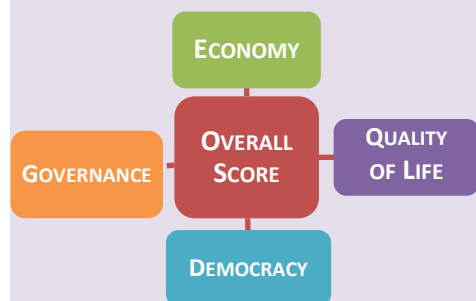
The Catch-Up Index model is simple and is designed to assess the performance of the selected countries across the four categories. Each country is ascribed a score in each category, and the Overall Score is the average of those in the four categories combined. The countries are then ranked according to that score. Performance in the broad categories is assessed on the basis of indicators and sub-indicators, each having a different weight assigned to it, depending on its importance in the Catch-Up Index model. The raw data from different sources is standardized on a scale of 0 to 100 points, so that comparisons or other processing of scores can be made between countries, categories and indicators. The countries' performance is measured relative to each another and not to external targets, because the standardization method assigns the highest score to the best performing country and vice versa. As mentioned above, the scores run on a scale from 0 (lowest) to 100 (highest), while the ranks range from 1 (highest) to 35 (lowest) – the number of countries included in the Index.

The EU member states are divided into four main groups – the EU10+1 and the EU15+2, the CC – candidate countries and PCC – the potential candidate countries. The EU10+1 group includes the ten post-communist countries from Central and Eastern Europe (CEE), which joined in 2004, 2007 and Croatia in 2013. The other, the control group is the EU15+2 – the older member states plus Cyprus and Malta, which also joined in 2004 but come from a different context and path of development, and thus are closer in characteristics to the older EU members.

The model uses a set of several yardsticks - or benchmarks – against which to assess the progress or lagging of the EU10+1 in meeting the standards of the rest of the EU. The benchmarks can be considered to be targets for the EU10+1.

The Index takes as its main benchmark the "EU15+2 Average", which is the mean of the scores of these countries in a given category or indicator as a component of the overall score. The average (or mean of the scores) was preferred to the median (the "middle number" in a range of scores in this case) for a number of practical reasons. The "EU15+2 Average" is a group score and does not correspond to a specific country. Sometimes, the median is also used and the corresponding score can be associated with a particular country.

The other two important benchmarks are the "EU15+2 Maximum", which is the highest score in the group and the "EU15+2 Minimum", which is the lowest score in the EU15+2 group. Both the maximum and the minimum score can be associated with a respective country.

Once the "maximum", "average" and "minimum" are established and the countries are ranked according to their score, it can be easily observed if a particular country is above, below or near any of these benchmarks and how near or far it is to the target.

Other group scores – "average" for the EU10+1, the candidates or potential candidates – can be drawn depending on the task of the comparison.

The "EU15+2 Average" is the main benchmark, because the maximum may be an unrealistically high target, while setting the minimum – the lowest score – as a goal would have no motivational value.

Trends by Overall Scores from 2011 to 2018

The Index is updated annually and since the first edition came out in 2011, based on data mostly from 2009-2010, it allows for registering changes and trends over the years up to the current Index, based on data mostly released in 2018. The section below shows tables with the information about the scores and rankings of the countries by Overall Score and the four different categories – Economy, Quality of Life, Democracy and Governance. The changes are presented in terms of differences in both the scores and the positions in the ranking comparative to the all previous editions as differences in points. The color scheme presents positive change in green – increase in score or ranking position, in red are the negative changes with decrease in score or ranking position, yellow denotes no change.

The Catch-Up Index: Changes by Overall Scores 2011 - 2018																		
Group	Country	Overall Score 2018	Overall Rank 2018	Score change vs 2017	Score change vs 2016	Score change vs 2015	Score change vs 2014	Score change vs 2013	Score change vs 2012	Score change vs 2011	Rank change vs 2017	Rank change vs 2016	Rank change vs 2015	Rank change vs 2014	Rank change vs 2013	Rank change vs 2012	Rank change vs 2011
EU15+2	Austria	65	9	0	0	-1	-1	-1	0	0	0	-1	-2	-2	-2	-2	-2
EU15+2	Belgium	61	11	0	0	-2	-2	-2	-2	-1	0	0	0	-1	0	-1	0
EU15+2	Cyprus	51	19	3	2	2	3	-1	-4	-4	1	2	1	0	-1	-5	-5
EU15+2	Denmark	71	1	-1	-1	0	0	-1	-1	-1	0	0	2	2	1	2	1
EU15+2	Finland	69	5	1	1	0	-1	-1	-1	0	0	0	0	-1	0	-1	0
EU15+2	France	58	12	0	0	-2	-2	-2	-2	-2	0	0	0	0	0	0	0
EU15+2	Germany	66	8	0	0	-1	0	0	1	2	-1	-1	-2	-2	-2	-2	1
EU15+2	Greece	37	28	0	1	0	0	-1	-4	-7	0	-1	-1	-1	-1	-3	-3
EU15+2	Ireland	67	7	1	2	3	4	4	5	2	1	2	2	4	3	4	1
EU15+2	Italy	46	24	-1	0	-1	-1	0	-2	-2	0	-1	-1	-1	-1	-2	-4
EU15+2	Luxembourg	70	3	0	-1	-1	-2	-1	-2	-1	0	0	-2	-1	0	-2	-2
EU15+2	Malta	55	15	1	-1	0	0	1	0	0	1	-1	0	-2	0	1	1
EU15+2	Netherlands	70	4	0	-1	0	0	0	0	0	0	0	0	1	0	1	0
EU15+2	Portugal	53	17	0	2	4	4	5	3	2	1	1	4	3	4	2	2
EU15+2	Spain	52	18	-1	0	-1	0	-1	-2	-3	-1	-1	-1	-1	-1	-1	-3
EU15+2	Sweden	70	2	0	-1	0	-1	-2	-1	-1	0	0	0	-1	-1	0	1
EU15+2	UK	62	10	-1	-2	-1	-1	-1	0	0	0	0	0	-1	-2	-1	0
EU10+1	Bulgaria	36	29	1	2	2	1	1	1	1	0	0	0	0	-1	0	-1
EU10+1	Croatia	41	26	0	0	0	1	0	0	0	0	0	0	0	0	0	0
EU10+1	Czech Republic	55	14	0	0	1	1	0	1	2	0	1	0	1	-1	1	3
EU10+1	Estonia	57	13	0	0	1	2	3	4	4	0	0	0	1	3	5	5
EU10+1	Hungary	41	25	-1	-1	-1	-2	-3	-4	-5	0	0	0	0	-1	-2	-2
EU10+1	Latvia	48	21	1	2	1	4	6	8	7	2	3	3	3	4	6	6
EU10+1	Lithuania	49	20	-1	-1	0	1	2	5	4	-1	0	-1	2	2	4	4
EU10+1	Poland	46	23	-1	-4	-4	-3	-3	-2	0	-2	-4	-5	-5	-3	-3	-1
EU10+1	Romania	37	27	0	1	1	3	3	3	5	0	1	1	3	2	1	2
EU10+1	Slovakia	47	22	0	-1	-1	-1	-2	-1	1	0	0	0	-1	-3	-1	-1
EU10+1	Slovenia	54	16	-1	0	1	1	-1	-2	-2	-1	0	0	0	-2	-3	-3
CC	Albania	25	32	0	2	4	4	2	5	4	0	1	2	3	2	3	3
CC	Macedonia	24	33	0	-1	-3	-1	-2	-3	-3	0	-1	-1	0	-1	-1	-1
CC	Montenegro	30	30	1	0	-2	-4	-3	0	0	0	0	0	-2	0	0	0
CC	Serbia	29	31	0	-1	2	2	1	1	1	0	0	0	0	0	0	0
CC	Turkey	22	34	0	0	-2	-4	-3	-3	-2	0	0	-1	-2	-1	-1	-1
PCC	BiH	19	35	0	1	-1	-4	-3	-4	-2	0	0	0	-1	0	-1	-1
PCC	Iceland	68	6	2	2	3	3	6	5	3	0	0	2	2	3	2	0

The countries are positioned in groups, so the changes can be observed respectively across the old (EU15+2), the new (EU10+1) and candidate countries (CC).The changes in scores and rankings from 2011 to 2018 show several important trends. Firstly, as a group the new EU member states advanced the most year-on –year showing there is a catching-up process with the desired goals. Secondly, this catching-up is not uniform across the group as several countries are progressing faster than the rest, most of all Estonia, Latvia and Lithuania. In contrast, there are countries among the EU10+1 which are regressing – such as Hungary, Poland and Slovenia and some such as Bulgaria, Croatia and Slovakia are in a standstill. Thirdly, there seems to be a time limit to the catching-up of the EU10+1 as it slows down after 2014-2015. Fourthly, a number of old EU member states – e.g. Ireland, Portugal and Cyprus – are progressing in recent years, i.e. some of the crisis-ridden countries are recovering, and even Greece shows small signs of improvement. The former candidate country of Iceland falls into this category too. Fifthly, the candidate countries are mostly in a standstill, except for Albania, which is progressing.

About the European Catch Up Index

The Catch Up Index measures the performance of 35 countries – the EU member states, the candidate and potential candidate countries across four categories - Economy, Quality of Life, Democracy and Governance. There are scores for each category and an Overall Score, composed of the scores for the four categories.

Each category is measured through selected indicators and sub-indicators. The various data for the indicators is converted into scores and weighted on the basis of the index methodology. The standardized scores make possible different rankings, comparisons, benchmarking, monitoring of performance for countries and groups of countries across categories and indicators. The metrics is based on rescaling the raw data on a scale from 0 to 100 (lowest to highest), giving the scores of a country, and positions from 1 to 35 (highest to lowest), giving the ranking of a country.

The Catch-Up Index has been initially designed to capture the progress of the EU10+1 countries – the EU members from Central and Eastern Europe, including Croatia in 2013 - in catching up with the rest of the EU (EU15+2) by measuring their overall performance across the four categories – Economy, Quality of Life, Democracy and Governance. This is the seventh edition of the index, with previous editions in 2011, 2012, 2013, 2014, 2015, 2016 and 2017. As the most of the data used is from 2018, the edition is referred to as Index 2018. The Index uses the latest available where possible but not later than 10 January 2019. Missing data was replaced using imputation procedures as explained in the supplements of this report.

Trends by Economy Scores from 2011 to 2018

Economy: Changes in Ranks and Scores 2011-2018																	
Group	Country	Economy Score 2018	Rank 2018	Score change vs 2017	Score change vs 2016	Score change vs 2015	Score change vs 2014	Score change vs 2013	Score change vs 2012	Score change vs 2011	Rank Change vs 2017	Rank Change vs 2016	Rank Change vs 2015	Rank Change vs 2014	Rank change vs 2013	Rank change vs 2012	Rank change vs 2011
EU15+2	Austria	62	8	1	0	0	-2	-1	-1	0	0	0	-2	-2	-1	-1	0
EU15+2	Belgium	55	14	-1	-1	-3	-3	-2	-3	-1	-1	-1	-3	-4	-4	-4	-2
EU15+2	Cyprus	47	21	3	4	4	3	-2	-7	-9	2	2	4	2	-3	-9	-8
EU15+2	Denmark	71	2	0	0	1	0	2	1	2	0	0	0	0	1	0	1
EU15+2	Finland	60	10	-1	-1	-2	-4	-3	-5	-5	0	-1	-3	-5	-4	-5	-5
EU15+2	France	56	12	0	-1	-2	-2	-4	-2	-1	0	-1	-2	-3	-3	-3	-1
EU15+2	Germany	66	6	0	0	0	2	1	2	4	0	-1	-1	1	-1	0	1
EU15+2	Greece	32	31	1	1	1	0	0	-3	-7	1	1	1	1	3	0	-4
EU15+2	Ireland	69	3	2	7	9	12	13	14	8	1	3	6	8	9	8	6
EU15+2	Italy	41	26	-1	-1	-3	-2	-3	-4	-5	-2	-2	-4	-2	-3	-5	-4
EU15+2	Luxembourg	73	1	-1	0	-1	-2	-1	-2	-2	0	0	0	0	0	0	0
EU15+2	Malta	56	13	2	2	3	5	9	5	6	2	1	2	2	8	4	4
EU15+2	Netherlands	68	5	0	-1	0	1	2	0	-1	0	-2	-1	-1	-1	-1	-3
EU15+2	Portugal	42	25	0	0	-2	0	0	-3	-6	1	1	-1	1	1	-2	-6
EU15+2	Spain	48	19	0	0	-2	0	-2	-4	-6	1	1	0	1	-2	-4	-4
EU15+2	Sweden	68	4	0	0	0	-2	0	0	2	-1	0	-1	-1	-2	-1	0
EU15+2	UK	61	9	0	-1	0	-1	-2	-1	-1	0	-2	-1	-1	-1	-1	-3
EU10+1	Bulgaria	40	28	0	-1	1	1	1	1	1	-1	-1	0	1	0	0	0
EU10+1	Croatia	40	27	1	1	0	0	-3	-4	-2	1	1	0	1	-2	-2	-2
EU10+1	Czech Republic	54	15	0	0	2	3	4	4	6	-1	0	2	-1	1	3	3
EU10+1	Estonia	57	11	0	0	0	2	4	6	5	0	1	2	2	2	5	5
EU10+1	Hungary	44	23	-1	0	0	0	0	1	3	-1	-1	0	-1	1	3	3
EU10+1	Latvia	50	17	0	-1	-2	2	3	6	7	0	0	-1	0	2	5	6
EU10+1	Lithuania	52	16	0	0	0	2	2	5	6	0	0	-2	0	-1	3	5
EU10+1	Poland	46	22	0	-1	0	0	1	2	4	-1	-1	-1	-1	0	2	2
EU10+1	Romania	42	24	0	0	1	3	3	3	5	1	1	2	3	3	3	5
EU10+1	Slovakia	47	20	-1	-1	-1	0	1	1	1	-1	-2	0	0	0	0	0
EU10+1	Slovenia	50	18	1	1	0	1	-2	-4	-6	0	1	0	-1	-4	-5	-4
CC	Albania	27	34	-2	-2	-2	-5	-5	-4	0	0	-1	-1	-1	-1	0	1
CC	Macedonia	35	30	-1	-1	-1	0	0	0	2	0	0	0	1	1	0	3
CC	Montenegro	32	32	0	-1	0	-10	-7	-3	-2	-1	-1	-1	-7	-3	0	0
CC	Serbia	29	33	-2	-1	1	-2	-3	-5	-5	0	1	1	1	-1	0	-2
CC	Turkey	39	29	0	2	0	1	2	1	3	0	0	0	1	1	0	1
PCC	BiH	22	35	-1	-1	-3	-7	-9	-3	-5	0	0	0	0	0	0	-1
PCC	Iceland	63	7	1	3	6	7	6	9	4	0	3	5	5	4	7	3

The changes in scores and ranking between 2011 and 2018 in the Economy category show several trends. Firstly, the catching-up is happening mostly in the EU10+1 group, as 7 out of 11 of these countries progressed – the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland and Romania. Secondly, this is an uneven process: the catching-up was most dynamic when compared to the 2011, 2012, 2013 and 2014 and slowed down after this as only in the cases of Estonia and Romania continued longer. Thirdly, some of the EU10+1 have either regressed such as Slovenia and Croatia or came to a standstill such as Bulgaria and Slovakia. Fourthly, there are time limitations to the catching-up in the Economy category as the catching-up is most dynamic generally between 2011-2014 and after that

there is a slowdown. Fifthly, the catching-up among the other groups of countries happens in very limited cases – Ireland, Iceland and Malta - and to a smaller extent in Cyprus (after 2014), which means that the crisis-ridden countries from the 2008 crisis are recovering. The candidate countries are generally in a standstill with a slight progress in the case of Macedonia.

Trends by Quality of Life Scores from 2011 to 2018

Quality of Life: Change in Ranks and Scores 2011-2018																	
Group	Country	Score 2018	Rank 2018	Score change vs 2017	Score change vs 2016	Score change vs 2015	Score change vs 2014	Score change vs 2013	Score change vs 2012	Score change vs 2011	Rank Change vs 2017	Rank Change vs 2016	Rank Change vs 2015	Rank Change vs 2014	Rank change vs 2013	Rank change vs 2012	Rank change vs 2011
EU15+2	Austria	65	9	-1	-1	-1	1	0	1	0	0	1	-1	2	0	0	0
EU15+2	Belgium	67	7	1	1	1	0	0	1	2	1	1	0	0	0	0	3
EU15+2	Cyprus	56	15	3	3	1	1	0	-2	-2	2	1	0	0	0	-2	-1
EU15+2	Denmark	67	8	-1	-1	1	1	1	0	0	-2	-3	1	0	0	-2	-2
EU15+2	Finland	70	1	1	1	1	1	0	0	1	1	2	2	2	1	1	2
EU15+2	France	64	12	-1	-1	0	-1	-1	0	-1	-1	-1	-1	-3	-2	-2	-4
EU15+2	Germany	67	5	-1	0	-1	-1	0	1	3	0	1	-1	-1	1	3	6
EU15+2	Greece	44	24	-2	-2	-1	-2	-5	-10	-11	-2	-2	-2	-3	-4	-7	-7
EU15+2	Ireland	65	10	0	0	2	1	0	1	-1	2	2	2	2	1	1	-3
EU15+2	Italy	53	17	-2	-2	-2	-2	-2	-4	-5	-2	-2	-1	-1	-1	-2	-4
EU15+2	Luxembourg	67	6	-3	-3	-4	-4	-3	-3	-4	-5	-5	-5	-5	-2	-3	-5
EU15+2	Malta	51	19	0	0	0	0	-3	0	1	0	0	0	-1	-2	0	0
EU15+2	Netherlands	69	3	-1	-1	-2	-2	-3	-3	-2	0	-1	-1	-1	-2	-2	-1
EU15+2	Portugal	49	20	-1	0	1	3	3	2	2	0	0	1	2	3	3	1
EU15+2	Spain	53	16	0	0	1	1	1	-1	-4	0	2	1	1	2	2	0
EU15+2	Sweden	67	4	0	-1	0	-1	-3	-2	-1	3	0	2	1	-1	0	1
EU15+2	UK	64	11	-1	-1	-1	-1	2	2	1	-1	-2	-1	-1	1	1	1
EU10+1	Bulgaria	30	30	1	0	0	0	1	-1	-1	0	-1	0	0	0	1	0
EU10+1	Croatia	42	27	-1	-1	-1	0	1	2	-2	-1	-1	-1	-1	-1	-2	-2
EU10+1	Czech Republic	56	14	1	0	0	0	-2	1	3	0	0	-1	0	-1	2	4
EU10+1	Estonia	53	18	0	-1	1	2	5	4	4	0	-1	0	1	3	2	2
EU10+1	Hungary	43	26	-1	-1	-1	-1	-1	-5	-5	-1	-1	-1	-1	-1	-5	-4
EU10+1	Latvia	44	25	2	3	2	4	6	8	8	2	2	2	2	2	2	2
EU10+1	Lithuania	46	23	0	0	0	0	1	8	5	1	1	0	1	1	3	3
EU10+1	Poland	48	21	-2	-1	-1	-2	0	1	3	0	0	-1	-1	1	3	2
EU10+1	Romania	33	29	4	5	3	4	5	2	6	0	1	0	0	2	1	2
EU10+1	Slovakia	47	22	1	1	2	1	-3	-1	2	1	1	2	1	-3	0	2
EU10+1	Slovenia	58	13	-2	-1	2	0	1	0	0	0	0	1	0	1	1	2
CC	Albania	23	33	0	2	4	5	2	1	0	0	1	2	2	2	1	0
CC	Macedonia	18	35	-1	-4	-5	-5	-5	-6	-7	-1	-2	-2	-2	-2	-3	-3
CC	Montenegro	33	28	1	1	-3	-4	1	0	2	0	0	0	0	0	1	1
CC	Serbia	26	31	0	0	3	1	-4	-7	-6	0	0	1	1	-2	-3	-3
CC	Turkey	26	32	2	1	-1	-1	2	4	5	0	0	-1	-1	0	1	2
PCC	BiH	22	34	4	5	1	0	1	3	4	1	1	0	0	0	1	1
PCC	Iceland	69	2	0	2	2	2	2	2	0	2	5	3	4	3	3	2

The changes in scores and ranking in the Quality of Life category in the period 2011-2018 show several trends. Firstly, the EU10+1 counties is the group that registers most progress over time – i.e. most of the new EU member states have been catching-up with the rest – the Czech Republic, Estonia, Latvia,

Lithuania, Poland and to a lesser extend Slovakia and Slovenia. But this has its limitations. Secondly, the catching-up is uneven as there are countries, which regress – such as Hungary and Croatia – and such as Bulgaria, which is at a standstill. Thirdly, there are time limitations as the catching-up for most of those EU10+1 countries slows down after 2013, 2014 or later. Fourthly, among the other groups the progress in terms of scores and ranking can be observed in the cases of Iceland, and to a lesser extent in Finland, Germany, Portugal and Spain and few others, but in a much smaller scale. Among the candidate countries Macedonia and Serbia experience regress and the others register improvement in varying degrees.

