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Международна научно-практическа конференция

90 години дарителство, знание, иновации и устойчиво развитие в СА „Д. А. Ценов" – Свищов

Том II



5-7 ноември 2026 г.

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Резюме: *Инициативата „Европейски университет“ се изгражда на етапи – чрез шест последователни покани за кандидатстване между 2019 г. и 2026 г., всяка от които е насочена към различна цел и към различен тип консорциуми. В настоящия доклад разглеждаме всяка покана като отделна кохорта и конструираме шест самостоятелни социални мрежи на ниво държава, а след това и една обобщена мрежа за целия период. Базата обхваща 126 записа „алианс-покана“ и 1051 участия на висши училища. Резултатите показват, че показателите на мрежата не се движат в една посока: плътността се колебае между 0.512 и 0.644, коефициентът на Джини нараства от 0.436 на 0.481, а делът на четирите водещи държави спада от 46.8% в пилотната покана до 37.1% в поканата от 2024 г. и се връща на 43.3% през 2026 г. Установихме, че поканите, финансиращи нови консорциуми, са значително по-балансирани в географско отношение от поканите за подновяване. Стойността на коефициента на модулярност спада от 0.11 при отделните покани до 0.03 при обобщената мрежа, което показва, че наслагването на поканите разгражда и малкото структури, наблюдавани поотделно.*

Ключови думи: *алианси на европейски университети, покани за кандидатстване, географски баланс, анализ на социални мрежи*

JEL: D85, I23

SOCIAL NETWORK ANALYSIS OF INTER-UNIVERSITY COOPERATION WITHIN THE EUROPEAN UNIVERSITY INITIATIVE: A CALL-BY-CALL COMPARISON

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Head Asst. Prof. Galin Stefanov, PhD

Abstract: *The European University initiative has been built in stages, through six consecutive calls for proposals between 2019 and 2026, each of them addressing a different objective and a different type of consortia. In this paper we treat every call as a separate cohort and construct six stand-alone country-level social networks, followed by one aggregate network*

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for the whole period. The dataset covers 126 alliance-call records and 1051 participations of higher education institutions. The results show that the indicators of the network do not move in one direction: density fluctuates between 0.512 and 0.644, the Gini coefficient rises from 0.436 to 0.481, and the share of the four leading countries falls from 46.8% in the pilot call to 37.1% in the 2024 call before returning to 43.3% in 2026. We find that the calls financing new consortia are markedly more balanced in geographical terms than the renewal calls. The modularity coefficient falls from 0.11 in the individual calls to 0.03 in the aggregate network, which shows that superimposing the calls dissolves even the weak structures observed separately.

Key words: *European university alliances, calls for proposals, geographical balance, social network analysis*

JEL: D85, I23

1. Introduction

The European University initiative (EUi) is not a single act of policy but a sequence of decisions. Between June 2019 and July 2026 the European Commission published six calls for proposals, and each of them was written with a different purpose in mind: to test the concept, to scale it up, to reach a numerical target, to widen the geography of the participants, and finally to secure the continuity of the funding into the next multiannual financial framework. Every call therefore selected a different kind of consortium, and the alliances funded under one call are not directly comparable with those funded under another.

Most of the existing literature treats the initiative as a whole (Gunn, 2020; Moser, Feiel, & Kircher, 2022; Charret & Chankseliani, 2023; Maassen, Stensaker, & Rosso, 2023; Kanniainen & Pekkola, 2023). This is understandable, since the political narrative around the EUi is also framed in aggregate terms, but it hides the fact that the composition of the network is the cumulative outcome of six separate selection procedures carried out under changing rules. The eligibility of Western Balkans institutions, the exclusion of British universities from full partnership, the minimum size of the consortia and the very purpose of the call have all changed along the way.

This paper takes the opposite route. It treats each call as a distinct cohort, builds a separate country-level social network for every one of the six, compares them by the same set of indicators, and only then superimposes them into a single aggregate network for the period 2019-2026. The purpose is to establish whether the geographical concentration of the initiative follows a trend, and if not, what determines it. The analysis is conducted on country level and rests on the official selection results published by the European Commission for each call.