Trends by Democracy Scores from 2011 to 2018

Democracy: Change in Ranks and Scores 2011-2018																	
Group	Country	Democracy Score 2018	Rank 2018	Score change vs 2017	Score change vs 2016	Score change vs 2015	Score change vs 2014	Score change vs 2013	Score change vs 2012	Score change vs 2011	Rank Change vs 2017	Rank Change vs 2016	Rank Change vs 2015	Rank Change vs 2014	Rank change vs 2013	Rank change vs 2012	Rank change vs 2011
EU15+2	Austria	63	9	1	-1	-1	-1	-2	4	1	0	-1	0	0	-3	1	0
EU15+2	Belgium	62	10	0	1	-1	-1	-1	2	1	0	0	0	0	0	-1	0
EU15+2	Cyprus	51	21	2	4	5	7	3	1	-1	1	3	3	2	1	1	-2
EU15+2	Denmark	74	2	-1	-1	1	0	-1	3	0	-1	-1	0	0	-1	1	0
EU15+2	Finland	74	1	1	2	2	2	1	-2	3	2	2	2	2	2	0	3
EU15+2	France	54	16	1	1	-5	-3	-4	-2	-3	3	4	-4	-2	-3	-2	-3
EU15+2	Germany	64	8	1	1	-1	0	-1	2	0	0	1	0	0	-1	0	0
EU15+2	Greece	38	27	0	4	-2	1	2	-1	-6	0	1	-1	0	0	0	-1
EU15+2	Ireland	68	7	2	2	3	3	4	5	2	0	0	0	0	2	0	0
EU15+2	Italy	49	22	-1	0	1	-1	5	2	2	-1	0	0	0	1	1	2
EU15+2	Luxembourg	69	6	2	2	1	-1	-2	0	0	0	0	-1	-1	-1	-1	-1
EU15+2	Malta	55	14	-1	-5	-3	-4	0	2	-1	0	-2	0	-1	1	3	1
EU15+2	Netherlands	71	4	0	0	0	0	-1	1	-1	0	0	0	0	0	0	-1
EU15+2	Portugal	59	13	-1	4	7	6	7	7	6	-1	3	8	7	6	7	5
EU15+2	Spain	53	17	-3	-1	-2	0	-1	-1	-2	-2	0	0	0	-1	-2	-1
EU15+2	Sweden	74	3	0	1	0	0	-1	2	-1	-1	-1	-2	-2	-1	-1	-2
EU15+2	UK	59	12	-2	-2	-2	-2	-4	2	1	-1	-1	-1	-1	-1	0	-1
EU10+1	Bulgaria	36	29	1	4	2	0	2	0	2	0	1	0	-1	-1	0	-1
EU10+1	Croatia	40	25	-1	-2	-2	-1	-2	-3	0	0	0	0	1	0	0	2
EU10+1	Czech Republic	54	15	-2	-2	-2	-2	-3	-3	-2	1	-1	0	0	-1	-2	-1
EU10+1	Estonia	60	11	1	1	2	1	1	2	3	2	2	2	1	1	0	1
EU10+1	Hungary	36	28	0	-2	-1	-6	-6	-9	-15	0	-1	-1	-3	-4	-4	-6
EU10+1	Latvia	51	20	0	2	4	8	11	10	7	0	3	3	4	6	6	5
EU10+1	Lithuania	51	19	-1	-1	-1	0	2	1	0	-1	2	-1	2	2	2	1
EU10+1	Poland	46	24	-3	-9	-10	-7	-7	-7	-6	-1	-9	-8	-6	-6	-6	-3
EU10+1	Romania	39	26	-2	0	3	4	5	3	7	0	0	2	3	3	2	3
EU10+1	Slovakia	48	23	0	-5	-4	-4	-2	-4	0	1	-5	-4	-4	-3	-4	0
EU10+1	Slovenia	52	18	-2	-1	1	-1	-2	-2	-2	-1	1	2	-2	-1	-2	-1
CC	Albania	26	32	0	3	6	3	6	6	10	0	0	1	0	2	2	2
CC	Macedonia	20	33	2	1	0	2	-3	-7	-6	1	0	-1	1	-1	-1	-1
CC	Montenegro	31	31	4	6	2	2	-2	0	2	0	0	0	-1	-1	-1	-1
CC	Serbia	34	30	1	0	0	4	5	3	7	0	-1	0	1	1	1	1
CC	Turkey	11	35	1	0	-1	-3	-4	-8	-4	0	0	0	0	0	0	0
PCC	BiH	18	34	-2	3	2	-2	-3	-4	-2	-1	0	0	-1	-1	-1	-1
PCC	Iceland	71	5	3	1	6	3	7	5	4	0	0	1	1	3	1	1

The changes in scores and rankings in the Democracy category in the period 2011-2018 show the following results. Firstly, the progress and catching-up are very limited compared to similar processes in the other categories. Among the EU10+1 countries most of the progress is registered by the three Baltic countries – Estonia, Latvia and Lithuania and to some extend in Romania. Among the old EU member states, these cases include Portugal and to a lesser extend Finland and Cyprus among others. In the other groups, Albania has made overall most progress with Macedonia, Montenegro and Serbia also making progress in the scores. Iceland has progressed too. Secondly, there are cases of significant regress – especially Hungary and Poland and to a lesser extent Slovakia. Thirdly, unlike in other categories there is no single time pattern of the catching-up as there are many individual cases – e.g. Hungary started its regress early on, but Poland did this more recently; Macedonia has had a slight regress, but improved in recent years.

Trends by Governance Scores from 2011 to 2018

Governance: Change in Ranks and Scores 2011-2018																	
Group	Country	Governance Score 2018	Rank 2018	Score change vs 2017	Score change vs 2016	Score change vs 2015	Score change vs 2014	Score change vs 2013	Score change vs 2012	Score change vs 2011	Rank Change vs 2017	Rank Change vs 2016	Rank Change vs 2015	Rank Change vs 2014	Rank change vs 2013	Rank change vs 2012	Rank change vs 2011
EU15+2	Austria	69	7	1	0	-1	-1	0	-2	-1	0	-1	-1	-1	-2	-2	-1
EU15+2	Belgium	59	12	-2	-2	-3	-5	-4	-4	-4	-1	-1	-1	-1	-2	-1	-1
EU15+2	Cyprus	52	19	2	0	-1	0	-3	-5	-4	0	-1	-2	0	-2	-5	-3
EU15+2	Denmark	71	4	0	-1	-2	-2	-4	-5	-5	-1	-2	-2	-1	-3	-3	-3
EU15+2	Finland	73	1	1	0	-2	-2	0	-1	-1	3	2	0	1	2	2	2
EU15+2	France	59	13	1	0	1	-2	-2	-2	-1	0	-1	-1	-1	-1	-1	0
EU15+2	Germany	68	8	-1	0	-1	1	1	1	1	-2	1	0	0	-1	-1	-1
EU15+2	Greece	35	29	2	1	1	0	-2	-3	-4	0	-1	-1	-2	-2	-2	-3
EU15+2	Ireland	65	9	0	-2	-2	0	0	2	0	1	1	0	0	-1	1	0
EU15+2	Italy	42	25	0	2	2	0	1	0	0	0	0	0	0	0	-2	-2
EU15+2	Luxembourg	71	5	0	-1	0	1	3	-1	0	0	-1	0	0	1	-1	-1
EU15+2	Malta	56	15	2	1	1	-3	-3	-4	-4	3	-1	-2	-2	-2	-2	-3
EU15+2	Netherlands	72	3	0	1	0	0	0	2	2	-1	2	1	1	1	3	2
EU15+2	Portugal	61	11	2	3	7	7	8	6	5	1	2	4	3	7	6	4
EU15+2	Spain	53	18	-2	1	1	0	-3	0	0	-1	1	1	0	-3	0	0
EU15+2	Sweden	72	2	-1	-2	-1	-4	-3	-3	-3	-1	-1	1	-1	0	0	0
EU15+2	UK	65	10	-2	-3	-1	0	1	-1	0	-1	-2	0	0	-1	-1	0
EU10+1	Bulgaria	37	27	2	4	6	4	3	2	3	1	2	2	2	1	1	1
EU10+1	Croatia	42	26	0	2	2	3	3	3	3	0	0	0	0	0	0	1
EU10+1	Czech Republic	57	14	2	3	3	4	2	0	1	2	2	2	2	0	1	3
EU10+1	Estonia	56	16	0	1	2	3	4	6	6	-2	-1	-2	-1	3	3	3
EU10+1	Hungary	43	24	-1	0	0	-3	-6	-3	-3	0	0	0	-2	-2	-2	-2
EU10+1	Latvia	47	21	1	2	2	3	3	7	7	2	2	2	3	2	4	4
EU10+1	Lithuania	48	20	-2	-2	1	3	5	6	6	0	0	2	3	4	4	4
EU10+1	Poland	46	23	-1	-3	-6	-5	-5	-4	-2	-1	-2	-3	-3	-3	-3	-3
EU10+1	Romania	35	28	-1	0	0	2	1	1	1	-1	-1	-1	0	1	1	1
EU10+1	Slovakia	47	22	-1	1	0	-1	-2	0	0	-1	0	-1	-1	-1	-1	-1
EU10+1	Slovenia	56	17	0	2	3	3	1	0	-2	-2	0	1	0	-1	-1	-3
CC	Albania	24	33	1	4	6	11	9	4	4	0	0	1	2	2	0	0
CC	Macedonia	24	32	1	-1	-5	-2	1	-1	-1	0	0	-1	0	0	-2	0
CC	Montenegro	24	31	-3	-4	-6	-5	-5	0	-1	0	0	-1	-1	-1	1	-1
CC	Serbia	27	30	-1	-2	2	5	6	9	9	0	0	2	3	3	4	4
CC	Turkey	14	34	-1	-5	-8	-13	-12	-11	-11	0	0	-1	-3	-3	-3	-3
PCC	BiH	13	35	0	-1	-3	-6	-6	-4	-4	0	0	0	-1	-1	0	0
PCC	Iceland	70	6	2	2	1	2	8	4	4	2	1	1	1	5	2	2

The changes of score and ranking in the Governance category in the period 2011-2018 show the following trends. Firstly, very few countries manage to improve their scores and ratings, but among them a number of EU10+1 countries – Estonia, Latvia and Lithuania perform the best, followed by some modest improvements in the cases of the Czech Republic and Bulgaria. Among the other countries, these are Finland, Portugal, the Netherlands, Serbia, Iceland and Albania to varying degrees. Secondly, there are countries that regressed over the years – most of all Turkey, Poland, Hungary, Cyprus, Greece, Denmark and Malta among others. Thirdly, generally there is a slowdown in the catching-up processes after 2016 for many countries, but it is not applicable for all and there are many individual differences.

About the cluster analysis

The cluster analysis divides countries in the Catch-Up Index into groups based on shared characteristics. In addition, it also shows the proximity of the clusters to one another, i.e. some clusters are closer to each other and more distant from the rest. The clusters are also hierarchical, with better performing countries in clusters of higher order.

The findings of the cluster analysis reveal divisions in Europe along the lines of shared characteristics as identified by the indicators of the Catch-Up Index. This "Europe" is different from the one that is usually perceived to be divided along political lines and by legal arrangements.

The findings of the cluster analysis provide an alternative narrative about the divergence and convergence processes in Europe. It can be argued that countries within one cluster or those clusters in closer proximity are more likely to forge common approaches or policies even if they have disagreements in the short term. Thus the cluster analysis shows a more "organic Europe" - a snapshot of similarity and dissimilarity, based on characteristics of countries, not political agreements or legally bindings. This allows to better track the processes convergence and divergence on the continent.

Clusters and Ranking in Index 2018 by Overall Score

In Index 2018, the five best performing countries by overall score (this is the average of the four categories) are Denmark (1st with 71 points), Sweden (2nd with 70 points), Luxemburg (3rd with 70 points), the Netherlands (4th with 70 points) and Finland (5th with 69 points) in the ranking of 35 countries in on a scale from 100 to 0 points, highest to lowest. The five most poorly performing countries by overall score and BiH (35th with 19 points), Turkey (34th with 22 points), Macedonia (33rd with 24 points), Albania (32nd with 25 points) and Serbia (31st with 29 points).

Overall Score: Ranking and Clusters 2018				
Group	Country	Overall Score 2018	Overall Rank 2018	Cluster
EU15+2	Denmark	71	1	
EU15+2	Sweden	70	2	
EU15+2	Luxembourg	70	3	
EU15+2	Netherlands	70	4	
EU15+2	Finland	69	5	1
PCC	Iceland	68	6	
EU15+2	Ireland	67	7	
EU15+2	Germany	66	8	
EU15+2	Austria	65	9	
EU15+2	UK	62	10	
EU15+2	Belgium	61	11	
EU15+2	France	58	12	
EU10+1	Estonia	57	13	2
EU10+1	Czech Republic	55	14	
EU15+2	Malta	55	15	
EU10+1	Slovenia	54	16	
EU15+2	Portugal	53	17	
EU15+2	Spain	52	18	
EU15+2	Cyprus	51	19	
EU10+1	Lithuania	49	20	3
EU10+1	Latvia	48	21	
EU10+1	Slovakia	47	22	
EU10+1	Poland	46	23	
EU15+2	Italy	46	24	
EU10+1	Hungary	41	25	
EU10+1	Croatia	41	26	
EU10+1	Romania	37	27	4
EU15+2	Greece	37	28	
EU10+1	Bulgaria	36	29	
CC	Montenegro	30	30	5
CC	Serbia	29	31	
CC	Albania	25	32	
CC	Macedonia	24	33	6
CC	Turkey	22	34	
PCC	BiH	19	35	

The best performing new member states by overall score from the EU10+1 group are Estonia (13th with 57 points), the Czech Republic (14th with 55 points) and Slovenia (16th with 54 points). The worst performing new member states are Bulgaria (29th with 36 points), Romania (27th with 37 points) and Croatia (26th with 41 points).

The table and corresponding map also show the results of a cluster analysis of scores. The clusters are groups of countries with identical characteristics and are hierarchical as the first cluster contains the best performing countries and the last cluster contains the worst performing countries. The clusters were visualized on the map of Europe, so there are further insights that can be observed. As described below, there are clearly geographic patterns in the catching-up process.

The cluster analysis by overall score resulted in six clusters. The first cluster is one of the largest with 9 countries – from Denmark to Austria. These are the best performers and as seen from the map, they are in Northwestern Europe – with the Scandinavian countries, the Netherlands and Luxemburg, Germany and Ireland. The second cluster with the second best-performers has the a smaller number of countries, compared to the first, and the group is quite diverse - from number 10 in the ranking – the United Kingdom – to Slovenia on 16th positions. Out of the 7 countries in the cluster 3 are new EU member

states – Estonia (13th with 57 points), the Czech Republic (14th with 55 points) and Slovenia (16th with 54 points).There are two big states – France and UK and a number mid- and small-size ones from the Baltics, to Central Europe and the Mediterranean (Malta).
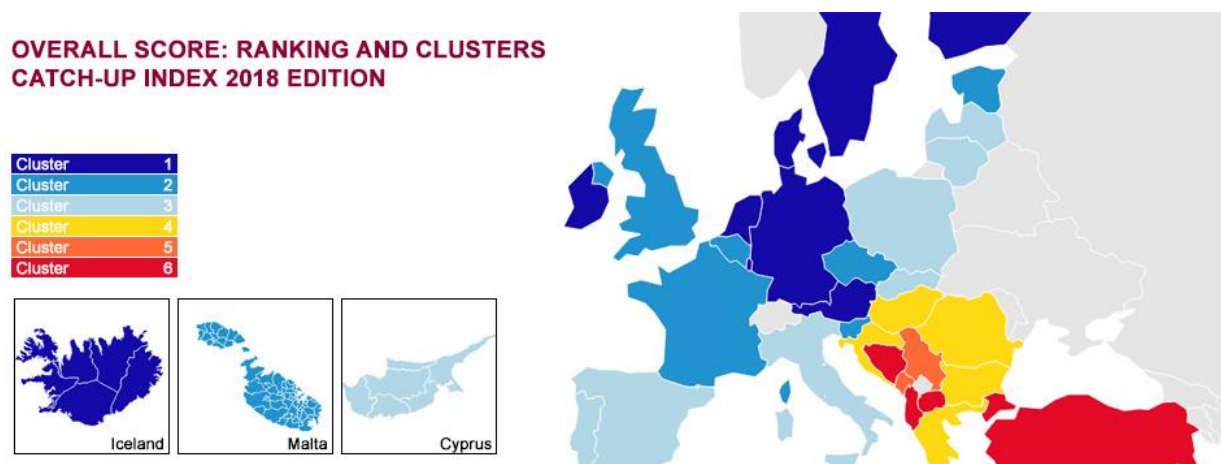
The third cluster contains countries from 17th to 24th in the ranking with a mix of CEE and South European EU member states as Portugal (17th), Spain (18th), Cyprus (19th) and Italy (24th) and Lithuania (20th), Latvia (21st), Slovakia (22nd) and Poland (23rd).

The fourth cluster is a transitional one, with the countries which are not the worst performers, but are close to the danger zone. This cluster consists of the Balkan EU member states – new one such as Croatia (26th), Romania (27th), Bulgaria (29th) and one old one Greece (28th) and Hungary (25th), which is actually an immediate neighbor.

The fifth cluster contains countries, which have problematic performance and are second to last in the Index 2018. It consists of two Balkan EU candidate countries – Montenegro (30th) and Serbia (31st).

The last, sixth cluster is composed of the worst performers in the Index 2018 – Albania (32nd), Macedonia (33rd), Turkey (34th) and Bosnia and Herzegovina (35th). They are all Balkan countries, candidates or potential candidates (BiH) for EU membership.

There are several takeaways from these results as the ranking and clusters show the overall scores, which is the average score across the four categories – Economy, Quality of Life, Democracy and Governance. Firstly, there are clear geographic patterns as the North and Northwestern countries are the best performers and those in Southeastern Europe are the worst performers. Secondly, the former East countries generally perform poorly than their Western counterparts. I.e. there is an East-West divide in Europe in regard to catching-up that still has impact on politics and public perceptions. Thirdly, the catching-up is a fact as newer member states get closer to the desired benchmarks. However, the EU10+1 countries still have a lot of work to perform above average. Fourthly, the EU10+1 are a diverse group as the three best performers – Estonia, the Czech Republic and Slovenia – punch above the weight of their group, but others are trailing behind. Fifthly, the geographic and political patterns are quite clear as the candidate countries in the Balkans are the worst performers. In this case, EU membership seems

to pay off, as the other similar countries are performing better and as can be seen in several cases, outperform the older member states.

Clusters and Ranking in Index 2018 by Economy Score

Economy Scores: Ranking and Clusters 2018				
Group	**Country**	**Score 2018**	**Rank 2018**	**Cluster**
EU15+2	**Luxembourg**	73	1	1
EU15+2	**Denmark**	71	2	1
EU15+2	**Ireland**	69	3	1
EU15+2	**Sweden**	68	4	1
EU15+2	**Netherlands**	68	5	1
EU15+2	**Germany**	66	6	1
PCC	**Iceland**	63	7	2
EU15+2	**Austria**	62	8	2
EU15+2	**UK**	61	9	2
EU15+2	**Finland**	60	10	2
EU10+1	**Estonia**	57	11	2
EU15+2	**France**	56	12	2
EU15+2	**Malta**	56	13	2
EU15+2	**Belgium**	55	14	2
EU10+1	**Czech Republic**	54	15	2
EU10+1	**Lithuania**	52	16	2
EU10+1	**Latvia**	50	17	3
EU10+1	**Slovenia**	50	18	3
EU15+2	**Spain**	48	19	3
EU10+1	**Slovakia**	47	20	3
EU15+2	**Cyprus**	47	21	3
EU10+1	**Poland**	46	22	3
EU10+1	**Hungary**	44	23	4
EU10+1	**Romania**	42	24	4
EU15+2	**Portugal**	42	25	4
EU15+2	**Italy**	41	26	4
EU10+1	**Croatia**	40	27	4
EU10+1	**Bulgaria**	40	28	4
CC	**Turkey**	39	29	4
CC	**Macedonia**	35	30	5
EU15+2	**Greece**	32	31	5
CC	**Montenegro**	32	32	5
CC	**Serbia**	29	33	6
CC	**Albania**	27	34	6
PCC	**BiH**	22	35	6

The ranking and cluster analysis in the Economy category of Index 2018, show several results. The five best performers are Luxemburg (1st with 73 points), Denmark (2nd with 71 points), Ireland (3rd with 69 points), Sweden (5th with 68 points) and the Netherlands (5th with 68 points). The five worst performing countries in the Economy category in Index 2018 are BiH (35th with 22 points), Albania (34th with 27 points), Serbia (33rd with 29 points), Montenegro (32nd with 32 points) and Greece (31st with 32 points).

The cluster analysis divides the countries into groups with similar characteristics and in the Economy category there are six clusters. The first cluster with the best performing countries includes six states – with the five listed above and Germany (6th with 66 points). In terms of geography, this cluster contains North and Western countries.

The second cluster contains well-performing countries in the Economy category. It is the biggest one as it includes 10 countries - from 7th to 16th position in the ranking. This cluster includes 3 new member states – Estonia (11th), the Czech Republic (15th) and Lithuania (16th). There are two big countries – the UK and France and a number of smaller EU member states as well as Iceland. The geography of the cluster is diverse, but it is generally encompassing countries in the North, Western

and Central Europe.

The third cluster is composed of countries with good performance – from position 17th to 22nd – and it is a mix of new and old member states. The geography of the cluster encompasses the Baltics, Central and Southern Europe – with countries as diverse as Latvia (17th), Slovenia (18th), Spain (19th), Slovakia (20th), Cyprus (21st) and Poland (22nd).

ECONOMY SCORES: RANKING AND CLUSTERS
CATCH-UP INDEX 2018 EDITION

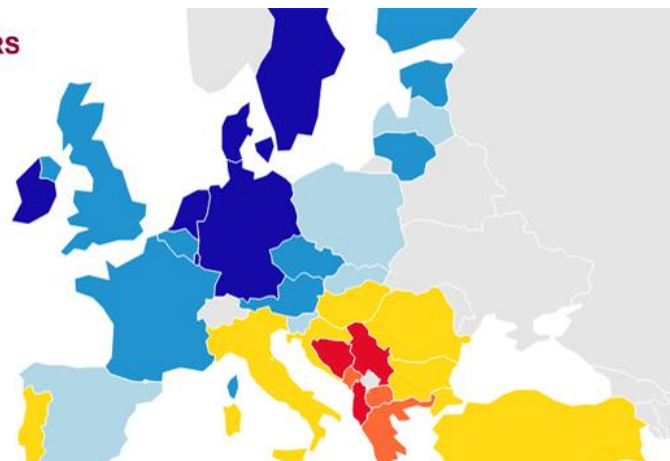|	
Cluster	1
Cluster	2
Cluster	3
Cluster	4
Cluster	5
Cluster	6
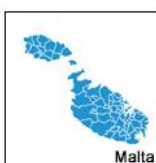
Iceland   Malta   Cyprus

The fourth cluster is the transitional one as it is between the better and worse performers in the Index 2018. It consists of four EU10+1 countries, two older member states and Turkey – Hungary (23rd), Romania (24th), Portugal (25th), Italy (26th), Croatia (27th) Bulgaria (28th) and Turkey (29th). The geography of the cluster encompasses Southern and Southeastern European countries and the close neighbor of Italy.

The fifth cluster is a small one with only three countries – Macedonia (30th), Greece (31st) and Montenegro (32nd). They are all Southeast European countries with one old EU member state and two candidate countries.

The sixth and last cluster contains again only three countries – Serbia (33rd), Albania (34th) and BiH (35th) and they are located in Southeast Europe with two EU candidates and one potential candidate country.

Clusters and Ranking in Index 2018 by Quality of Life Score

Quality of Life Scores: Ranking and Clusters 2018				
Group	Country	Score 2018	Rank 2018	Cluster
EU15+2	Finland	70	1	1
PCC	Iceland	69	2	1
EU15+2	Netherlands	69	3	1
EU15+2	Sweden	67	4	1
EU15+2	Germany	67	5	1
EU15+2	Luxembourg	67	6	1
EU15+2	Belgium	67	7	1
EU15+2	Denmark	67	8	1
EU15+2	Austria	65	9	1
EU15+2	Ireland	65	10	1
EU15+2	UK	64	11	1
EU15+2	France	64	12	1
EU10+1	Slovenia	58	13	2
EU10+1	Czech Republic	56	14	2
EU15+2	Cyprus	56	15	2
EU15+2	Spain	53	16	3
EU15+2	Italy	53	17	3
EU10+1	Estonia	53	18	3
EU15+2	Malta	51	19	3
EU15+2	Portugal	49	20	3
EU10+1	Poland	48	21	4
EU10+1	Slovakia	47	22	4
EU10+1	Lithuania	46	23	4
EU15+2	Greece	44	24	4
EU10+1	Latvia	44	25	4
EU10+1	Hungary	43	26	4
EU10+1	Croatia	42	27	4
CC	Montenegro	33	28	5
EU10+1	Romania	33	29	5
EU10+1	Bulgaria	30	30	5
CC	Serbia	26	31	5
CC	Turkey	26	32	5
CC	Albania	23	33	6
PCC	BiH	22	34	6
CC	Macedonia	18	35	6

The result of the ranking and cluster analysis in Quality of Life shows several trends. The five top performers are Finland (1st with 70 points), Iceland (2nd with 69 points), the Netherlands (3rd with 69 points), Sweden (4th with 67 points) and then Germany (5th with 67 points). But it should be pointed out that Luxemburg (6th), Belgium (7th), and Denmark (8th) have an identical score such as Germany's (i.e. the scores are rounded to the nearest whole number). The worst performing countries are Macedonia (35th with 18 points), BiH (34th with 22 points), Albania (33rd with 23 points), Turkey (32nd with 26 points) and Serbia (31st with 26 points).

The first cluster with the best performers is the biggest one with 12 countries out of 35 in total and encompasses the North and Western European countries, including the big three of Germany, France and the UK. In this cluster, the countries are all old EU member states with the exception only of Iceland. The second cluster contains only three countries – Slovenia (13th), the Czech Republic (14th) and Cyprus (15th) – i.e. two CEE countries have a very similar score such as the best performers among the old member states.

The third cluster of well performing countries includes old member states with the exeption of Estonia (18th) and they are in Southern Europe – such as Spain (16th), Italy (17th), Malta (19th), Portugal (20th).

The fourth cluster includes six EU10+1 countries and one older member state – Greece (24th), i.e. most of the 11 new member states are in this cluster. The fourth cluster is transitional from the well-performing to the poorly performing counties. The new member states here include Poland (21st),

Slovakia (22nd), the two Baltic countries – Lithuania (23rd) and Latvia (25th), Hungary (26th) and Croatia (27th).

The fifth cluster includes new and candidates countries from the Balkans – Montenegro (28th), Romania (29th) and Bulgaria 30th), Serbia (31st), Turkey (32nd). The sixth and last cluster includes the rest of the Balkans countries, candidates and a potential candidate country.
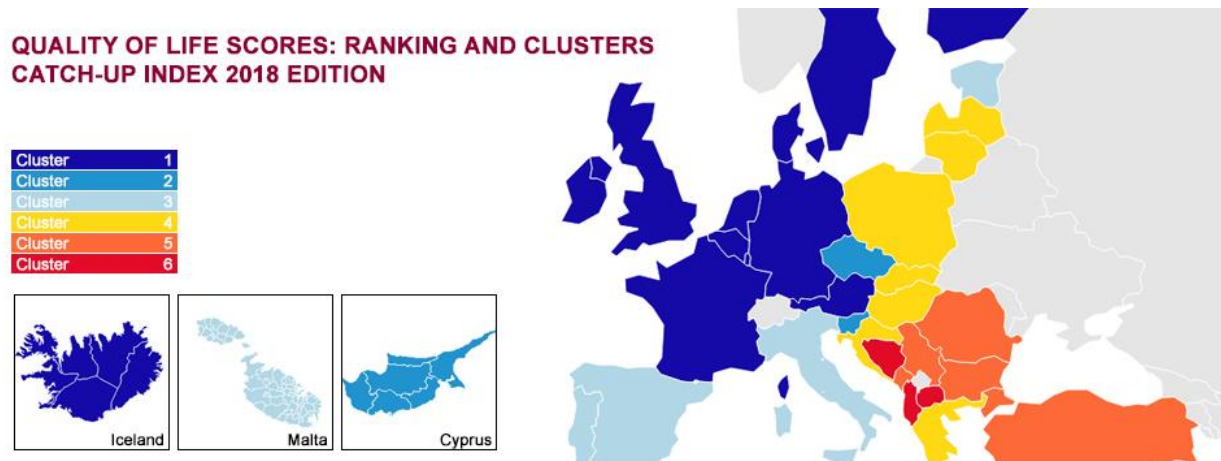
The observations about the Quality of Life ranking and cluster analysis shows that the 20 countries have high or quite good quality of life as they are among the top or better performers within this category. But there are only three new member states among the three best clusters, which mean that the old member states preserve their advantages in Quality of Life. The North and West European countries have the best Quality of Life scores, followed by Southern European countries and three of the new member states. The CEE countries and the Balkan countries – new member states and candidates have the lowest results in Quality of Life.

Clusters and Ranking in Index 2018 by Democracy Score

Democracy Scores: Ranking and Clusters 2018				
Group	Country	Score 2018	Rank 2018	Cluster
EU15+2	Finland	74	1	1
EU15+2	Denmark	74	2	
EU15+2	Sweden	74	3	
EU15+2	Netherlands	71	4	
PCC	Iceland	71	5	
EU15+2	Luxembourg	69	6	
EU15+2	Ireland	68	7	
EU15+2	Germany	64	8	2
EU15+2	Austria	63	9	
EU15+2	Belgium	62	10	
EU10+1	Estonia	60	11	
EU15+2	UK	59	12	
EU15+2	Portugal	59	13	
EU15+2	Malta	55	14	3
EU10+1	Czech Republic	54	15	
EU15+2	France	54	16	
EU15+2	Spain	53	17	
EU10+1	Slovenia	52	18	
EU10+1	Lithuania	51	19	
EU10+1	Latvia	51	20	
EU15+2	Cyprus	51	21	
EU15+2	Italy	49	22	
EU10+1	Slovakia	48	23	
EU10+1	Poland	46	24	
EU10+1	Croatia	40	25	4
EU10+1	Romania	39	26	
EU15+2	Greece	38	27	
EU10+1	Hungary	36	28	
EU10+1	Bulgaria	36	29	
CC	Serbia	34	30	
CC	Montenegro	31	31	
CC	Albania	26	32	5
CC	Macedonia	20	33	
PCC	BiH	18	34	
CC	Turkey	11	35	6

With regard to the Democracy category, in Index 2018 out of the five top performers three have identical scores- Finland (1st with 74 points), Denmark (2nd with 74 points) and Sweden (3rd with 74 points) and the difference is negligible (the scores are rounded to the next whole number). The Netherlands (4th with 71 points) and Iceland (5th with 71 points), which are next in the ranking also have identical scores. The top worst performers in the Democracy category are Turkey (35th with 11 points), BiH (34th with 18 points), Macedonia (33rd with 20 points), Albania (32nd with 26 points) and Montenergo (31st with 31 points).
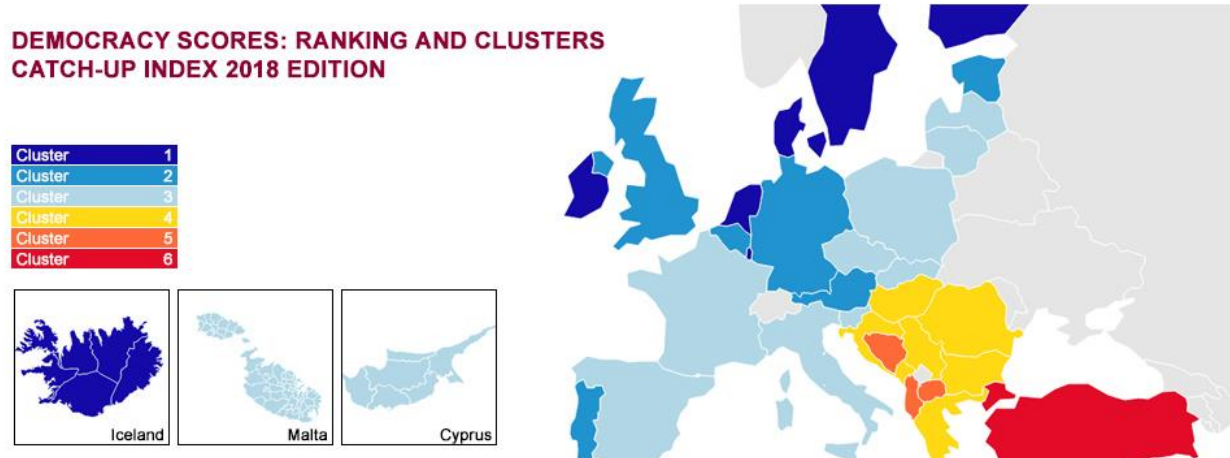
The first cluster with the most democratic countries includes old member states in North and Western Europe – from Finland (1st) to Ireland (7th).

The second cluster with very good performers includes a number of old EU member states in Western Europe, including Germany (8th), Austria (9th), Belgium (10th), the UK (12th) and Portugal (13th). One new member states – Estonia – is in this cluster too as it performs very well and is 11th out of 35 countries in the Index 2018.

The third cluster in Democracy is the biggest one with a number of countries and it is mix of several old (mostly in Southern Europe) and new EU member states (in Central Europe and the Baltics). These include the Czech Republic (15th) and Slovenia (18th), which along with Estonia from the first cluster, are the best performing EU10+1 countries. Among the old member states are France (16th), Spain (17th) and Italy (22nd).

The fourth, transitional cluster between the better and worse performing counties includes four new and one old EU member state and two candidate countries – Croatia (25th), Romania (26th), Greece (27th), Hungary (28th), Bulgaria (29th), Serbia (30th) and Montenegro (31st). In terms of geography, they are mostly Balkan countries – with Hungary closing on in democratic performance to its neighbors.

DEMOCRACY SCORES: RANKING AND CLUSTERS CATCH-UP INDEX 2018 EDITION

Cluster	1
Cluster	2
Cluster	3
Cluster	4
Cluster	5
Cluster	6

Iceland   Malta   Cyprus

Clusters and Ranking in Index 2018 by Governance Score

Governance Scores: Ranking and Clusters 2018				
Group	Country	Score 2018	Rank 2018	Cluster
EU15+2	Finland	73	1	1
EU15+2	Sweden	72	2	
EU15+2	Netherlands	72	3	
EU15+2	Denmark	71	4	
EU15+2	Luxembourg	71	5	
PCC	Iceland	70	6	
EU15+2	Austria	69	7	
EU15+2	Germany	68	8	
EU15+2	Ireland	65	9	
EU15+2	UK	65	10	
EU15+2	Portugal	61	11	2
EU15+2	Belgium	59	12	
EU15+2	France	59	13	
EU10+1	Czech Republic	57	14	
EU15+2	Malta	56	15	
EU10+1	Estonia	56	16	
EU10+1	Slovenia	56	17	
EU15+2	Spain	53	18	
EU15+2	Cyprus	52	19	
EU10+1	Lithuania	48	20	3
EU10+1	Latvia	47	21	
EU10+1	Slovakia	47	22	
EU10+1	Poland	46	23	
EU10+1	Hungary	43	24	
EU15+2	Italy	42	25	
EU10+1	Croatia	42	26	
EU10+1	Bulgaria	37	27	4
EU10+1	Romania	35	28	
EU15+2	Greece	35	29	
CC	Serbia	27	30	5
CC	Montenegro	24	31	
CC	Macedonia	24	32	
CC	Albania	24	33	
CC	Turkey	14	34	6
PCC	BiH	13	35	

In the Governance category, the top five performers are Finland (1st with 73 points), Sweden (2nd with 72 points), the Netherlands (3rd with 72 points), Denmark (3rd with 72 points), and Luxemburg (5th with 71 points).The five worst performing countries are BiH (35th with 13 points), Turkey (34th with 14 points), Albania (33rd with 24 points), Macedonia (32nd with 24 points) and Montenegro (31st with 24 points). Several countries have identical scores, which is due to the fact that the scores are rounded to the nearest whole number and the fractions make the difference.

With regard to cluster analysis, the first cluster with the best performers in Governance contains 10 countries from Finland (1st) to the UK (10th) and all of them, except Iceland, are old EU member states located in North and Western Europe.

The second cluster in Governance is a mix of old and new EU member states with the Czech Republic (14th), Estonia (16th) and Slovenia (17th) among countries such as Belgium (12th), France (13th) and Spain (18th). In terms of geography, it is mix of countries mostly in Southern and Central Europe.
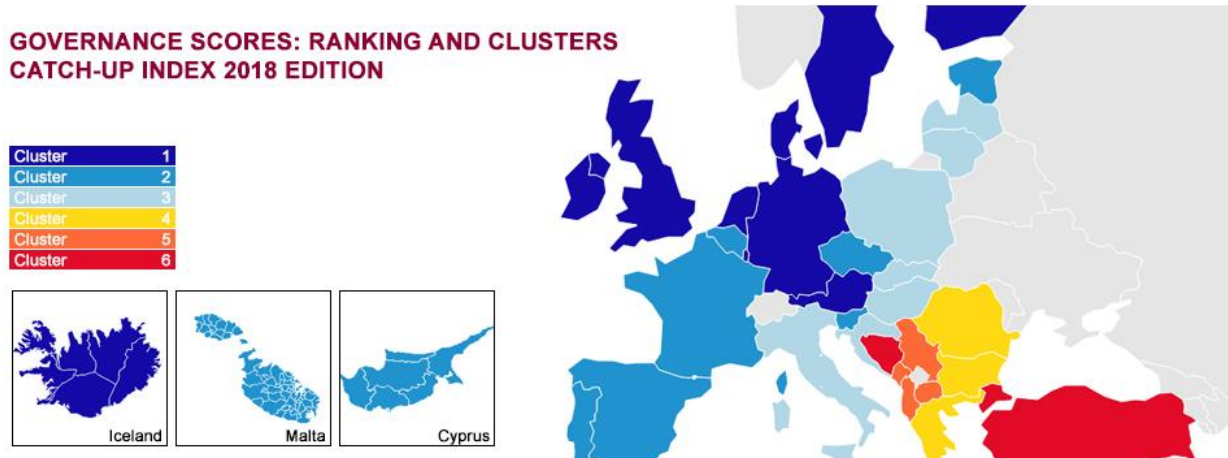
The third cluster encompasses countries from positions 20th to 26th out of 35 in the ranking. The majority of them are EU10+1 countries as well as Italy (25th) with Baltic (Lithuania, Latvia), Central European (Slovakia, Poland and Hungary) and Croatia.

The fourth, transitional cluster between the better and worse performers consists of only three countries – Bulgaria (27th), Romania (28th) and Greece (29th), two new and one old EU member state in the Balkans.

The fifth cluster consist of EU candidate countries in Southeastern Europe –Serbia (30th), Montenegro (31st), Macedonia (32nd) and Albania (33rd), followed by the sixth cluster with Turkey (34th) and BiH (35th), also fellow Balkan countries.

Overall, the patterns of performance in the Governance category shows that in terms of geography, the North and Western European states are the best governed countries and the Southeast European ones are the worst governed ones. In terms of catching-up, the newer member states are either underperforming or have mediocre performance, with the exception of the Czech Republic, Slovenia and Estonia.

GOVERNANCE SCORES: RANKING AND CLUSTERS
CATCH-UP INDEX 2018 EDITION

Cluster	1
Cluster	2
Cluster	3
Cluster	4
Cluster	5
Cluster	6

Iceland   Malta   Cyprus

The Economy category explained: methodology notes

The Economy category measures the economic performance and potential of the countries in the Index. Each of the four categories in the Catch Up Index is ascribed equal importance in terms of calculating a country's overall score.

The Economy category is measured through a set of nine indicators, each of which captures a different aspect of economic performance. Some indicators gauge more than one aspect of economic performance. The metrics of the indicators are based on 14 sub-indicators, of varying weightings. The specific indicators and the weightings assigned to the sub-indicators reflect the unique model of the Catch Up Index.

The raw data used for the indicators (e.g. GDP per capita or other composite indicator scores or coefficients) are converted into a Catch-Up Index score on a scale of 0 to 100 (lowest to highest) to allow for a standardized score that can be compared across countries or categories and indicators. Each of the indicators has different weight assigned to it, according to its importance in the Catch Up Index model.

Economy Indicators	Sub-indicators	Weight
GDP per capita	GDP per capita in PPS, EU28=100	25% (0,25)
Government debt	General government debt (% of GDP)	13% (0,125)
Credit ratings	Sovereign credit ratings	13% (0,125)
Employment	Employment rate %	8% (0,083)
Energy Intensity	Energy intensity of the economy	8% (0,083)
Information Society	Information and Communication Technology	8% (0,083)
Research and Development	Patents granted by USPTO per capita	4% (0,042)
	High-tech exports as % of manufactured exports	4% (0,042)
Market development	Doing Business rank	4% (0,042)
	Economic Freedom score	4% (0,042)
Transport infrastructure	Motorways per area 1000 km^2	2% (0,021)
	Motorways per 100,000 inhabitants	2% (0,021)
	Other roads per 1000 km^2	2% (0,021)
	Other roads per 100,000 inhabitants	2% (0,021)

GDP per Capita (PPS with EU28=100 basis, Eurostat) remains the most important indicator of economic activity and is assigned 25% weight in the total Economy category.

Government Debt, measured as a % of GDP, is second in importance with 12.5%. The global economic calamities of recent years, and especially the ongoing debt crisis in Europe, have clearly demonstrated the critical importance of government debt as a factor for the economic vitality of a country.

The **Sovereign Credit Ratings** – or creditworthiness and level of investment risk - of a country are also attributed high importance in the Index, with a 12.5% weight. The Index uses a composite, rescaled score of

the ratings of the three major agencies (Fitch, Moody's and Standard & Poor's).

Employment, with a weight of 8%, is a measure of an economy's potential to generate jobs and integrate as much as possible of the labor force in the labor market; this is measured through the share of working-age people in employment.

Energy Intensity, also ascribed an 8% weighting, is a measure of an economy's energy efficiency, calculating energy consumption divided by GDP as kilogram of oil equivalent per €1000. Energy intensity is also an important measure of an economy's competitiveness, because high energy inefficiency incurs more costs in production and services.

Research and Development, again with a weight of 8%, is a measure of the level of development and the "quality" of contemporary economies, including their competiveness. The Index uses two sub-indicators. The first is the number of patents registered from a country with the United States Patent and Trademark Office (USPTO) annually on a per capita basis. The second indicator is the share of high-tech exports in a country's manufactured exports.

The **Market Development** indicator (also 8%) is the composite score of two sub-indicators – the World Bank's Ease of Doing Business ranking and the Heritage Foundation/Wall Street Journal Index of Economic Freedom. The latter defines the highest form of economic freedom as "an absolute right of property ownership, fully realized freedoms of movement for labor, capital, and goods, and an absolute absence of coercion or constraint of economic liberty beyond the extent necessary for citizens to protect and maintain liberty itself."

The **Transport Infrastructure Indicator** (8%) is a measure of a country's economic development and its potential for economic activity. The Index uses four sub-indicators, based on calculating coefficients of motorways and other roads on a per capita and country area basis.

The ingredients of democracy: Methodology notes

Catching up in Democracy is essential for the post-communist member states of the EU, particularly given that the Copenhagen accession criteria for EU membership primarily focused on democracy. But although EU membership has often been perceived as a watershed in the political transition of the EU10 group, or even the end of that transition, it now appears that the newer members may not have achieved parity with more developed European nations in their progress in building democratic institutions and societies.

The Catch-Up Index was designed to analyse several aspects of democracy that are of particular significance for the newer member states, and those that are aspiring to be.

The Democracy category has equal weighting with the other three categories in the Catch-Up Index (Economy, Quality of Life and Governance). This category is measured through a set of seven indicators, which use nine sub-indicators. The raw data drawn from opinion polls and other composite indicator scores are converted into the Catch-Up Index score on a scale of 0 to 100 (lowest to highest) to give a standardized score that allows for comparison across countries, categories and indicators. Each of the indicators has a different weight assigned to it according to its importance in the Index model.

Democracy Indicators	Sub-indicators	Weight
Democracy Indices	Freedom House score Freedom in the World	20% (0,195)
	Economist Intelligence Unit Democracy Index	20% (0,195)
Media Freedom	Freedom House Freedom of the Press score	10% (0,98)
	Reporters without Borders Press Freedom Index	10% (0,98)
Satisfaction with democracy	Satisfaction with democracy %	10% (0,98)
Trust in People	Trust in people	10% (0,98)
Voice and Accountability	Voice and Accountability - WGI	10% (0,98)
Human Rights	Political terror indicator by Global Peace Index	10% (0,98)
E-participation	E-participation index	2% (0,024)

The first indicator used to measure democracy is composed of two established **composite democracy indexes** – those of **Freedom House** and the **Economist Intelligence Unit (EIU).** Each was attributed very high importance in the Democracy category with 20% weight (or 40% for both) because they assess the overall democracy in a country. The Freedom of the World index was used from Freedom House, rather than the specialized post-communist states' Nations in Transit index, because it does not encompass the Western European states. The EIU Democracy Index was used because its scores are more nuanced than the Freedom of the World scores, which allows for better distinction between the quality of democracy in the European states.

Media Freedom was attributed special attention in the Catch-Up Index because the media is essential to the democratic process – especially in the post-communist states. The Catch-Up Index relies again on two established media freedom indexes – of Freedom House and of Reporters

without Borders. Each is assigned 10% weight, giving the Media Freedom indicator a 20% overall weight.

Satisfaction with Democracy measures the attitude of citizens towards the democratic systems of governance in their countries. This is one of the only two indicators (along with Trust in People) that relies on public opinion surveys (in this case the main source is Eurobarometer), and the scores are based on the proportion of citizens who approve their countries' democratic systems.

Trust in People measures the level of people's trust of those who are outside of their immediate family or close friends. Literature abounds on the importance of trust for democracy - above all Francis Fukuyama's "Trust", – or economy and the successful organization of society. In this case, the Catch-Up Index employs the measure of Trust in People as a proxy for civil society development, given the limitations of available data on similar indicators for all the countries in the Index.

Voice and Accountability, with a weight of 10%, is a composite indicator of the World Bank's World Governance Indicators (WGI). This includes perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. The WGI scores also use World Bank assessments and reports that are not publicly available.

Absence of **Political terror** is also deemed essential for a functioning democracy and carries a weight of 10%. The scores are based on Global Peace Index "Political terror" indicator, e.g. identifying state terror, or violations of physical and personal integrity rights carried out by the state.

E-participation (2%) measures the level of participation in decision-making, governance or similar activities that is enabled by Information and Communication Technologies. For example, the facilitation of citizens' political participation through internet or cellular technologies within the broader "e-democracy" concept. Facebook advocacy or the "twitter revolutions" offer specific examples of similar phenomena.

Quality of Life: Methodology notes

Quality of Life is the category most influenced by the "bottom-up" approach in constructing the index. The metrics of the category have been designed to establish how wealthy people are and to what degree social issues affect them, such as income inequality, risk of poverty and long-term unemployment. The indicators also aim to assess levels of access to higher education and the quality of education available, as well as whether people are living longer, healthier lives with access to good quality healthcare services.

These criteria are prerequisites for individuals to have good quality of life and for the "health" and successful development of society at large. It does not come as a surprise that the majority of the citizens of the newer member states (and the candidates) associate EU membership above all with improved quality of life, at least closer to that of their more established EU counterparts.

The raw data used for the indicators (e.g. life expectancy in years, and other composite indicator scores or coefficients) are converted into the standardized Catch-Up Index score, on a scale from 0 to 100 (lowest to highest), to allow for comparison across countries, categories and indicators. As was the case in the other categories, each of the indicators has a different weight assigned to it, reflecting its importance in the Catch-Up Index model.

Quality of Life Indicators	Sub-indicators	Weight
Welfare of consumers	Actual individual consumption with EU28=100	20% (0,2)
Social issues	Inequality - Gini coefficient	7% (0,067)
	Relative median at-risk-of-poverty gap (%)	7% (0,067)
	Long-term unemployment rate (%)	7% (0,067)
Education	Share (%) of early school leavers	5% (0,05)
	Share of population (%) with university degree	5%(0,05)
	PISA* score in reading literacy	3% (0,033)
	PISA score mathematical literacy	3% (0,033)
	PISA score in scientific literacy	3% (0,033)
Health	Healthy life expectancy at birth in years	5% (0,05)
	Life expectancy in years	5% (0,05)
	Infant mortality by age of 5	5% (0,05)
	EuroHealth Consumer Index	5% (0,05)
Human Development	Human Development Index (UN)	20% (0,2)
* Programme for International Student Assessment (OECD).		

Welfare of Consumers is attributed 20% weight in the category. It is based on data from Eurostat's Actual Individual Consumption dataset, which is calculated on EU28=100 basis (rescaling each country's data as a

fraction of the EU mean).

The Social Issues indicator, with a total weight of 21%, comprises three sub-indicators that measure different aspects of social problems in a society. The first assesses social inequality using the Gini coefficient – the greater the inequality, the lower a country's score in the Index. The second sub-indicator is based on Eurostat's relative median at-risk-of-poverty gap indicator. The third sub-indicator measures long-term unemployment in society, which signals the existence of more deep-seated social problems that the basic unemployment rate.

The **Education** indicator has been designed to reflect primarily the quality of education, rather than the quantity, given that the GDP share of education or the number of teachers or students do not always correspond to good outcomes. This is especially valid with regard to the new member states, where often inefficient and unreformed systems produce poor results, notwithstanding the funds or manpower channeled into them.

As is the case with many of the index indicators, their data can also be useful in assessing other aspects of the same category or, in this case, other categories. For example, as well as being a key indicator for Quality of life, education is relevant in assessing economic potential, democracy and good governance. The sub-indicator on early school-leavers assesses the share of young people giving up education and training prematurely; this may also help to gauge broader social problems. The second sub-indicator is the share of the population that hold university degrees. The next three education-related sub-indicators are based on the results of the Organisation for Economic Co-operation and Development's ***Programme for International Student Assessment (***PISA). The PISA scores go beyond the performance of high-school students and survey the broader state of a country's education sector, for example qualification levels of teachers and the quality of universities.

The **Health** indicator is likewise designed to focus more on the outcomes than on less indicative criteria such as share of GDP or the number of medical workers. One sub-indicator is life expectancy, measuring how many years a person is expected to live, while another is healthy life expectancy, specifically taking into account life without major illness. The indicator for infant mortality is also indicative of the broader state of health services or social services in a country (or even the state of society more broadly) because it assesses the likelihood of children surviving to the age to 5. The fourth sub-indicator is a composite of the EuroHealth Consumer Index by the Health Consumer Powerhouse, which measures the quality of healthcare systems in a country (including by outcome).

The United Nations' **Human Development Index** is a composite index measuring life expectancy, literacy, education and standards of living for countries worldwide. It has similar dimensions to the Catch-Up Index, but includes additional data and methodology, which complements the other indicators but does not overlap with them.

The Catching-up of the EU10+1 Countries in Index 2018

The EU10+2 countries success in catching-up can be assessed by comparing their scores against the background of three benchmarks. These are respectively the maximum score of the EU15+2 group, which corresponds to the best performing country in the group, and often in the index; then the minimum of the EU15+2 group, corresponding to the worst performing country in the group; and finally the "desired European average", which is the average score of the EU15+2, the EU older member states.

EU10+1 catching-up by Overall Score

EU10+1 Catching-Up by Overall Score 2018
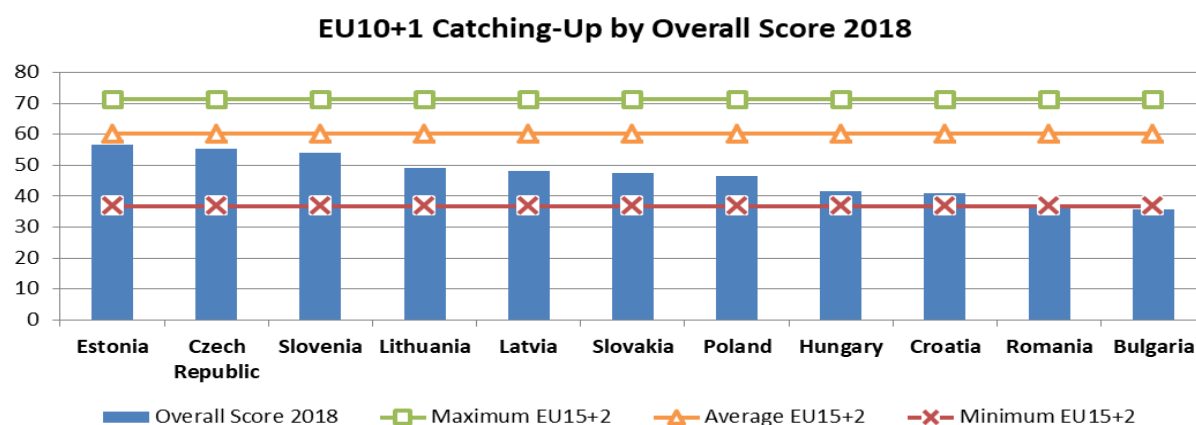
In Index 2018, the catching-up by Overall Score shows Estonia, the Czech Republic and Slovenia are closest to the desired average, which means they are converging most successfully. Yet, no country manages to surpass the average benchmark and all are still far below the best performers among the old member states. Croatia, Romania and Bulgaria are the least successful in catching-up in Index 2018. Except Bulgaria, all other countries are either on or above the minimal score for the EU15+2, i.e. they are better off than the worst performer among the old member states.

Group	Country	Overall Score 2018	Overall Rank 2018	Score change vs 2017	Score change vs 2016	Score change vs 2015	Score change vs 2014	Score change vs 2013	Score change vs 2012	Score change vs 2011	Rank change vs 2017	Rank change vs 2016	Rank change vs 2015	Rank change vs 2014	Rank change vs 2013	Rank change vs 2012	Rank change vs 2011
EU15+2	Maximum	71	1														
EU15+2	Average	60															
EU10+1	Estonia	57	13	0	0	1	2	3	4	4	0	0	0	1	3	5	5
EU10+1	Czech Republic	55	14	0	0	1	1	0	1	2	0	1	0	1	-1	1	3
EU10+1	Slovenia	54	16	-1	0	1	1	-1	-2	-2	-1	0	0	0	-2	-3	-3
EU10+1	Lithuania	49	20	-1	-1	0	1	2	5	4	-1	0	-1	2	2	4	4
EU10+1	Latvia	48	21	1	2	1	4	6	8	7	2	3	3	3	4	6	6
EU10+1	Slovakia	47	22	0	-1	-1	-1	-2	-1	1	0	0	0	-1	-3	-1	-1
EU10+1	Poland	46	23	-1	-4	-4	-3	-3	-2	0	-2	-4	-5	-5	-3	-3	-1
EU10+1	Hungary	41	25	-1	-1	-1	-2	-3	-4	-5	0	0	0	0	-1	-2	-2
EU10+1	Croatia	41	26	0	0	0	1	0	0	0	0	0	0	0	0	0	0
EU10+1	Romania	37	27	0	1	1	3	3	3	5	0	1	1	3	2	1	2
EU15+2	Minimum	37	28														
EU10+1	Bulgaria	36	29	1	2	2	1	1	1	1	0	0	0	0	-1	0	-1

The catching-up by Overall Score of the new EU member states (EU10+1) with their counterparts – the old member states (EU15+2) in Index 2018 shows several trends in the period 2011-2018. Firstly, there are three countries that are very close to the desired average benchmark of 60 points – Estonia (13th position) with 57 points, the Czech Republic (14th) with 55 points and Slovenia (15th) with 54 points. Secondly, several countries have been making progress – Estonia, the Czech Republic, Lithuania, Latvia, Romania (and to a limited extent Bulgaria with regard to scores). Thirdly, the progress and thus the catching-up have time limitations with a slowdown for many countries after 2014 or 2016 in the case of Romania. Fourthly, along with the countries that converge there are countries that diverge – Slovenia and Slovakia to a lesser extent and much more substantially in the cases of Poland and Hungary. Hungary has been sinking in the ranking compared to 2011-2012 by two positions in the ranking and by minus 5-4 points and after 2013 stayed at this low point. Poland's performance has decreased most after 2012, reached its lowest in 2014-2015. Fifthly, there are countries that have stagnated – Croatia is the clear example and to a certain extent Bulgaria (in regard to its ranking as it fluctuates).

EU10+1 catching-up by Economy Score
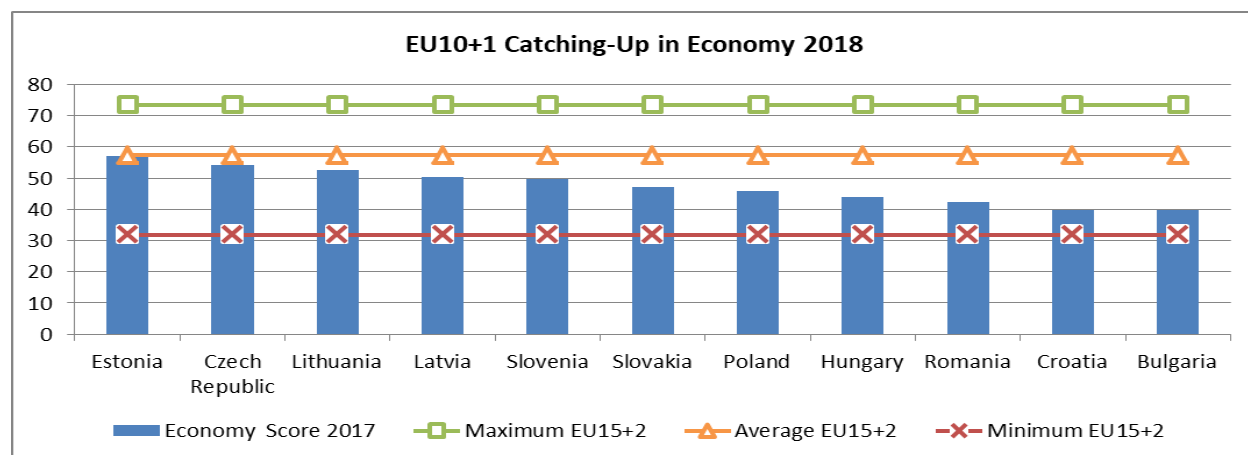
With regard to the Economy in Index 2018, Estonia has actually reached the desired average score of the EU15+2 group, followed by the Czech Republic and Lithuania, but even they are far from the best performers among the old EU member states. Romania, Croatia and Bulgaria are lagging most behind. All new member states are above the minimum score, i.e. the score the worst performer among the old EU member states.

				Score change vs 2017	Score change vs 2016	Score change vs 2015	Score change vs 2014	Score change vs 2013	Score change vs 2012	Score change vs 2011	Rank Change vs 2017	Rank Change vs 2016	Rank Change vs 2015	Rank Change vs 2014	Rank change vs 2013	Rank change vs 2012	Rank change vs 2011
								Economy: Changes in Ranks and Scores 2011-2018									
Group	Country	Economy Score 2017	Rank 2017														
EU15+2	Maximum	73	1														
EU15+2	Average	57															
EU10+1	Estonia	57	11	0	0	0	2	4	6	5	0	1	2	2	2	5	5
EU10+1	Czech Republic	54	15	0	0	2	3	4	4	6	-1	0	2	-1	1	3	3
EU10+1	Lithuania	52	16	0	0	0	2	2	5	6	0	0	-2	0	-1	3	5
EU10+1	Latvia	50	17	0	-1	-2	2	3	6	7	0	0	-1	0	2	5	6
EU10+1	Slovenia	50	18	1	1	0	1	-2	-4	-6	0	1	0	-1	-4	-5	-4
EU10+1	Slovakia	47	20	-1	-1	-1	0	1	1	1	-1	-2	0	0	0	0	0
EU10+1	Poland	46	22	0	-1	0	0	1	2	4	-1	-1	-1	-1	0	2	2
EU10+1	Hungary	44	23	-1	0	0	0	0	1	3	-1	-1	0	-1	1	3	3
EU10+1	Romania	42	24	0	0	1	3	3	3	5	1	1	2	3	3	3	5
EU10+1	Croatia	40	27	1	1	0	0	-3	-4	-2	1	1	0	1	-2	-2	-2
EU10+1	Bulgaria	40	28	0	-1	1	1	1	1	1	-1	-1	0	1	0	0	0
EU15+2	Minimum	32	31														

With regard to the Economy, the trends of catching-up in the period 2011-2018 are the following. Almost all new EU member states have a period of successful convergence with the rest, including Estonia – 11th out of 35 countries, the Czech Republic (15th), Lithuania (16th), Latvia (17th), Poland (22nd), Hungary (23rd) and Romania (24th). The exceptions are Slovenia and Croatia, which have diverged and Bulgaria, which has showed uneven development. But there is time limitation to the convergence process as it slows down after 2012-2014 (in terms of ranking and scores), with only Estonia and

Romania have a longer period of improvement after 2015 too. Similarly, the trends of deterioration also slow down after 2013, which means that there is generally stagnation after 2013-2014 in both convergence and divergence.

Indicators in the Economy category

The following tables present the ranking and scores of the EU10+1 countries by the basic indicators, which are used to measure the Economy category.

With regard to GDP per capita, all new EU10+1 countries are far from the average benchmark and far below from the best performing country. The Czech Republic (16th position) with 49 points is closest to the 61 points of the average for the old member states, followed by Slovenia (18th with 47 points) and Estonia (19th with 45 points). Seven out of eleven countries are performing better than the minimum score of the worst performer among the old member states.

GDP		
Country	Score 2018	Rank 2018
Maximum EU15+2	100	1
Average EU15+2	61	
Czech Republic	49	16
Slovenia	47	18
Estonia	45	19
Lithuania	44	20
Slovakia	43	22
Poland	41	23
Hungary	40	24
Minimum EU15+2	39	25
Latvia	39	26
Romania	37	28
Croatia	37	29
Bulgaria	31	30

With regard to Employment, the new member states perform well as more than half of the 11 countries are above the average level. Estonia, 7th in the ranking with 68 points, is close even to the best performer among the old member states at 1st place with 74 points and the Czech Republic (8th with 67 points) is not that far behind.

Employment		
Country	Score 2018	Rank 2018
Maximum EU15+2	74	1
Estonia	68	7
Czech Republic	67	8
Lithuania	61	10
Latvia	60	11
Slovenia	58	13
Hungary	56	15
Average EU15+2	56	
Bulgaria	53	18
Slovakia	52	20
Poland	52	21
Romania	47	24
Croatia	37	27
Minimum EU15+2	25	29

The research and development indicator uses data of two sub-indicators - patents granted by United States Patent and Trademark Office (USPTO) per capita and high-tech exports as a percentage of manufactured exports (World Bank data). The Czech Republic (14th with 48 points) and Hungary (15th with 48 points too) are closest to the desired level, followed closely by Estonia (16th with 45 points). Yet, no country surpasses the average score pf 60 points of the EU15+2 group.

Research and Development		
Country	Score 2018	Rank 2018
Maximum EU15+2	80	1
Average EU15+2	60	
Czech Republic	48	14
Hungary	48	15
Estonia	45	16
Latvia	44	17
Lithuania	43	18
Croatia	43	20
Slovakia	41	22
Slovenia	39	23
Poland	39	24
Romania	39	25
Bulgaria	38	27
Minimum EU15+2	35	29

Energy Efficiency		
Country	Score 2018	Rank 2018
Maximum EU15+2	74	1
Average EU15+2	65	
Slovenia	54	18
Minimum EU15+2	53	19
Croatia	52	20
Latvia	49	21
Lithuania	49	22
Slovakia	48	23
Romania	47	24
Poland	44	26
Hungary	44	27
Czech Republic	43	28
Estonia	25	31
Bulgaria	12	32

Energy efficiency reflects the energy intensity of the economy. This is the worst indicator for the new member states as they are below the average and the minimum score of the old member states, with only Slovenia's score (18th with 54 points) above the minimum of the old member states.

The transport infrastructure indicator uses data from four sub-indicators – length of roads and highways both per population and per the country size. There are three countries that perform better than the desired average – Slovenia (3rd with 70 points), Hungary (6th with 57 points) and Estonia (7th with 57 points too).

Transport Infrastructure		
Country	Score 2018	Rank 2018
Maximum EU15+2	72	1
Slovenia	70	3
Hungary	57	6
Estonia	57	7
Average EU15+2	55	
Lithuania	54	14
Croatia	54	15
Latvia	48	20
Czech Republic	48	21
Slovakia	42	25
Minimum EU15+2	42	26
Poland	41	28
Bulgaria	38	30
Romania	35	31

Government Debt		
Country	Score 2018	Rank 2018
Estonia	82	1
Maximum EU15+2	73	2
Bulgaria	72	4
Czech Republic	67	6
Romania	66	7
Lithuania	64	9
Latvia	64	11
Poland	58	14
Slovakia	58	16
Hungary	45	24
Slovenia	44	25
Croatia	42	26
Average EU15+2	41	
Minimum EU15+2	0	35

With regard to government debt, Estonia is actually the best performer among all 35 countries being 1st with 82 points and it is well above the maximum of the old member states (73 points), followed by Bulgaria (4th with 72 points) and the Czech Republic (6th with 67 points). All new EU member states perform better than average.

This indicator consists of two sub-indicators – of Doing Business and Index of Economic Freedom. Estonia excels in this indicator as it is 3rd among all 35 countries. Lithuania, Latvia and are not that far behind being 6th and 10th. The Czech Republic is also above average performer.

Market Development		
Country	Score 2018	Rank 2018
Maximum EU15+2	79	1
Estonia	76	3
Lithuania	71	6
Latvia	66	10
Czech Republic	59	14
Average EU15+2	54	
Poland	51	16
Romania	43	21
Slovenia	41	23
Slovakia	41	24
Hungary	38	26
Bulgaria	37	28
Croatia	26	33
Minimum EU15+2	13	34

Information&Communication Technology		
Country	Score 2018	Rank 2018
Maximum EU15+2	78	1
Estonia	66	9
Average EU15+2	63	
Slovenia	49	17
Latvia	47	18
Croatia	46	19
Lithuania	45	21
Czech Republic	45	22
Slovakia	43	24
Minimum EU15+2	42	25
Hungary	40	26
Poland	39	27
Bulgaria	38	28
Romania	30	30

The Information and Communication Technology index of the United Nations measures the level of development of the information society in a country. Estonia is first among its peers of the EU10+1 group and 9th in the ranking with scores above the average benchmark.

Credit Rating		
Country	Score 2018	Rank 2018
Maximum EU15+2	80	1
Czech Republic	61	11
Estonia	61	12
Average EU15+2	61	
Slovakia	57	14
Latvia	51	16
Lithuania	51	17
Poland	51	18
Slovenia	51	20
Bulgaria	40	23
Hungary	37	26
Romania	37	27
Croatia	31	28
Minimum EU15+2	23	32

The Credit Rating is the average score of the sovereign rating risks of the three big credit agencies - Moody's, S&P and Fitch. The Czech Republic and Estonia both perform just above average with identical score of 61 points, but bellow the best performing country with score of 80 points.

EU10+1 catching-up by Quality of Life Score
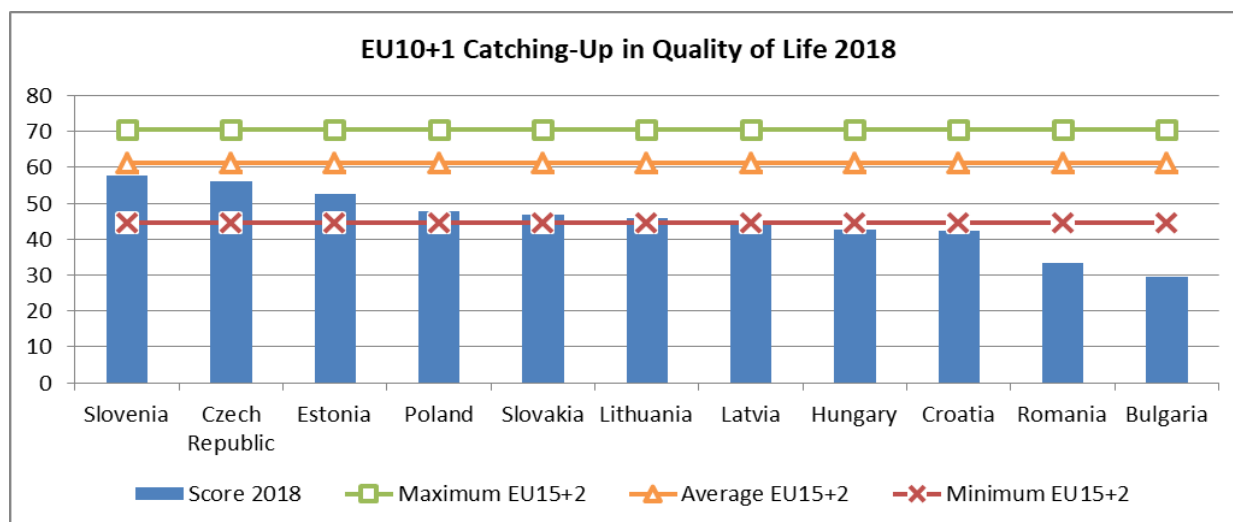
In the Quality of Life category in Index 2018, Slovenia is the closest new EU member states to the desired average benchmark of the old member states, followed by the Czech Republic and Estonia. Six countries are above the minimum (the worst performer) among the old member states.

Group	Country	Score 2018	Rank 2018	Score change vs 2017	Score change vs 2016	Score change vs 2015	Score change vs 2014	Score change vs 2013	Score change vs 2012	Score change vs 2011	Rank Change vs 2017	Rank Change vs 2016	Rank Change vs 2015	Rank Change vs 2014	Rank change vs 2013	Rank change vs 2012	Rank change vs 2011
EU15+2	Maximum	70	1														
EU15+2	Average	61															
EU10+1	Slovenia	58	13	-2	-1	2	0	1	0	0	0	0	1	0	1	1	2
EU10+1	Czech Republic	56	14	1	0	0	0	-2	1	3	0	0	-1	0	-1	2	4
EU10+1	Estonia	53	18	0	-1	1	2	5	4	4	0	-1	0	1	3	2	2
EU10+1	Poland	48	21	-2	-1	-1	-2	0	1	3	0	0	-1	-1	1	3	2
EU10+1	Slovakia	47	22	1	1	2	1	-3	-1	2	1	1	2	1	-3	0	2
EU10+1	Lithuania	46	23	0	0	0	0	1	8	5	1	1	0	1	1	3	3
EU15+2	Minimum	44	24														
EU10+1	Latvia	44	25	2	3	2	4	6	8	8	2	2	2	2	2	2	2
EU10+1	Hungary	43	26	-1	-1	-1	-1	-1	-5	-5	-1	-1	-1	-1	-1	-5	-4
EU10+1	Croatia	42	27	-1	-1	-1	0	1	2	-2	-1	-1	-1	-1	-1	-2	-2
EU10+1	Romania	33	29	4	5	3	4	5	2	6	0	1	0	0	2	1	2
EU10+1	Bulgaria	30	30	1	0	0	0	1	-1	-1	0	-1	0	0	0	1	0

With regard to catching-up trends in Quality of Life in the period 2011-2018, there are several interesting conclusions. Slovenia (13th out of 35 countries) with 58th points is the closest to the desired average score of 61 of the EU15+2 group, followed by the Czech Republic (14th) with 56 points. Estonia (18th) is a more distant third with 53 points. The worst performing countries are Bulgaria (30th with 30 points) and Romania (29th with 33 points), but Croatia despite being among the three worst performers is closer to rest of CEE on account of its score. The catching-up process is very limited – 8 out of 11 of the new member states has managed to converge, but for a short time – in practice, the process stops after 2012 for most of them. There are two countries that have been diverging, instead of converging– Hungary and to a lesser extent Croatia have lost positions and points compared to 2011-2012. Slovakia, the Czech Republic and Poland have also experienced decrease after 2012 after an initial period of

convergence. Bulgaria has practically stagnated as its ranking and scores remained identical in the 2011-2018 period.

Consumption per capita		
Country	Score 2018	Rank 2018
Maximum EU15+2	86	1
Average EU15+2	65	
Lithuania	53	16
Czech Republic	46	18
Slovenia	44	21
Minimum EU15+2	44	20
Poland	43	22
Romania	43	23
Slovakia	43	24
Estonia	40	25
Latvia	39	26
Hungary	33	28
Croatia	31	29
Bulgaria	27	31

The consumption indicator is used for comparing the relative welfare of consumers between countries. The Index 2018 results show that the new EU member states are still very far from reaching the older member states in this indicator – with nearly 33 points below the best performer and below the average benchmark. Only Lithuania, the Czech Republic and Slovenia and several other countries have relatively better results. Unlike many other indicators, the worst performing old member state is still better off than the majority of new member states.

Social Issues is a composite indicator that includes three sub-indicators on inequality, risk of poverty and long-term unemployment. The Czech Republic (3rd with 71 points) is actually close to the best performer among the old member states, and Hungary, Slovakia, Slovenia and Estonia perform above the desired average benchmark – i.e. the average score of the old member states.

Social Issues		
Country	Score 2018	Rank 2018
Maximum EU15+2	72	2
Czech Republic	71	3
Hungary	65	5
Slovakia	59	15
Slovenia	58	16
Estonia	56	17
Average EU15+2	56	
Latvia	52	20
Romania	51	21
Croatia	50	22
Poland	46	23
Lithuania	41	26
Bulgaria	32	30
Minimum EU15+2	28	32

Gini index (social issues sub-indicator)		
Country	Score 2018	Rank 2018
Slovakia	82	1
Slovenia	80	2
Czech Republic	76	4
Maximum EU15+2	73	5
Hungary	61	11
Poland	57	15
Average EU15+2	54	
Croatia	54	18
Estonia	47	22
Romania	41	25
Minimum EU15+2	37	29
Latvia	35	30
Lithuania	22	31
Bulgaria	11	34

A closer look into the sub-indicators that are used to measure the Social Issues indicator shows the following results. With regard to the Gini Index, used to gauge inequality, shows that

actually the best performing countries – i.e. the least unequal countries in Index 2018 – are from the EU10+1 group: Slovakia (1st with 82 points), Slovenia (2nd with 80 points) and the Czech Republic (4th with 76 points). Two more countries – Hungary and Poland – perform above the desired average. In contrast, Latvia, Lithuania and Bulgaria are nearly at the end of the ranking with poor scores.

In regard to Long-term Unemployment, another sub-indicator used to gauge Social Issues, shows that the Czech Republic (2nd with 64) is the best performing country in the EU. All but two EU10+1 countries are performing better than the average of the old member states.

Long term unemployment (social issues sub-indicator)		
Country	Score 2018	Rank 2018
Czech Republic	64	2
Maximum EU15+2	64	4
Poland	63	6
Hungary	62	9
Estonia	61	12
Romania	61	13
Lithuania	58	17
Slovenia	57	19
Latvia	56	20
Bulgaria	56	21
Average EU15+2	55	
Croatia	52	26
Slovakia	50	27
Minimum EU15+2	14	32

Education		
Country	Score 2018	Rank 2018
Maximum EU15+2	90	1
Estonia	87	3
Slovenia	83	4
Poland	78	10
Average EU15+2	72	
Lithuania	72	15
Latvia	71	16
Czech Republic	68	17
Croatia	64	20
Hungary	56	24
Slovakia	54	26
Minimum EU15+2	48	27
Bulgaria	44	29
Romania	33	32

The Education indicator is a composite of several sub-indicators – share of people with university education, share of early school leavers and the PISA results. Estonia is just 3 point short of being first in the overall ranking and along with Slovenia and Poland it performs above the average. Lithuania and Latvia also perform strongly and are close to the average score.

With regard to the PISA test (which uses the latest 2016 publication, with the new to be published in late 2019), Estonia is the first among all 35 countries with Slovenia and Poland above average benchmark too. The Czech Republic and Latvia are very close to the desired result too.

PISA (education sub-indicator)		
Country	Score 2018	Rank 2018
Estonia	77	1
Maximum EU15+2	76	2
Slovenia	69	3
Poland	66	8
Average EU15+2	59	
Czech Republic	59	16
Latvia	57	17
Lithuania	50	21
Croatia	50	22
Hungary	50	23
Slovakia	44	25
Bulgaria	31	27
Romania	30	29
Minimum EU15+2	30	30

Human Development Index		
Country	Score 2018	Rank 2018
Maximum EU15+2	77	1
Average EU15+2	64	
Slovenia	61	13
Czech Republic	57	15
Estonia	51	18
Poland	49	21
Lithuania	46	22
Slovakia	45	23
Latvia	42	24
Minimum EU15+2	42	25
Hungary	39	26
Croatia	36	27
Bulgaria	29	29
Romania	28	30

The Human Development Index of the United Nations is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living. Slovenia and the Czech Republic are closest to the average score of the old member states, followed by the Estonia. Bulgaria (29th) and Romania (30th) underperform.

The Health indicator uses several sub-indicators: life expectancy, healthy life expectancy, quality of the healthcare system and the infant mortality. Only Slovenia is close to the average benchmark. And unlike the majority of cases, the old member states worst performer with the minimum score is still in much better shape than the others in the group.

Health		
Country	Score 2018	Rank 2018
Maximum EU15+2	71	1
Average EU15+2	63	
Slovenia	60	15
Czech Republic	52	19
Minimum EU15+2	50	20
Estonia	47	21
Slovakia	43	22
Croatia	42	23
Poland	39	25
Hungary	33	28
Latvia	31	30
Lithuania	30	31
Bulgaria	23	32
Romania	18	35

Life expectancy (health sub-indicator)*		
Country	* Years	Rank 2018
Slovenia	81.2	17
Czech Republic	79.1	20
Croatia	78.2	22
Estonia	78	24
Poland	78	25
Slovakia	77.3	26
Hungary	76.2	29
Romania	75.3	32
Bulgaria	74.9	33
Latvia	74.9	34
Lithuania	74.9	35
The data is in years, not Index scores.		

The Life Expectancy sub-indicator, part of the Health Indicators, is indicative of the situation. It should be noted that the data provided in the table is in years (the original metrics) and is not showed into standardized scores as the others.

The new member states perform particularly poorly in this sub-indicator. The best performer among the new member states – Slovenia is 17th out of 35 countries and all the others are down to the bottom of the ranking – Bulgaria, Latvia and Lithuania performing particularly poorly with 74.9 years of life expectancy each.

Infant mortality (under 5) The Life Expectancy sub-indicator, part of the Health Indicators, is indicative of the situation. Slovenia is the best performing country among all 35 in the Index and 8 out the 11 new EU member states are above the average of the old member states. Only Bulgaria and Romania underperform and are respectively 31st and 32nd in the ranking.

Infant mortality (health sub-indicator)		
Country	Score 2018	Rank 2018
Slovenia	71	1
Maximum EU15+2	71	3
Estonia	66	6
Czech Republic	61	9
Latvia	54	19
Lithuania	53	22
Hungary	52	23
Croatia	51	24
Poland	50	25
Slovakia	43	27
Average EU15+2	38	
Bulgaria	28	31
Romania	26	32
Minimum EU15+2	38	30

Eurohealth Consumer Index (health sub-indicator)		
Country	Score 2018	Rank 2018
Maximum EU15+2	90	1
Average EU15+2	62	
Slovakia	59	11
Czech Republic	55	14
Slovenia	55	15
Estonia	49	18
Croatia	36	26
Latvia	30	28
Hungary	30	30
Poland	30	31
Lithuania	28	32
Minimum EU15+2	27	33
Bulgaria	24	34
Romania	4	35

The Eurohealth Consumer Index is a sub-indicator, which is part of the Health Indicator, and shows the quality of the healthcare systems in the countries in the Index. Slovakia is very close to the average benchmark, but all countries are quite far from the best performer among the new member states. A number of countries have mediocre to poor performance, with Bulgaria (34th) and Romania (35) at the end of the ranking.

EU10+1 catching-up by Democracy Score
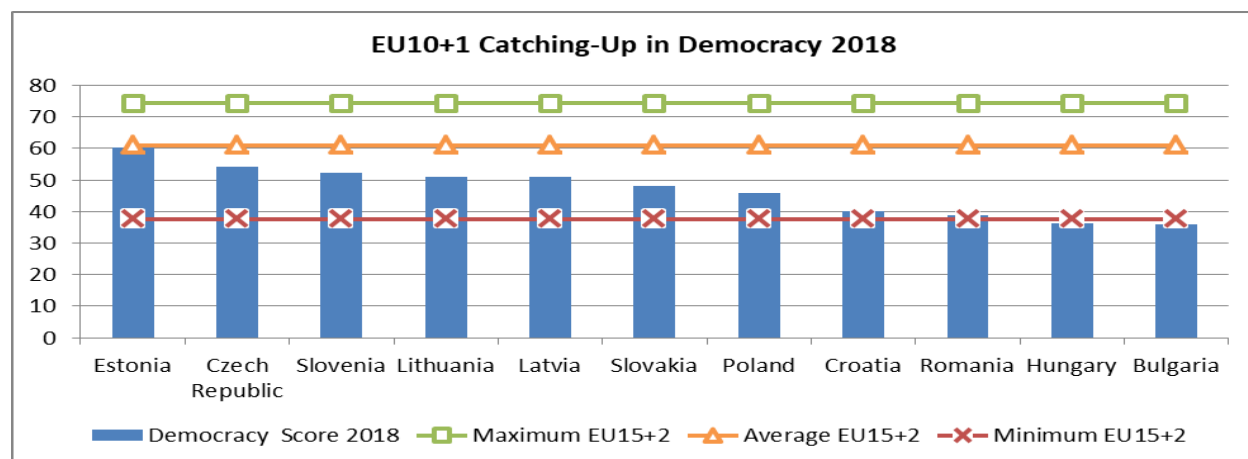
In the Democracy category in Index 2018, Estonia is the best performers among the new member states with 60 points and is closest to the desired average of 61 points of the EU15+2 group, followed by the Czech Republic and Slovenia. But besides Estonia, no other country is closer to this average score and all are far from the best performers. Bulgaria, Hungary and Romania are the worst performers in Democracy in Index 2018.

				Democracy: Change in Ranks and Scores 2011-2018													
Group	Country	Democracy Score 2018	Rank 2018	Score change vs 2017	Score change vs 2016	Score change vs 2015	Score change vs 2014	Score change vs 2013	Score change vs 2012	Score change vs 2011	Rank Change vs 2017	Rank Change vs 2016	Rank Change vs 2015	Rank Change vs 2014	Rank change vs 2013	Rank change vs 2012	Rank change vs 2011
EU15+2	Maximum	74	1														
EU15+2	Average	61															
EU10+1	Estonia	60	11	1	1	2	1	1	2	3	2	2	2	1	1	0	1
EU10+1	Czech Republic	54	15	-2	-2	-2	-2	-3	-3	-2	1	-1	0	0	-1	-2	-1
EU10+1	Slovenia	52	18	-2	-1	1	-1	-2	-2	-2	-1	1	2	-2	-1	-2	-1
EU10+1	Lithuania	51	19	-1	-1	-1	0	2	1	0	-1	2	-1	2	2	2	1
EU10+1	Latvia	51	20	0	2	4	8	11	10	7	0	3	3	4	6	6	5
EU10+1	Slovakia	48	23	0	-5	-4	-4	-2	-4	0	1	-5	-4	-4	-3	-4	0
EU10+1	Poland	46	24	-3	-9	-10	-7	-7	-7	-6	-1	-9	-8	-6	-6	-6	-3
EU10+1	Croatia	40	25	-1	-2	-2	-1	-2	-3	0	0	0	0	1	0	0	2
EU10+1	Romania	39	26	-2	0	3	4	5	3	7	0	0	2	3	3	2	3
EU15+2	Minimum	38	27														
EU10+1	Hungary	36	28	0	-2	-1	-6	-6	-9	-15	0	-1	-1	-3	-4	-4	-6
EU10+1	Bulgaria	36	29	1	4	2	0	2	0	2	0	1	0	-1	-1	0	-1

In the Democracy category, the changes in scores and rankings of the new EU member states register several trends. Estonia is the closest to achieving convergence as it has 60 points compared to average 61 points of the EU15+2. Estonia is 11th in the ranking out of 35 countries. The Czech Republic (15th), Slovenia (18th), Lithuania and Latvia are father below. But no country has surpassed this average benchmark and all are below the best performer with the maximum points among the old member states. The worst performers are Hungary (28th) and Bulgaria (29th) with virtually identical scores of 36 points and Croatia (25th) and Romania (26th) are near them with 40 and 39 points respectively. Contrary

to other categories, there is no clear time pattern of catching-up as there are different individual cases. In the period 2011-2018, Latvia has witnessed the most steady progress in terms of both positions and scores, followed by Romania, Lithuania and Estonia. But Romania has lost momentum in Democracy after 2015, while Estonia has continued to improve. Croatia is the country that largely stagnated in Democracy development and Bulgaria's performance fluctuated.

Hungary and Poland has witnessed substantial drop in both their ranking and score – e.g. up to 6 to 9 positions and minus 10 to15 points down respectively. In the case of Hungary it can be registered at earlier date, but Poland has been regressing rapidly too. Slovakia has experienced similar downward trends either.

Satisfaction with Democracy		
Country	Score 2018	Rank 2018
Maximum EU15+2	87	1
Average EU15+2	61	
Poland	59	13
Estonia	55	15
Czech Republic	54	16
Latvia	53	17
Hungary	47	18
Slovakia	39	20
Slovenia	34	24
Bulgaria	28	28
Croatia	28	30
Lithuania	28	29
Romania	27	34
Minimum EU15+2	19	35

The Satisfaction with Democracy indicator is based on results of public opinion surveys (Eurobarometer). In general, the new member states are far from the best performing old member state with 26 points difference, but the Poland, Estonia and the Czech Republic are closest to the average benchmark. Romania, Lithuania and Croatia are most dissatisfied with the way democracy works in their country.

Trust in People is a proxy indicator for civil society development. It measures to what extent people trust others that are not their immediate friends and relatives. This is a fundamental measure for a democratic society. In general, the new member states have much lower trust in others compared to the best performers in the Index with 33 points difference between the best among the older and the best among the newer member states. Estonia, Hungary, Romania and Slovenia are the best performers in the group and Bulgaria, Slovakia and Croatia are the worst performers among the new member states.

Trust in People		
Country	Score 2018	Rank 2018
Maximum EU15+2	93	1
Average EU15+2	60	
Estonia	51	17
Hungary	50	18
Romania	48	19
Slovenia	48	20
Poland	46	22
Lithuania	45	23
Latvia	43	24
Czech Republic	39	27
Bulgaria	34	29
Slovakia	34	30
Croatia	31	31
Minimum EU15+2	17	32

Democracy Indices		
Country	Score 2018	Rank 2018
Maximum EU15+2	74	1
Average EU15+2	62	
Estonia	59	14
Czech Republic	56	16
Slovenia	54	19
Lithuania	53	21
Latvia	49	22
Slovakia	49	23
Minimum EU15+2	47	24
Croatia	43	25
Poland	42	26
Bulgaria	42	27
Romania	39	28
Hungary	33	29

The Democracy Indexes is a composite score of Freedom House and Economist Intelligence Unit reports. According to these results, all new member states are below the average benchmark and far from the best performer among the old member states. Still, Estonia is 15th among 35 countries and first among its peers, followed by the Czech Republic and Slovenia. Hungary is the worst performing country – 29th out of 35 - with Bulgaria (27th) and Romania (28th) close by.

Media freedom is measured through the Freedom House Freedom of the Press score and the Reporters without Borders Press Freedom Index. Estonia has the highest level of media freedom among new EU member states. It has a very high score of 67 points, close to the best performer with 76 points and it is 8th among all 35 countries. The Czech Republic and Slovakia are just slightly below the average benchmark. Bulgaria is the worst performing country on 28th position among 35 countries and is close to the bottom of the ranking, preceded by Hungary (27th) and Croatia (28th).

Media Freedom		
Country	Score 2018	Rank 2018
Maximum EU15+2	76	1
Estonia	67	8
Average EU15+2	61	
Czech Republic	60	13
Slovakia	59	14
Lithuania	56	16
Latvia	56	17
Slovenia	54	19
Poland	42	24
Romania	42	25
Croatia	35	26
Hungary	33	27
Minimum EU15+2	31	28
Bulgaria	28	32

Civil and Political Rights		
Country	Score 2018	Rank 2018
Maximum EU15+2	69	1
Estonia	64	11
Average EU15+2	59	
Slovenia	58	13
Lithuania	58	15
Czech Republic	57	16
Latvia	55	18
Croatia	50	20
Slovakia	49	21
Poland	48	23
Romania	36	27
Bulgaria	33	29
Hungary	33	30
Minimum EU15+2	32	31

This indicator is based on two sub-indicators - Voice and Accountability of the World Bank and the Political Terror indicator of the Global Peace Index. Estonia has a higher score than the average benchmark with several other countries close by it, such as Slovenia and Lithuania.

The E-participation indicator measures the "ICT-supported participation in processes involved in government and governance", referring to citizen participation in the process. According to the UN E-Participation Index used, Estonia (12th), Poland (14th) and Bulgaria (16th) perform quite well, close to the average benchmark.

E-participation		
Country	Score 2018	Rank 2018
Maximum EU15+2	76	1
Average EU15+2	63	
Estonia	62	12
Poland	59	14
Bulgaria	56	16
Slovenia	47	21
Slovakia	46	23
Lithuania	45	24
Croatia	40	25
Minimum EU15+2	38	26
Hungary	30	29
Romania	30	30
Latvia	26	32
Czech Republic	16	34

EU10+1 catching-up by Governance Score
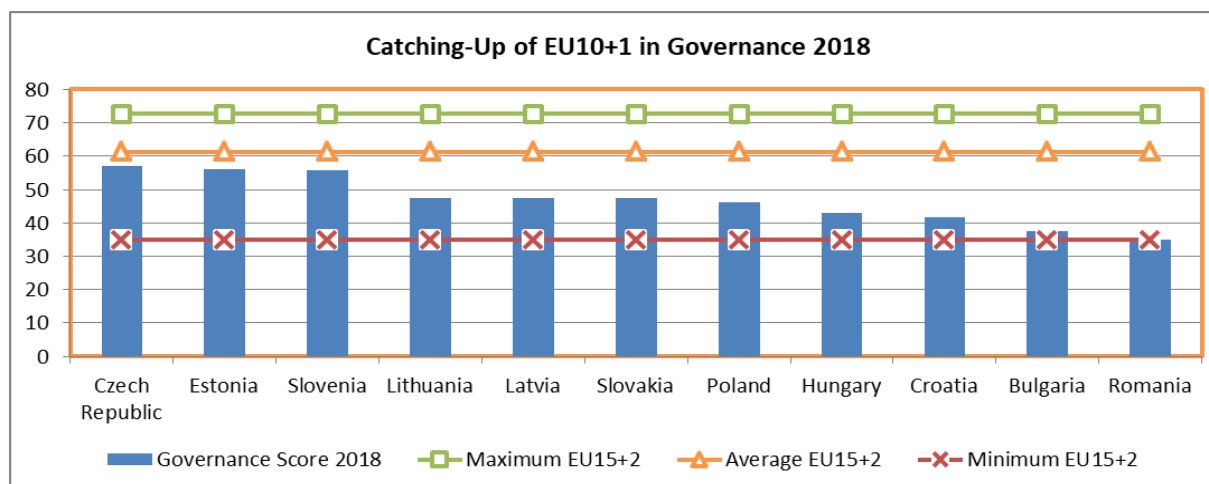
In the Governance category, the Czech Republic is the best performing country among the new EU member states and is closest to the desired benchmark of the average score of EU15+2 group. Estonia and Slovenia follow closely. Bulgaria and Romania are the worst performers in regard to Governance in Index 2018.

Group	Country	Governance Score 2018	Rank 2018	Score change vs 2017	Score change vs 2016	Score change vs 2015	Score change vs 2014	Score change vs 2013	Score change vs 2012	Score change vs 2011	Rank Change vs 2017	Rank Change vs 2016	Rank Change vs 2015	Rank Change vs 2014	Rank change vs 2013	Rank change vs 2012	Rank change vs 2011
EU15+2	Maximum	73	1														
EU15+2	Average	61															
EU10+1	Czech Repu	57	14	2	3	3	4	2	0	1	2	2	2	2	0	1	3
EU10+1	Estonia	56	16	0	1	2	3	4	6	6	-2	-1	-2	-1	3	3	3
EU10+1	Slovenia	56	17	0	2	3	3	1	0	-2	-2	0	1	0	-1	-1	-3
EU10+1	Lithuania	48	20	-2	-2	1	3	5	6	6	0	0	2	3	4	4	4
EU10+1	Latvia	47	21	1	2	2	3	3	7	7	2	2	2	3	2	4	4
EU10+1	Slovakia	47	22	-1	1	0	-1	-2	0	0	-1	0	-1	-1	-1	-1	-1
EU10+1	Poland	46	23	-1	-3	-6	-5	-5	-4	-2	-1	-2	-3	-3	-3	-3	-3
EU10+1	Hungary	43	24	-1	0	0	-3	-6	-3	-3	0	0	0	-2	-2	-2	-2
EU10+1	Croatia	42	26	0	2	2	3	3	3	3	0	0	0	0	0	0	1
EU10+1	Bulgaria	37	27	2	4	6	4	3	2	3	1	2	2	2	1	1	1
EU10+1	Romania	35	28	-1	0	0	2	1	1	1	-1	-1	-1	0	1	1	1
EU15+2	Minimum	35	29														

The changes in scores and ranking in the Governance category in the period 2011-2018 show the following trends. In Index 2018, the Czech Republic, (14th position) with 57 points is closest to the desired average of 61 points and Estonia (16th) with and Slovenia (17th) with identical scores of 56 points follow suit. Bulgaria (27th) with 37 points and Romania (28th) with 35 points are the worst performing countries in Index 2018. The best catching-up trend can be registered with the three Baltic republics – Estonia, Lithuania and Latvia, which make progress especially in the period 2011-2013 and 2014 as well as the Czech Republic, which makes consistent gains in both ranking and scores. In contrast, Poland, Hungary and to a smaller degree Slovenia register decline in their performance in varying degrees.

Corruption		
Country	Score 2017	Rank 2017
Maximum EU15+2	80	1
Estonia	64	12
Average EU15+2	63	
Slovenia	53	15
Poland	51	16
Lithuania	47	19
Latvia	47	20
Czech Republic	46	21
Slovakia	38	23
Croatia	36	25
Hungary	33	26
Romania	33	27
Minimum EU15+2	31	28
Bulgaria	27	30

The corruption indicator uses the Transparency International and World Bank indices. Estonia is the least corrupt countries in CEE with a score just below the average benchmark and 12th place out of 35 countries. The rest of the countries have good to decent performance. Bulgaria is by far the worst performing country among the new EU member states with 26 points and 30th position out of 35.

The political stability indicator uses two sub-indicators - Political instability of the Economist Intelligence Unit and Political Stability and Absence of Violence of the World Governance Indicators. Slovenia, the Czech Republic and Hungary are more politically stable than the rest of the CEE countries and there score is above the average benchmark. Poland is the least politically stable country in its group.

Political Stability		
Country	Score 2017	Rank 2017
Maximum EU15+2	74	2
Slovenia	65	9
Czech Republic	61	11
Hungary	59	13
Average EU15+2	58	
Slovakia	57	15
Lithuania	51	18
Croatia	51	19
Latvia	49	20
Estonia	49	21
Bulgaria	48	23
Romania	43	26
Poland	40	27
Minimum EU15+2	39	28

Government Effectiveness		
Country	Score 2017	Rank 2017
Maximum EU15+2	76	1
Average EU15+2	63	
Slovenia	59	14
Estonia	58	15
Czech Republic	55	17
Lithuania	54	19
Latvia	52	21
Slovakia	47	22
Poland	46	23
Croatia	44	24
Hungary	41	25
Minimum EU15+2	36	27
Bulgaria	33	28
Romania	10	34

Slovenia, Estonia and the Czech Republic have the most effective governments in CEE. They are close, yet below to the average benchmark. Romania has by the far the least effective government and it 34th out of 35 countries.

Estonia has better scores in Regulatory Quality than the average of the old member and is on 7th position out of 35. Croatia (33rd), the newest new member state has the lowest score and position within its group in this indicator.

Regulatory Quality		
Country	Score 2017	Rank 2017
Estonia	71	7
Maximum EU15+2	81	1
Czech Republic	60	14
Lithuania	55	16
Latvia	54	17
Poland	49	21
Slovakia	45	22
Hungary	40	24
Bulgaria	39	25
Slovenia	38	26
Romania	35	28
Average EU15+2	33	
Croatia	33	29
Minimum EU15+2	25	31

Rule of Law		
Country	**Score 2017**	**Rank 2017**
Maximum EU15+2	76	1
Average EU15+2	62	
Estonia	62	13
Czech Republic	58	16
Slovenia	57	17
Lithuania	55	19
Latvia	55	20
Slovakia	45	22
Hungary	44	23
Poland	42	24
Romania	37	25
Croatia	36	26
Minimum EU15+2	29	28
Bulgaria	24	30

In the Rule of Law indicator, most of the CEE countries perform under the desired average benchmark, but Estonia has practically reached the average benchmark with 62 points and 13th position among 35 countries. Romania (25th), Croatia (26th), and Bulgaria (30th) – have the lowest scores in the group.

This indicator is composed of two sub-indicators - Conflicts and tensions in the country – by selected Global Peace Index indicators and the Homicide rates per 100,000 people. The Czech Republic and Slovenia are performing above the average benchmark and especially the Czech Republic is close to the maximum score among 35countries. Three countries – Latvia, Estonia and Lithuania – underperform and are under the minimum score of the old member states.

Internal Conflict and Crime		
Country	**Score 2017**	**Rank 2017**
Maximum EU15+2	71	2
Czech Republic	68	4
Slovenia	63	9
Average EU15+2	59	
Slovakia	55	17
Bulgaria	54	18
Romania	53	19
Croatia	52	21
Poland	49	23
Minimum EU15+2	46	25
Hungary	44	26
Latvia	32	31
Estonia	32	32
Lithuania	23	33

E-government		
Country	Score 2017	Rank 2017
Maximum EU15+2	81	1
Estonia	66	8
Average EU15+2	65	
Poland	53	18
Minimum EU15+2	49	20
Slovenia	49	21
Lithuania	45	22
Hungary	38	23
Bulgaria	36	24
Slovakia	36	25
Czech Republic	34	28
Croatia	33	29
Latvia	32	30
Romania	25	32

The E-government indicator is based on the UN's E-government surveys and scores. It is included in the Index because it is a measure of government efficiency and delivery of services to citizens. Estonia is leader in the CEE group of countries with 66 points and 8th place in the ranking and above the average benchmark, but it is far from the best performer among the old member states with 81 points.

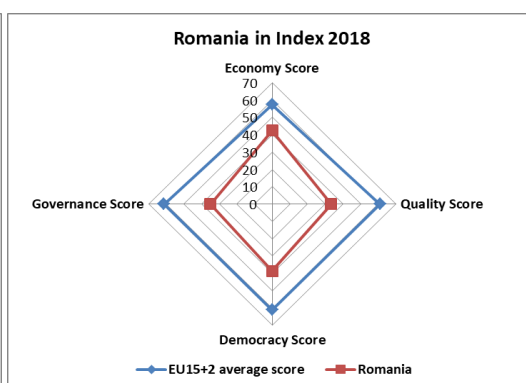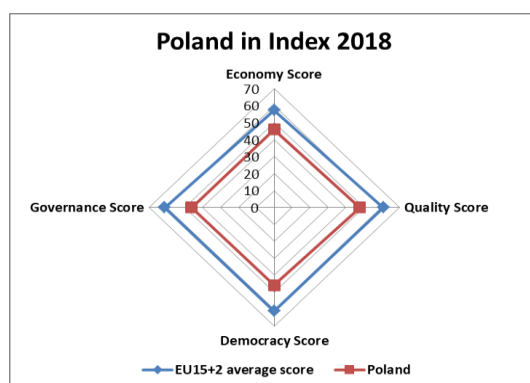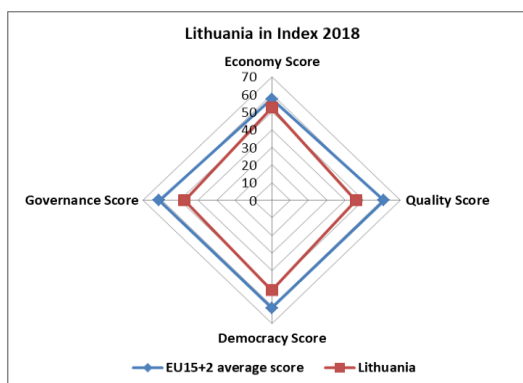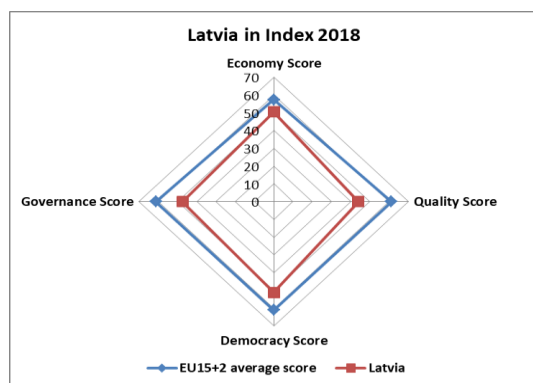# EU10+1 performance by country in the Catch-Up Index 2018

The spider graphs below show how the EU10+1 individual country scores compared to the desired "European average" in the four categories – Economy, Quality of Life, Democracy and Governance. The EU15+2 average scores are calculated as the average of the scores of the 15 older EU member states and Cyprus and Malta. The countries are shown in alphabetical order, only Croatia, which joined the EU latest, is at the end.
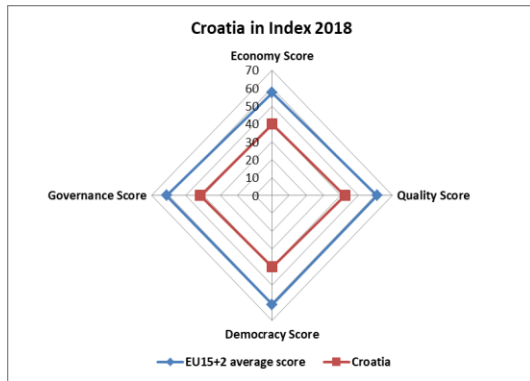
In addition to the distance to the desired average goal, the graphs shows to what extent the catching-up is an even and balanced process, in what areas the convergence is more successful and in what it is lagging behind. In the majority of cases, the scores in the Economy category are closer, meaning the catching-up is more successful. Reversely, the catching-up in the Quality of Life might not be that successful for most of these countries.

The graphs show also that the countries that are in forward ranking positions, i.e. more successful in catching-up in general have identically performance across all four categories – e.g. Czech Republic, Slovenia and Estonia. In contrast, countries that are lagging behind in the ranking have rather diverse performance in the four different categories – e.g. Bulgaria, Hungary and Romania. This suggests that they might be no shortcuts in catching-up and countries are not advised to skip one area of development at the expense of another.

Bulgaria in Index 2018

The Czech Republic in Index 2018

Estonia in Index 2018

Hungary in Index 2018

Latvia in Index 2018

Lithuania in Index 2018

Poland in Index 2018

Romania in Index 2018

Slovenia in Index 2018

Slovakia in Index 2018
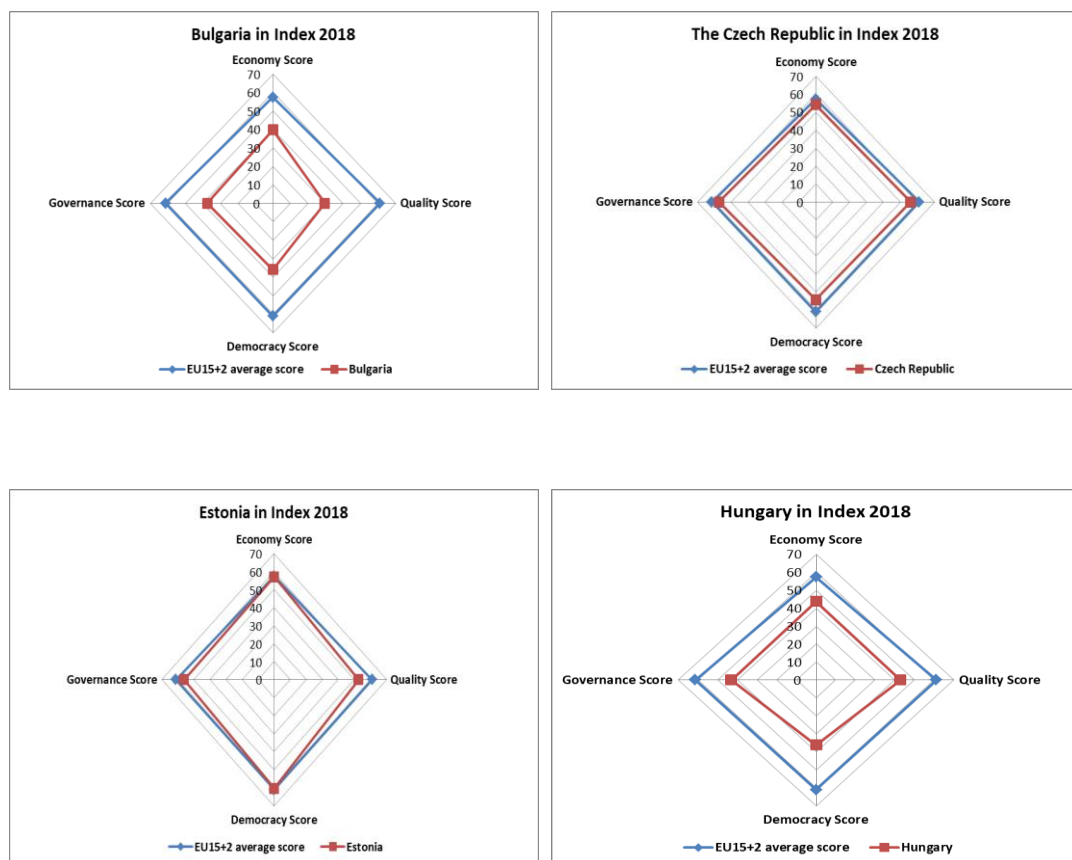
Croatia in Index 2018
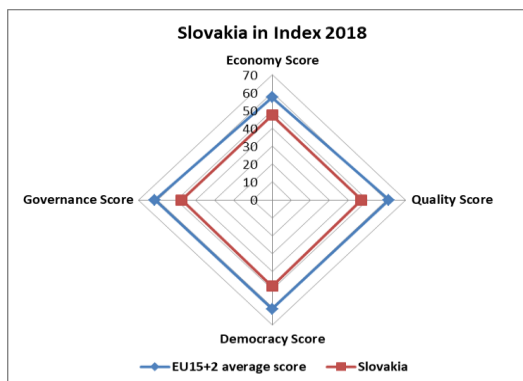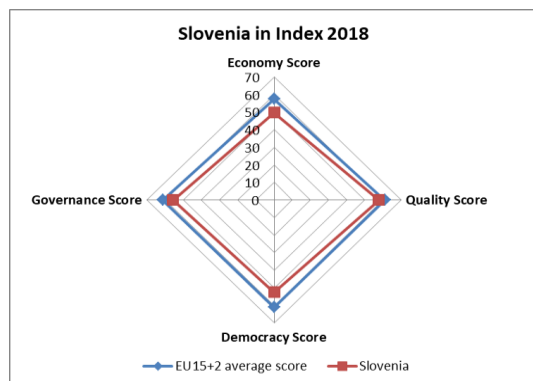
Supplements

Supplement I: Country Scores by Indicators and Categories

Economy Scores	GDP per capita	Government debt	Credit ratings	Employment	Energy Intensity	Information Society	Research and Development		Market development		Transport infrastructure				Economy Score
	GDP per capita in PPS with EU27=100	General government debt (% of GDP)	Sovereigns credit ratings	Employment as percentage of population, age group 15-64	Energy intensity of the economy	Information and Communication Technology	Patents granted by USPTO per capita	High-tech exports as % of manifactured exports	Doing Business rank	Economic Freedom score	Motorways per area 1000 km2	Motorways per 100000 inhabitants	Other roads per 1000 km2	Other roads per 100000 inhabitants	
Country	100-0	100-0	100-0	100-0	100-0	100-0	100-0	100-0	100-0	100-0	100-0	100-0	100-0	100-0	100-0
Austria	67	64	69	67	66	51	60	51	56	42	61	58	63	73	62
Belgium	62	45	60	53	59	82	52	94	55	28	43	43	59	64	55
Cyprus	47	51	38	39	61	73	82	59	57	32	31	44	58	39	47
Denmark	67	68	84	62	73	58	64	54	53	66	84	73	78	80	71
Finland	58	60	98	42	53	36	53	38	67	52	70	65	60	73	60
France	56	50	61	92	64	52	57	57	62	30	55	32	68	67	56
Germany	65	71	86	65	65	64	53	56	43	50	63	66	71	80	66
Greece	39	25	37	50	62	41	44	41	41	0	16	10	46	23	32
Ireland	91	55	61	99	74	45	59	51	69	48	64	86	63	57	69
Italy	52	35	47	39	67	53	45	44	35	12	37	27	42	40	41
Luxembourg	100	52	61	39	69	86	73	47	37	73	22	73	73	80	73
Malta	52	58	39	78	70	34	23	100	39	58	57	47	60	53	56
Netherlands	67	72	73	68	64	100	71	75	42	54	51	72	73	80	68
Portugal	44	55	36	33	61	62	79	35	29	15	53	30	44	39	42
Spain	51	41	39	38	65	59	85	37	33	31	57	35	58	48	48
Sweden	64	74	100	58	64	38	62	40	70	63	75	72	72	80	68
UK	57	68	61	79	68	47	34	54	40	37	78	78	77	67	61
Bulgaria	31	53	36	40	12	39	43	36	32	72	29	46	38	40	40
Czech Republic	49	67	39	57	43	47	45	51	48	67	52	66	45	61	54
Estonia	45	68	43	47	25	36	44	49	100	82	71	81	66	61	57
Hungary	40	56	39	57	44	51	60	56	63	45	35	41	40	37	44
Latvia	39	60	36	53	49	34	23	45	90	64	68	64	47	51	50
Lithuania	44	61	36	51	49	38	44	48	85	64	73	69	45	51	52
Poland	41	52	36	42	44	38	31	48	48	58	54	47	39	51	46
Romania	37	47	36	42	47	36	30	38	36	66	36	50	30	37	42
Slovakia	43	52	36	46	48	42	39	45	43	58	46	36	43	57	47
Slovenia	47	58	40	39	54	66	93	56	65	44	47	34	49	51	50
Croatia	37	37	36	51	52	53	83	39	40	42	30	22	46	31	40
Macedonia	25	19	35	24	28	42	47	41	41	64	77	56	20	26	35
Turkey	39	21	35	24	56	36	29	38	33	71	45	36	22	24	39
Montenegro	30	21	35	20	36	34	23	41	56	50	38	33	29	19	32
Iceland	68	93	77	83	7	34	23	34	27	73	66	75	84	51	63
Albania	22	24	35	20	46	34	23	36	30	47	25	34	1	19	27
BIH	23	0	35	25	4	36	30	34	27	63	0	23	7	12	22
Serbia	25	22	35	28	0	42	43	41	40	45	40	27	33	27	29

Catch-Up Index 2018: Economy Scores (in z-scores on a scale 100-0)*

The table shows the standartized z-scores on a scale from 100 to 0, highest to lowest, for the 35 countries in the Index in the basic indicators in the respective category. Missing data was imputed following the methodology described in this report.

Quality of Life Scores	Welfare of consumers	Social issues			Education					Health				Human Development	Quality of Life Score
	Actual individual consumption with EU27=100	Inequality - Gini coefficient	Relative median at-risk-of-poverty gap (%)	Long term unemployment rate (%)	Share (%) of early school leavers	Share of population (%) with university degree	PISA score in reading literacy	PISA score mathematical literacy	PISA score in scientific literacy	Healthy life expectancy at birth in years	Infant mortality by age of 5	Life expectancy in years	EuroHealth Consumer Index	Human Development Index	Quality of Life Score
Country	100-0	100-0	100-0	100-0	100-0	100-0	100-0	100-0	100-0	100-0	100-0	100-0	100-0	100-0	100-0
Austria	76	62	55	62	60	56	56	63	61	68	59	65	71	65	65
Belgium	71	70	69	56	54	72	63	68	65	62	57	63	74	68	67
Cyprus	56	50	77	52	56	79	34	29	27	75	66	72	50	50	56
Denmark	71	64	57	63	55	64	64	71	65	63	53	59	79	73	67
Finland	72	73	81	61	57	74	78	71	81	62	69	63	76	70	70
France	69	57	72	53	54	61	63	60	61	75	54	72	72	62	64
Germany	79	57	59	62	50	43	69	68	69	62	58	60	74	76	67
Greece	44	39	31	14	64	50	47	38	39	65	46	63	27	51	44
Ireland	57	56	68	57	68	83	75	67	65	65	60	65	38	77	65
Italy	60	42	37	45	37	22	56	59	53	74	61	77	46	54	53
Luxembourg	86	50	57	61	60	68	54	56	54	69	67	72	77	64	67
Malta	45	61	72	62	24	36	36	53	44	66	37	71	40	54	51
Netherlands	70	66	69	61	61	63	66	71	69	65	57	65	90	74	69
Portugal	49	39	41	52	42	35	63	60	64	65	58	62	59	42	49
Spain	54	37	24	41	22	66	62	56	60	78	63	77	50	59	53
Sweden	69	62	58	64	59	73	64	61	60	68	65	70	69	75	67
UK	73	41	62	64	49	81	63	60	69	64	53	61	57	70	64
Bulgaria	27	11	30	56	41	43	28	31	34	22	28	17	24	29	30
Czech Republic	46	76	72	64	62	34	57	60	60	44	61	47	55	57	56
Estonia	40	47	60	61	48	70	74	76	83	36	66	39	49	51	53
Hungary	33	61	72	62	42	33	48	51	51	25	52	26	30	39	43
Latvia	39	35	63	56	55	57	58	54	58	20	54	17	30	42	44
Lithuania	53	22	44	58	67	70	49	52	50	19	53	17	28	46	46
Poland	43	57	18	63	68	47	67	67	64	38	50	39	30	49	48
Romania	43	41	51	61	23	18	29	33	28	23	26	20	4	28	33
Slovakia	43	82	46	50	53	33	39	50	42	36	43	34	59	45	47
Slovenia	44	80	38	57	70	54	67	70	71	53	71	61	55	61	58
Croatia	31	54	44	52	74	32	57	44	50	42	51	40	36	36	42
Macedonia	16	39	23	8	56	25	0	0	0	27	0	21	41	8	18
Turkey	37	1	42	59	0	22	26	19	22	19	0	40	30	21	26
Montenegro	28	51	30	25	67	32	26	18	14	35	60	29	37	29	33
Iceland	75	78	76	67	24	71	55	58	49	72	71	68	73	75	69
Albania	13	58	23	8	23	25	14	15	23	35	18	42	32	18	23
BIH	17	13	23	0	71	25	26	18	14	28	42	31	41	12	22
Serbia	20	18	7	31	61	30	28	31	34	29	42	23	46	19	26

Catch-Up Index 2018: Quality of Life Scores (in z-scores on a scale 100-0)*

The table shows the standartized z-scores on a scale from 100 to 0, highest to lowest, for the 35 countries in the Index in the basic indicators in the respective category. Missing data was imputed following the methodology described in this report.

Democracy Scores	Satisfaction with democracy	Trust in People	Democracy Indices		Media Freedom		Voice and Accountability	Human Rights	E-participation	
	Satisfaction with democracy %	Trust in people	Freedom House score Freedom in the World	Economist Intelligence Unit Democracy Index	Freedom of the Press score by Freedom House	Press Freedom Index by Reporters without Borders	Voice and Accountability - WGI	Disrespect for human rights by Global Peace Index	E-participation index	Democracy Score
Country	100-0	100-0	100-0	100-0	100-0	100-0	100-0	100-0	100-0	100-0
Austria	75	57	61	62	59	68	67	64	49	63
Belgium	67	57	62	54	72	69	69	64	38	62
Cyprus	34	17	61	51	58	54	57	64	48	51
Denmark	87	91	65	77	72	74	71	64	76	74
Finland	77	93	69	76	72	77	72	64	76	74
France	44	58	55	54	54	49	59	50	71	54
Germany	68	53	61	68	62	64	70	64	64	64
Greece	19	36	49	46	32	31	44	21	57	38
Ireland	74	69	63	76	64	66	64	64	66	68
Italy	35	55	54	53	48	41	56	35	69	49
Luxembourg	78	67	66	70	69	65	71	64	66	69
Malta	66	51	58	61	58	44	61	35	52	55
Netherlands	78	72	67	72	73	72	73	64	74	71
Portugal	60	46	65	55	66	63	62	50	60	59
Spain	33	55	61	59	52	57	55	35	74	53
Sweden	77	79	69	79	73	79	74	64	66	74
UK	58	58	61	66	56	49	67	50	74	59
Bulgaria	28	34	42	42	34	22	32	35	56	36
Czech Republic	54	39	59	52	61	60	50	64	16	54
Estonia	55	51	61	57	67	67	63	64	62	60
Hungary	47	50	31	36	32	35	31	35	30	36
Latvia	53	43	51	47	54	57	47	64	26	51
Lithuania	28	45	57	49	61	51	52	64	45	51
Poland	59	46	49	36	44	40	46	50	59	46
Romania	27	48	47	32	39	44	37	35	30	39
Slovakia	39	34	54	43	54	63	49	50	46	48
Slovenia	34	48	59	49	58	50	53	64	47	52
Croatia	28	31	50	36	36	34	37	64	40	40
Macedonia	34	17	12	23	7	21	14	35	29	20
Turkey	39	57	0	0	0	0	0	0	54	11
Montenegro	34	43	24	21	32	25	22	64	35	31
Iceland	77	86	62	82	68	69	68	64	26	71
Albania	28	7	26	25	23	33	26	35	38	26
BIH	28	17	8	9	23	37	12	35	0	18
Serbia	28	41	33	32	26	37	22	50	47	34

The table shows the standartized z-scores on a scale from 100 to 0, highest to lowest, for the 35 countries in the index in the basic indicators in the respective category. Missing data was imputed following the methodology described in this report.

Catch-Up Index 2018: Governance Scores (in z-scores on a scale 100-0)*										
Governance Scores	Corruption		Political Stability		Government	Regulations	Rule of Law	Conflict and tensions		E-government	
	Corruption Perception Index (TI)	Control of Corruption (WGI)	Political instability EIU	Political Stability and Absence of Violence (WGI)	Governement Effectiveness (WGI)	Regulatory Quality (WGI)	Rule of Law (WGI)	Global Peace Index	Homicide rates (UN)	E-government Development Index	Governance Score
Country	100-0	100-0	100-0	100-0	100-0	100-0	100-0	100-0	100-0	100-0	100-0
Austria	68	69	70	68	67	72	68	77	64	62	69
Belgium	68	60	46	60	60	63	67	59	43	57	59
Cyprus	45	54	51	53	52	54	55	41	57	49	52
Denmark	84	69	59	73	69	74	77	71	59	81	71
Finland	80	69	72	76	76	76	77	65	51	74	73
France	62	52	38	64	56	65	65	59	53	73	59
Germany	75	69	50	71	74	67	72	65	55	72	68
Greece	34	54	24	36	24	29	28	29	62	51	35
Ireland	67	69	69	62	68	64	69	59	62	62	65
Italy	37	40	39	40	43	35	38	47	64	60	42
Luxembourg	77	69	80	71	71	71	74	65	63	63	71
Malta	44	40	78	54	63	60	54	47	59	55	56
Netherlands	77	69	63	75	79	73	73	65	66	72	72
Portugal	53	69	72	63	49	59	58	77	64	56	61
Spain	45	52	41	56	50	56	45	56	64	65	53
Sweden	79	69	65	74	74	75	76	71	57	75	72
UK	77	57	40	67	72	68	73	56	55	78	65
Bulgaria	28	52	44	33	39	24	27	53	56	36	37
Czech Republic	45	54	68	55	60	58	47	71	65	34	57
Estonia	63	46	53	58	71	62	64	41	22	66	56
Hungary	30	60	58	41	40	44	35	47	41	38	43
Latvia	47	52	47	52	54	55	46	44	19	32	47
Lithuania	48	46	56	54	55	55	47	47	0	45	48
Poland	49	31	48	46	49	42	53	35	64	53	46
Romania	34	54	32	10	35	37	31	53	54	25	35
Slovakia	37	54	60	47	45	45	39	53	58	36	47
Slovenia	50	69	61	59	38	57	56	59	67	49	56
Croatia	35	46	55	44	33	36	37	47	58	33	42
Macedonia	18	8	20	26	37	18	21	20	49	17	24
Turkey	24	2	0	22	16	16	25	0	4	35	14
Montenegro	32	11	28	26	27	26	30	29	1	32	24
Iceland	70	69	81	68	66	66	71	83	70	62	70
Albania	22	28	45	22	23	10	18	35	30	22	24
BIH	22	2	15	0	2	18	12	17	54	0	13
Serbia	25	37	33	29	13	19	19	35	52	36	27

The table shows the standartized z-scores on a scale from 100 to 0, highest to lowest, for the 35 countries in the index in the basic indicators in the respective category. Missing data was imputed following the methodology described in this report.

Supplement II: Country Abbreviations

EU28   **- European Union with the 28 member states**

EU15+2 – the 15 member states before the 2004 enlargement plus Cyprus and Malta

EU10+1 – the countries of the fifth enlargement in 2004, 2007 as well as Croatia in 2013

CC   **– Candidate countries**

PCC   **– Potential candidate countries**

BE	**Belgium**
CZ	**Czech Republic**
BG	**Bulgaria**
DK	**Denmark**
D-E	*East Germany*
DE	**Germany**
D-W	*West Germany*
EE	**Estonia**
EL	**Greece**
ES	**Spain**
FR	**France**
IE	**Ireland**
IT	**Italy**
CY	**Republic of Cyprus ***
CY (tcc)	**Zone not controlled by the government of the Republic of Cyprus**
LT	**Lithuania**
LV	**Latvia**
LU	**Luxembourg**
HU	**Hungary**
MT	**Malta**
NL	**Netherlands**
AT	**Austria**
PL	**Poland**
PT	**Portugal**
RO	**Romania**
SI	**Slovenia**
SK	**Slovakia**
FI	**Finland**
SE	**Sweden**
UK	**United Kingdom**
HR	**Croatia**
TR	**Turkey**
MK	**Republic of Macedonia**

Supplement III: About the Catch Up Index. How is the "Catching-Up" Measured?

The Catch-Up Index is a composite index, using a specifically designed model developed by EuPI of OSI-Sofia. The Catch-Up Index includes 35 countries selected on a political criteria as it covers the 28 EU member states, the candidate and potential candidate countries. The only exception is Kosovo, as there is not enough comparable statistical data available about it and despite the efforts, the lack of data left Kosovo outside of the Index.

The metric is based on rescaling the raw data on a scale from 0 to 100 (lowest to highest) to establish each country's score, and ranking each country from 1 to 35 (highest to lowest). The standardized scores make possible different rankings, comparisons, benchmarking, monitoring of performance for countries and groups of countries across categories and indicators and contribute to policy analysis and recommendations.

The Catch-Up Index contains four categories - Economy, Quality of Life, Democracy and Governance for the 35 countries included in the Index. There are scores for each category: Economy Score, Quality of Life Score, Democracy Score and Governance Score and each category has an equal weight with the other categories. There is an Overall Score, composed of the scores for the four categories.

Each category is measured through selected indicators and sub-indicators. The various data for the indicators is converted into scores, weighted on the basis of the Index methodology. The indicator scores make up the scores for the four different categories. The weights have been attributed to the indicators or sub-indicators by the expert team, based on the importance assigned to them.

The Catch-Up Index was initially designed to capture the progress of the EU10 countries in matching the rest of the EU in the categories of Economy, Quality of Life, Democracy and Governance.

But the Index allows for much broader observations and findings to be made by examining the performance of the 35 countries, comparing them across the four categories and 47 indicators and sub-indicators, and eliciting conclusions from the interdependence between the factors that define the performance. The Index allows for what is essentially multi-dimensional mapping of present-day Europe by superimposing the four fundamental categories. The index data do not only indicate a country's progress or degree of similarity relative to its peers, but also how far it is from the desired goals.

Benchmarking the EU10

In addition to the ranking of countries according to their score, there are also several benchmarks to help measure the catch up index - the average, maximum and minimum scores by groups. There are four main and one additional such benchmarks. First, there is the EU15+2 Average Score, calculated as the compare means scores of the 15 "old" EU member states plus Cyprus and Malta, which are considered as part of this group too ("Western" countries vs post-communist countries). Second, there is the EU15+2 Max (maximum) score of the highest ranking country in this group. Third, there is the

EU15+2 Min (minimum) score of the lowest ranking country in this group. Fourth, there is the EU10 Average Score, calculated as the compare means scores of the 10 "new" EU member states scores. Fifth, there is the EU28 Average Score, calculated as the compare means of the scores of all 28 EU member states.

Being aware of the limitations of Catch Up Index model and in order to provide readers with the opportunity to take advantage of the Catch-Up Index data, a special online platform has been created at www.TheCatchUpIndex.eu , where users can both view and work interactively with the data. The users of the platform can create their own "catching up" models and comparisons across countries and indicators, and visualize the outcomes in different ways.

The Economy category explained: Methodology notes

The Economy category measures the economic performance and potential of the countries in the index. Each of the four categories in the Catch Up Index are ascribed equal importance in terms of calculating a country's overall score.

The Economy category is measured through a set of nine indicators, each of which captures a different aspect of economic performance. Some indicators gauge more than one aspect of economic performance. The metrics of the indicators are based on 14 sub-indicators, of varying weightings. The specific indicators and the weightings assigned to the sub-indicators reflect the unique model of the Catch Up Index.

The raw data used for the indicators (e.g. GDP per capita or other composite indicator scores or coefficients) are converted into a Catch-Up Index score on a scale of 0 to 100 (lowest to highest) to allow for a standardized score that can be compared across countries or categories and indicators. Each of the indicators has different weight assigned to it, according to its importance in the Catch Up Index model.

Economy Indicators	Sub-indicators	Weight*
GDP per capita	GDP per capita in PPS, EU28=100	25% (0,25)
Government debt	General government debt (% of GDP)	13% (0,125)
Credit ratings	Sovereign credit ratings	13% (0,125)
Employment	Employment rate %	8% (0,083)
Energy Intensity	Energy intensity of the economy	8% (0,083)
Information Society	Information and Communication Technology	8% (0,083)

	Patents granted by USPTO per capita	**4% (0,042)**
Research and Development		
	High-tech exports as % of manufactured exports	**4% (0,042)**
Market development	Doing Business rank	**4% (0,042)**
	Economic Freedom score	**4% (0,042)**
	Motorways per area 1000 km^2	**2% (0,021)**
Transport infrastructure	Motorways per 100,000 inhabitants	**2% (0,021)**
	Other roads per 1000 km^2	**2% (0,021)**
	Other roads per 100,000 inhabitants	**2% (0,021)**

***The weight in percentages is an approximation, and the weight is also provided in fractions (the total sum is 100% or 1).

GDP per Capita (PPS with EU28=100 basis, Eurostat) remains the most important indicator of economic activity and is assigned 25% (0.25) weight in the total Economy category.

Government Debt, measured as a % of GDP, is second in importance with 12.5%. The global economic calamities of recent years, and especially the ongoing debt crisis in Europe, have clearly demonstrated the critical importance of government debt as a factor for the economic vitality of a country.

The **Sovereign Credit Ratings** – or creditworthiness and level of investment risk - of a country are also attributed high importance in the index, with a 12.5% (0,125) weight. The index uses a composite, rescaled score of the ratings of the three major agencies (Fitch, Moody's and Standard & Poors).

Employment, with a weight of 8% (0,083) is a measure of an economy's potential to generate jobs and integrate as much as possible of the labor force in the labor market; this is measured through the share of working-age people in employment.

Energy Intensity, also ascribed an 8% weighting, is a measure of an economy's energy efficiency, calculating energy consumption divided by GDP as kilogram of oil equivalent per €1000. Energy intensity is also an important measure of an economy's competitiveness, because high energy inefficiency incurs more costs in production and services.

Research and Development, again with a weight of 8% (0,083) is a measure of the level of development and the "quality" of contemporary economies, including their competiveness. The index uses two sub-indicators. The first is the number of patents registered from a country with the United States Patent and Trademark Office (USPTO) annually on a per capita basis. The second indicator is the share of high-tech exports in a country's manufactured exports.

The **Market Development** indicator (also 8% (0,083)) is the composite score of two sub-indicators – the World Bank's Ease of Doing Business ranking and the Heritage Foundation/Wall Street Journal Index of Economic Freedom. The latter defines the highest form of economic freedom as "an absolute right of property ownership, fully realized freedoms of movement for labor, capital, and goods, and an absolute absence of coercion or constraint of economic liberty beyond the extent necessary for citizens to protect and maintain liberty itself."

The **Transport Infrastructure Indicator** (8% (0,083)) is a measure of a country's economic development and its potential for economic activity. The index uses four sub-indicators, based on calculating coefficients of motorways and other roads on a per capita and country area basis.

The ingredients of democracy: Methodology notes

Catching up in Democracy is essential for the post-communist member states of the EU, particularly given that the Copenhagen accession criteria for EU membership primarily focused on democracy. But although EU membership has often been perceived as a watershed in the political transition of the EU10 group, or even the end of that transition, it now appears that the newer members may not have achieved parity with more developed European nations in their progress in building democratic institutions and societies.

The Catch-Up Index was designed to analyse several aspects of democracy that are of particular significance for the newer member states, and those that are aspiring to be.

The Democracy category has equal weighting with the other three categories in the Catch-Up Index (Economy, Quality of Life and Governance). This category is measured through a set of seven indicators, which use nine sub-indicators. The raw data drawn from opinion polls and other composite indicator scores are converted into the Catch-Up Index score on a scale of 0 to 100 (lowest to highest) to give a standardized score that allows for comparison across countries, categories and indicators. Each of the indicators has a different weight assigned to it according to its importance in the index model.

Democracy Indicators	Sub-indicators	Weight
Democracy Indices	Freedom House score Freedom in the World	**20% (0,195)**
	Economist Intelligence Unit Democracy Index	**20% (0,195)**
Media Freedom	Freedom House Freedom of the Press score	**10% (0,98)**
	Reporters without Borders Press Freedom Index	**10% (0,98)**
Satisfaction with democracy	Satisfaction with democracy %	**10% (0,98)**
Trust in People	Trust in people	**10% (0,98)**
Voice and Accountability	Voice and Accountability - WGI	**10% (0,98)**
Human Rights	Political terror by Global Peace Index	**10% (0,98)**
E-participation	E-participation index	**2% (0,024)**
***The weight in percentages is an approximation, and the weight is also provided in fractions (the total sum is 100% or 1).		

The first indicator used to measure democracy is composed of two established **composite democracy indexes** – those of **Freedom House** and the **Economist Intelligence Unit (EIU).** Each was attributed very high importance in the Democracy category with 20% (0,195) weight (or 40% for both) because they assess the overall democracy in a country. The Freedom of the World index was used from Freedom House, rather than the specialized post-communist states' Nations in Transit index, because it does not encompass the Western European states. The EIU Democracy Index was used because its scores are more nuanced than the Freedom of the World scores, which allows for better distinction between the quality of democracies in the European states.

Media Freedom was attributed special attention in the Catch-Up Index because the media is essential to the democratic process – especially in the post-communist states. The Catch-Up Index relies again on two established media freedom indexes – of Freedom House and of Reporters without Borders. Each is assigned 10% (0,98) weight, giving the Media Freedom indicator a 20% overall weight.

Satisfaction with Democracy measures the attitude of citizens towards the democratic systems of governance in their countries. This is one of the only two indicators (along with Trust in People) that relies on public opinion surveys (in this case the main source is Eurobarometer), and the scores are based on the proportion of citizens who approve their countries' democratic systems.

Trust in People measures the level of people's trust of those who are outside of their immediate family or close friends. Literature abounds on the importance of trust for democracy - above all Francis Fukuyama's "Trust",– or economy and the successful organization of society. In this case, the Catch-Up Index employs the measure of Trust in People as a proxy for civil society development, given the limitations of available data on similar indicators for all the countries in the index.

Voice and Accountability, with a weight of 10% (0,98) , is a composite indicator of the World Bank's World Governance Indicators (WGI). This includes perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. The WGI scores also use World Bank assessments and reports that are not publicly available.

Absence of **Political terror** is also deemed essential for a functioning democracy and carries a weight of 10%. The scores are based on Global Peace Index "Political terror" indicator, e.g. identifying state terror, or violations of physical and personal integrity rights carried out by the state.

E-participation (2% (0,024)) measures the level of participation in decision-making, governance or similar activities that is enabled by Information and Communication Technologies. For example, the facilitation of citizens' political participation through internet or cellular technologies within the broader "e-democracy" concept. Facebook advocacy or the "twitter revolutions" offer specific examples of similar phenomena.

Quality of Life: Methodology notes

Quality of Life is the category most influenced by the "bottom-up" approach in constructing the index. The metrics of the category have been designed to establish how wealthy people are and to what degree social issues affect them, such as income inequality, risk of poverty and long-term unemployment. The indicators also aim to assess levels of access to higher education and the quality of education available, as well as whether people are living longer, healthier lives with access to good quality healthcare services.

These criteria are prerequisites for individuals to have good quality of life and for the "health" and successful development of society at large. It does not come as a surprise that the majority of the citizens of the newer member states (and the candidates) associate EU membership above all with improved quality of life, at least closer to that of their more established EU counterparts.

The raw data used for the indicators (e.g. life expectancy in years, and other composite indicator scores or coefficients) are converted into the standardized Catch-Up Index score, on a scale from 0 to 100 (lowest to highest), to allow for comparison across countries' categories and indicators. As was the case in the other categories, each of the indicators has a different weight assigned to it, reflecting its importance in the Catch-Up Index model.

Quality of Life Indicators	Sub-indicators	Weight
Welfare of consumers	Actual individual consumption with EU28=100	20% (0,2)
Social issues	Inequality - Gini coefficient	7% (0,067)

	Relative median at-risk-of-poverty gap (%)	7% (0,067)
	Long-term unemployment rate (%)	7% (0,067)
Education	Share (%) of early school leavers	5% (0,05)
	Share of population (%) with university degree	5%(0,05)
	PISA* score in reading literacy	3% (0,033)
	PISA score mathematical literacy	3% (0,033)
	PISA score in scientific literacy	3% (0,033)
Health	Healthy life expectancy at birth in years	5% (0,05)
	Life expectancy in years	5% (0,05)
	Infant mortality by age of 5	5% (0,05)
	EuroHealth Consumer Index	5% (0,05)
Human Development	Human Development Index (UN)	20% (0,2)
* Programme for International Student Assessment (OECD). ***The weight in percentages is an approximation, and the weight is also provided in fractions (the total sum is 100% or 1).*		

Welfare of Consumers is attributed 20% (0,2) weight in the category. It is based on data from Eurostat's Actual Individual Consumption dataset, which is calculated on EU28=100 basis (rescaling each country's data as a fraction of the EU mean).

The **Social Issues** indicator, with a total weight of 21%, comprises three sub-indicators that measure different aspects of social problems in a society. The first assesses social inequality using the Gini coefficient – the greater the inequality, the lower a country's score in the index. The second sub-indicator is based on Eurostat's relative median at-risk-of-poverty gap indicator. The third sub-indicator measures long-term unemployment in society, which signals the existence of more deep-seated social problems that the basic unemployment rate.

The **Education** indicator has been designed to reflect primarily the quality of education, rather than the quantity, given that the GDP share of education or the number of teachers or students do not always correspond to good outcomes. This is especially valid with regard to the new member states, where often inefficient and unreformed systems produce poor results, notwithstanding the funds or manpower channelled into them.

As is the case with many of the index indicators, their data can also be useful in assessing other aspects of the same category or, in this case, other categories. For example, as well as being a key indicator for

Quality of life, education is relevant in assessing economic potential, democracy and good governance. The sub-indicator on early school-leavers assesses the share of young people giving up education and training prematurely; this may also help to gauge broader social problems. The second sub-indicator is the share of the population that hold university degrees. The next three education-related sub-indicators are based on the results of the Organisation for Economic Co-operation and Development's *Programme for International Student Assessment (*PISA). The PISA scores go beyond the performance of high-school students and survey the broader state of a country's education sector, for example qualification levels of teachers and the quality of universities.

The **Health** indicator is likewise designed to focus more on the outcomes than on less indicative criteria such as share of GDP or the number of medical workers. One sub-indicator is life expectancy, measuring how many years a person is expected to live, while another is healthy life expectancy, specifically taking into account life without major illness. The indicator for infant mortality is also indicative of the broader state of health services or social services in a country (or even the state of society more broadly) because it assesses the likelihood of children surviving to the age to 5. The fourth sub-indicator is a composite of the EuroHealth Consumer Index by the Health Consumer Powerhouse, which measures the quality of healthcare systems in a country (including by outcome).

The United Nations' **Human Development Index** is a composite index measuring life expectancy, literacy, education and standards of living for countries worldwide. It has similar dimensions to the Catch-Up Index, but includes additional data and methodology, which complements the other indicators but does not overlap with them.

Governance category explained: Methodology notes

The newer and aspiring members typically perceive established EU member states to be well-governed, politically stable, have low levels of corruption, effective governance, a successful rule of law, and an absence of substantial tensions, conflicts and crime. Indeed, from a wider perspective this impression is accurate. The EU is truly an oasis of stable and well-governed states by comparison with some of the more unstable or failing states in other parts of the world. The EU is very much geared toward instilling "good governance" through its common institutions and the acquis communautaire.

But comparisons between EU members and aspiring candidates reveal differences even among relatively homogenous groups. Some of these differences are made strongly apparent, as in the case of the EU's monitoring of the progress of members Bulgaria and Romania in fighting corruption, organized crime and judicial reform, and the conditionality imposed on candidates.

The Catch-Up Index measures the quality of governance in a country through seven indicators based on ten sub-indicators.

Governance Indicators	Sub-indicators	Weight
Corruption	Corruption Perceptions Index - Transparency International	8% (0,08)
	Control of Corruption - World Governance Indicators	8% (0,08)
Political stability	Political instability by Economist Intelligence Unit	8% (0,08)
	Political Stability and Absence of Violence - World Governance Indicators	8%(0,08)
Government effectiveness	Government effectiveness - World Governance Indicators	16% (0,16)
Regulatory quality	Regulatory quality - World Governance Indicators	16% (0,16)
Rule of law	Rule of Law – World Governance Indicators	16% (0,16)
Conflict, tensions and crime	Conflicts and tensions in the country - selected Global Peace Index indicators	8% (0,08)
	Homicide rates per 100,000 population	8% (0,08)
E-government	E-government development index	4% (0,04)

*The weight in percentages is an approximation, and the weight is also provided in fractions (the total sum is 100% or 1)

The **Corruption** indicator is essential for gauging the quality of governance because corruption affects all aspects of the decision-making and implementation process. The Corruption indicator has a weighting of 16% in the Governance category, divided between two sub-indicators – Transparency International's Corruption Perceptions Index and the Control of Corruption dimension of the World Bank's World Governance Indicators. The first indicator measures public perceptions of the level of corruption in a country. The second indicator as defined by its authors "captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests."

The second indicator measures a country's level of **Political stability**, as in the threat of government destabilization through social unrest or unconstitutional or violent means through two sub-indicators. These are the Economist Intelligence Unit's Political Instability Index and the Political Stability and Absence of Violence dimension of the World Bank's World Governance Indicators. The EIU scores "show the level of threat posed to governments by social protest." The World Bank indicator measures "the perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including domestic violence and terrorism." The level of political stability indicates any flaws in governance. Although this indicator also relates to democracy – in terms of the channelling of discontent through the process of representation and problem solving – political

stability is more of a measure of governance. The indicator's weight is 16% divided between the two sub-indicators.

Government effectiveness is an indicator of whether governance is being conducted well; the World Bank states that it "captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies." Government effectiveness also has a weighting of 16% in the Governance category.

Regulatory quality is another World Governance Indicators that "captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development." This indicator too has a 16% weighting.

Rule of law is essential for good governance, as the newest EU members and candidates have found out the hard way. The indicator is again based on the World Governance Indicators, which state that it "captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence."

Conflict, tensions and crime is a composite indicator, based on two sub-indicators relating to a country's crime levels and conflicts and tensions. The conflicts and tensions sub-indicator is based on selected data from the Global Peace Index (Institute for Economics and Peace/Economist Intelligence Unit). The homicide rate on a per capita basis serves as a proxy for measuring the crime levels in a country, because data pertaining to other reported crimes is less easily comparable (different definitions or practices for registering crimes) or country data is unavailable. The indicator's weight of 16% is divided between the two sub-indicators.

The **E-government** indicator is based on the UN's E-government surveys and scores. It is included in the index because it is a measure of government efficiency and delivery of services to citizens, and because it facilitates transparency and accountability as the world grows more connected. Moreover, e-government indicates the level of development of contemporary societies. As the UN survey has identified, the scores comprise two basic aspects of e-government, 'government to citizen' (G to C) and 'government to government' (G to G), with a smaller element of 'government to business' interactions. Given that e-government is indicative of many aspects of good governance, but not indispensable, it is ascribed a weight of 4%.

Note on data sources, timeframe and replacing missing data

The Catch-Up Index data collection relied on single sources for each of the indicators, but in case such data was missing, compatible data from other sources based on the same methodology was included. If country data for a specific year was missing, data from the closest period was included in the Index. In case there was no compatible data, the data imputation method was used as explained in the methodological notes. The missing data was replaced using either the statistical procedure, described in the annex or in a limited number of cases - expert-based imputations. In the case with the Index when

the data set is about multiple countries, missing data for a given country was replaced with data for a country with very similar characteristics.

Where a single sub-indicator included several sources or the data was not numerical (e.g. Credit Agencies Index; Doing Business ranking), the data was rescaled in advance by the project team before being recalculated into z-scores.

The data used was mainly released in 2017 and it is the most recently available, but not later than 31 January 2018 so there is a necessarily a time lag in the index.

Economy Indicators	Sub-indicators	Weight	Sources
GDP per capita	GDP per capita in PPS with EU28100	**0,250**	Eurostat, European Central Bank, national statistics
Government debt	General government debt (% of GDP)	**0,125**	Eurostat, national statistics
Credit ratings	Sovereigns credit ratings	**0,125**	Fitch, Moody's, Standard and Poor's (own calculations of rescaled credit ratings)
Employment	Employment as percentage of population, age group 15-64	**0,083**	Eurostat, national statistics
Energy Intensity	Energy intensity of the economy	**0,083**	Eurostat, national statistics
Information Society	Information and Communication Technology	**0,083**	ICT Development Index, International Telecommunication Union
Research and Development	Patents granted by USPTO per capita	**0,042**	United States Patent and Trademark Office
	High-tech exports as % of manifactured exports	**0,042**	World Bank
Market development	Doing Business rank	**0,042**	Ease of Doing Business, World Bank (Rescaled ranking)
	Economic Freedom score	**0,042**	Index Economic Freedom, Heritage Foundation and Wall Street Journal
Transport infrastructure	Motorways per area 1000 km2	**0,021**	Eurostat, national statistics
	Motorways per 100000 inhabitants	**0,021**	Eurostat, national statistics
	Other roads per 1000 km2	**0,021**	Eurostat, national statistics
	Other roads per 100000 inhabitants	**0,021**	Eurostat, national statistics

Democracy Indicators	Sub-indicators	Weight	Source
Democracy Indices	Freedom House score Freedom in the World	**0,195**	Freedom in the World, Freedom House
	Economist Intelligence Unit Democracy Index	**0,195**	Democracy Index, Economist Intelligence Unit
Media Freedom	Freedom of the Press score by Freedom House	**0,098**	Freedom of the Press, Freedom House
	Press Freedom Index by Reporters without Borders	**0,098**	Press Freedom Index by Reporters without Borders
Satisfaction with democracy	Satisfaction with democracy %	**0,098**	Eurobarometer, European Values Study, World Values Survey
Trust in People	Trust in people	**0,098**	European Quality of Life Survey by Eurofound, European Values Study, World Values Survey
Voice and Accountability	Voice and Accountability - WGI	**0,098**	Voice and Accountability of the World Governance Indicators, World Bank
Political terror	Political terror by Global Peace Index	**0,098**	Political terror indicator, Global Peace Index by the Institute for Economics and Peace
E-participation	E-participation index	**0,024**	E-government survey, United Nations Department of Economic and Social Affairs

Quality of Life Indicators	Sub-indicators	Weight	Sources
Welfare of consumers	Actual individual consumption with EU28=100	**0,200**	Eurostat, national statistics
Social issues	Inequality - Gini coefficient	**0,067**	Eurostat, national statistics
	Relative median at-risk-of-poverty gap (%)	**0,067**	Eurostat, national statistics
	Long term unemployment rate (%)	**0,067**	Eurostat, national statistics, UNDP
Education	Share (%) of early school leavers	**0,050**	Eurostat, national statistics, UNDP
	Share of population (%) with university degree	**0,050**	Eurostat, national statistics, UNDP
	PISA score in reading literacy	**0,033**	OECD Programme for International Student Assessment (PISA)
	PISA score mathematical literacy	**0,033**	OECD Programme for International Student Assessment (PISA)
	PISA score in scientific literacy	**0,033**	OECD Programme for International Student Assessment (PISA)
Health	Healthy life expectancy at birth in years	**0,050**	World Health Statistics, World Health Organization
	Life expectancy in years	**0,050**	World Health Statistics, World Health Organization
	Infant mortality by age of 5	**0,050**	World Health Statistics , World Health Organization
	EuroHealth Consumer Index	**0,050**	EuroHealth Consumer Index, Health Consumer Powerhouse
Human Development	Human Development Index	**0,200**	Human Development Index, United Nations

Governance Indicators	Sub-indicators	Weight	Sources
Corruption	Corruption Perception Index	**0,080**	Corruption Perception Index, Transparency International
	Control of Corruption - World Governance Indicators	**0,080**	Control of Corruption - World Governance Indicators, World Bank
Political Stability	Political instability by Economist Intelligence Unit	**0,080**	The Political Instability Index, Economist Intelligence Unit
	Political Stability and Absence of Violence - World Governance Indicators	**0,080**	Political Stability and Absence of Violence - World Governance Indicator, World Bank
Government Effectiveness	Government Effectiveness - World Governance Indicators	**0,160**	Government Effectiveness - World Governance Indicators, World Bank
Regulatory Quality	Regulatory Quality - World Governance Indicators	**0,160**	Regulatory Quality - World Governance Indicators, World Bank
Rule of Law	Rule of Law - World Governance Indicators	**0,160**	Rule of Law - World Governance Indicators, World Bank
Conflict, tensions and crime	Conflicts and tensions in the country - selected Global Peace Index indicators	**0,080**	Conflicts and tensions in the country, based on selected Global Peace Index (GPI) indicators, GPI is created by the Institute for Economics and Peace
	Homicide rates per 100,000 population	**0,080**	United Nations Office on Drugs and Crime
E-government	E-government development index	**0,040**	E-government Development Surveys, United Nations

Supplement IV: Methodology of the Statistical Analysis for the Catch-Up Index

1. Basic Indicators. Sources of information

The Catch-Up Index uses 47 basic indicators for 35 European countries. The data is gathered from different sources. Supplement III: "About the Catch-Up Index. How is the "Catching-Up" Measured?" contains descriptions for each of the basic indicators as well as the time period of the data and their respective sources. The indicators are divided thematically into four categories:

- Economy – 14 indicators;
- Democracy – 9 indicators;
- Quality of Life – 14 indicators;
- Governance – 10 indicators.

2. Procedure for replacing missing data (*Data Imputation*)

The basic information represents a table (a matrix), size 35 x 47, i.e. 47 indicators for 35 countries, which contain 1,645 absolute values. About 0.5% of them are missing values either because there is no such information gathered or there is no up-to-date data. In these cases, the procedure for data imputation to replace missing data – values – was applied. The procedure was done separately for each of the four basic categories.

Algorithm for data imputation

a. Any of the four categories that contain a basic indicator with a missing value is fixed. It represents a matrix with a size of 35 multiplied by the number of basic indicators, where the countries are in the rows and the indicators are in the columns.
b. All indicators (rows) that contain at least one missing value are deleted, thus creating a new matrix with the same number of rows and a smaller number of columns (k).
c. Each of the 35 countries included in the index is a point in the k-dimensional space. The Euclidian distances between the side with a missing value and all the other sides are then calculated.
d. After the minimal Euclidian distance is calculated, the result is checked against the existing data for the remaining 34 countries and this value is taken to replace the missing value.
e. The steps are then repeated until all missing values of the basic indicators in a given category are replaced.

3. Calculation of standardized value (z-scores)

The Catch Up Index uses basic indicators with different raw data (percentages, diverse index scores, years, etc.). This necessitates the standardization of the values according to a statistical procedure, which recalculates them in one and the same scale and at the same time preserves the order and proportions between them. The standardizing is done following the normalization method of z-scores, which uses mean weighed score and standard deviation.

Algorithm for calculating the standardized values of the basic indicators (z-scores)

4. The mean arithmetic values **mean_j** for the countries **x_ij** are calculated for each of the basic indicators, according to the formula:

mean_j = Σ (x_ij)/ 35

where **j** varies from 1 to 47 (the total number of basic indicators), and **i** changes from 1 to 35 (the total number of countries).

5. The dispersions for the values on sides **x_i** is calculated for each of the indicators:

sigma_j = Σ [(x_ij−mean_j)^2] / (N−1),

where **j** varies from 1 to 47, and **i** varies from 1 to 35.

This quantity shows how diverse are, on average, the different cases from their mean value.

6. The standardized values – so-called *z-scores* – are calculated:

z_ij = (x_ij−mean_j) / √sigma_j.

Through this procedure the distribution of the values for the countries for each of the indicators is translated and the mean 0 and dispersion 1 are calculated, while the order and proportions between the values for the different countries are preserved.

In order to transform the standardized values into scores on a scale from 0 to 100, one more transformation is necessary:

z_ij = z_ij * 20 + 50.

> *The values smaller than 0 and bigger than 100 ("extreme values"), i.e. those different from the mean value of more than 2.5 standard deviation receive scores 0 and 100, respectively.*

> The standardized values, achieved as a result of the calculations above, are suitable for further procedures. There is a simple correspondence between these scores and the absolute values (the raw data) of the basic indicators and the only exceptions are the "extreme values" or so-called outliers.

7. **Weighting the standardized values. Formation of the four categories**

   Each of the four categories – Economy, Quality of Life, Democracy and Governance contain different numbers of basic indicators with different levels of importance. The level of importance is defined by the authors of the index. That is why the online platform of the Index (**www.TheCatchUpIndex.eu**) offers two options for its users.

   a. The standard index is calculated on the basis of the already defined weights of the basic indicators;
   b. The creation of custom index – My Index in the online platform – for which each individual user can define the weights for the indicators.

The weights for each indicator, ascribed by the research team, can be found in this section. For each of the four categories, the weights represent a column vector consisting of the respective number of basic indicators. When calculating the weighted standardized values, the formula for matrix multiplication is used. The matrix contains the non-weighted standardized values with rows representing the countries, the columns the basic indicators and the vector the weights. For each separate country, the procedure is to calculate the weighted sum.

8. **Formation of the composite Catch Up Index and its Overall Score**

The composite Catch Up Index is calculated as an un-weighted mean of the values of each of the four basic categories for each of the 35 European countries included in the index. In other words, each of the four basic categories is equal in importance in respect to the composite Catch Up Index.

> ***Overall_score_i = (Economy_score_i + Quality_of_life_score_i + Democracy_score_i + Governance_score_i) / 4,***

where *i* varies from 1 to 35 (the total number of countries in the model).

The resulting index is at the basis of the overall ranking of the countries and is subjected to further statistical processing (cluster analysis, correlation analysis, tests for statistical significance, trend analysis).

9. Cluster analysis

The research included hierarchical agglomerative cluster analysis of the Complete Linkage (Furthest Neighbor) with the help of the SPSS statistical package for analysis and processing of data. The metric system used is the standard Euclidian distance.

Algorithm of the cluster analysis

a. First, each country is the defined as the only one in a single group – i.e. cluster.
b. Second, the standard Euclidian distances (2-norm distance) are calculated between the values (the scores) of each pair of countries with the aim to group the countries with the most similarities in one group in relation to their values – the overall score of the Catch Up Index or the scores in any of the four categories.
c. The agglomeration of the clusters continues with each other step until all the countries are included in one common group. This process is defined by the distance between two clusters. In the case of the Complete Linkage (Furthest Neighbor) clustering the distance is defined through the maximum standard Euclidian distance between elements from the two clusters.
a. **D(r,s) = Max {d(i,j)}** : where element *i* belongs to cluster *r*, and *j* to cluster *s*}
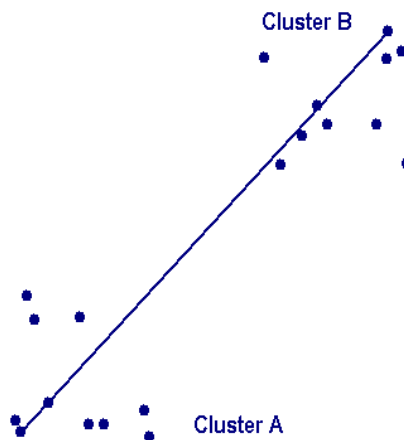
d. The decision for the number of clusters is taken by the researcher, in accordance with the desired maximum distance between the elements in each cluster. The bigger the distance, the smaller the number of clusters.

e. The cluster analysis is best represented in a dendrogram, which shows the distances between the different clusters as well the elements they are composed of.

10. Tests for statistical significance of differences. The five point rule.

The data on the basis of which the Catch Up Index is calculated are bound to have certain errors. The reason is that some of the basic indicators are based on sociological surveys, others though objective (e.g. GDP per capita) also contain certain errors as a result of the method of their calculation. The procedure for missing data replacement also contributes to the size of the overall error. This necessitates the implementation of tests for statistical significance of differences (compare means) between the different standardized values (z-scores) of the Overall Score and the scores of countries in different categories. The results of these tests show that a difference of five or less standardized scores is not statistically significant with a significance level of **α** = 0.05. This means that with a *confidence level* **γ** = 1−**α** = 0.95 = 95% it can be claimed that the standardized values of the countries in the Catch Up Index and the four categories vary within ±5 *z*-points. This conclusion should be taken into account when analyzing the results of the cluster analysis.

11. Correlation analysis

The Pearson correlation coefficients are calculated for each of the pairs in the vectors: Overall Score*,* Economy Score, Quality of Life Score, Democracy Score and Governance Score. They demonstrate *that at a significant level* **α** = 0.01, each of the two pair vectors have strong linear correlation, with each correlation coefficients are bigger than 0.9.

12. Graphs, linear trends and their confidence intervals

The direct consequence of the correlation analysis is that between two of the five indices – i.e. O*verall Score, Economy Score, Quality of Life Score, Democracy Score* and *Governance Score* – there is a strong direct correlation, which is represented by a corresponding linear trend (straight line with a positive slope).The coefficients in the equations of these straight lines are calculated using the method of linear regression. Each of the straight lines should be observed and analyzed in the corresponding confidence interval, which is determined by the value of their determination coefficient (*R-square*)*, which in this case is equal to the square of the respective Pearson correlation.*

The European Catch-Up Index Project

Catch-Up Index methodology

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OPEN SOCIETY INSTITUTE SOFIA

EuPI

European Policies Initiative

Open Society Institute – Sofia

About EuPI

The European Policy Initiative (EuPI) of Open Society Institute – Sofia aims to contribute to improving the ability of new member states to effectively impact common European policies through good quality research, policy recommendations, networking and advocacy. The initiative operates in the ten new member states from CEE through a network of experts and policy institutes.

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Main research reports:

"Try harder. Findings of the European Catch-Up Index 2017"

"Common Sense Wanted: Resilience To 'Post-Truth' And Its Predictors In The New Media Literacy Index 2018"

"Can this be true? Predictors of media literacy and resilience to the post-truth phenomenon in Europe"

"Don't Stop Now Findings of the European Catch-Up Index 2016" contains the findings of the Catch-Up Index 2016 edition.

"Don't Panic: Findings of the European Catch-Up Index 2015" contains the findings of the Catch-Up Index 2015 edition.

"The Gravity Effect: Findings of the European Catch-Up Index 2014", contains the findings of the Catch-Up Index 2014 edition.

 "It's a Process: Findings of the European Catch-Up Index 2013" contains the findings of the Catch-Up Index 2013 edition.

"Aftershocks: What Did the Crisis Do to Europe?" contains the findings of the Catch-Up Index 2012 edition.

 "State of the Union: A Big Bang Theory of Europe" contains the findings of the first edition of the Catch-Up Index 2011.

"The Unfinished Business of the Fifth Enlargement Countries" analyzes the problems faced by the ten new member states after their accession to the EU in eleven policy areas including political development, the economy, the healthcare system and education.

A series of reports "The EU New Member States as Agenda Setters in the Enlarged European Union" look at the positions of the new Central and Eastern European EU Member States on a selected number of issues on the EU agenda in seven policy areas: economic issues, minority integration, energy and climate, common agriculture policy, foreign and security policy, justice and home affairs and institutional issues.

The publication "Economic and Political Challenges of Acceding to the Euro area in the post-Lehman Brothers' World" (Summary report and nine Country Reports) is developed within the project "Economic and Political Challenges of Acceding to the Euro area in the post-Lehman Brothers' World".

www.TheCatchUpIndex.eu

A special online platform was created at www.TheCatchUpIndex.eu, where users can view and work interactively with the data of the index, make comparisons across countries and indicators and visualize the outcomes in different ways.

There are basically three modes of usage. There is the Catch-Up Index standard format, which is generated on the basis of EuPI's own model. Alternatively, users can produce their own custom catch-up index by selecting categories and indicators and changing their weights. The third usage mode allows for country by country comparison across selected indicators or benchmarks.