2. Six Calls, Six Different Populations of Alliances

The formal requirements have remained broadly stable. A consortium must bring together higher education institutions holding a valid Erasmus Charter for

Higher Education from at least three countries, and it is expected to be geographically balanced across the four regions of Europe (European Commission, 2024a). In this sense every alliance is a formal innovation network whose members gain access to resources they could not mobilise individually (Schilling, 2016). The rules of the game around these requirements, however, have not been constant. The 2019 call was a pilot, financed with modest budgets over three years, and it deliberately kept the consortia small. Seventeen alliances of on average 6.7 partners were selected. The 2020 call repeated the exercise on a larger scale with 24 alliances, and it was the last one in which higher education institutions from the United Kingdom could be full partners. From the 2022 call onwards the initiative moved under the 2021-2027 Erasmus+ programme, with up to EUR 14.4 million per alliance over four years. Consortia became visibly larger and the call served mainly to renew the pilot alliances and to add four new ones.

The 2023 call was the largest single selection in the history of the initiative, with 30 alliances and 262 participating institutions. It was also the first one in which higher education institutions from Western Balkans countries not associated to the Erasmus+ programme could join as full partners, supported by a dedicated contribution from the Instrument for Pre-Accession Assistance. The 2024 call was reserved for entirely new consortia and delivered the target of the European strategy for universities (European Commission, 2022a) of at least 60 alliances involving more than 500 higher education institutions. EU-GIFT was added in December 2024 as the sixty-fifth alliance. Finally, the 2026 call did not create anything new: it renewed the funding of twenty already existing alliances with up to EUR 7.2 million each, as a bridge into the next budgetary period (European Commission, 2026).

Two of these calls therefore finance new consortia (2023 in part and 2024 entirely), while two others are essentially renewals (2022 and 2026). If the geographical balance criterion has any measurable effect, it should be visible precisely in this distinction, because the criterion can only be applied at the moment when a consortium is selected for the first time.

3. Data and Methodology

The dataset has been compiled from the official results of the six calls published by the European Commission (European Commission, 2019; European Commission, 2020; European Commission, 2022b; European Commission, 2023; European Commission, 2024b) and from the map of the alliances maintained by the Directorate-General for Education, Youth, Sport and Culture (European Commission, 2026). A record is an alliance in a given call, so that a renewed alliance appears once per call with the composition approved under that call. The database contains 126 alliance-call records and 1051 participations of full partners from 36 countries, of which 1040 are higher education institutions and 11 are the legal entities established by the alliances themselves.

For each record we have identified the country of origin of every full partner and we have counted, for each ordered pair of partners belonging to the same consortium, one joint cooperation between their two countries. Pairs of partners from the same country are counted as well, so that intra-national cooperation within an alliance is not lost. The result is a symmetric country-by-country matrix which is then written as an edge list with the columns 'Source', 'Target' and 'Weight' (Table 1). The procedure has been carried out seven times: once for each of the six calls and once for the pooled database.

The seven networks are undirected and weighted. A social network analysis has been applied to each of them using the standard set of centrality measures, such as 'weighted degree', 'degree', 'betweenness centrality', 'closeness centrality', and 'eigenvector centrality', for the ranking of the countries, and Louvain community detection algorithm (Blondel, Guillaume, Lambiotte, & Lefebvre, 2008) in order to test for clusters. The networks have been visualised with the ForceAtlas 2 force-directed layout algorithm (Jacomy, Venturini, Heymann, & Bastian, 2014), in which the nodes repel each other while the edges pull the countries they connect together, so that the distance between two nodes reflects the intensity of their cooperation rather than their geographical position. In addition, we report two measures of concentration which are not part of the standard network toolbox but make the cohorts comparable: the Gini coefficient of the distribution of ties among the participating countries and the combined share of the four largest ones.

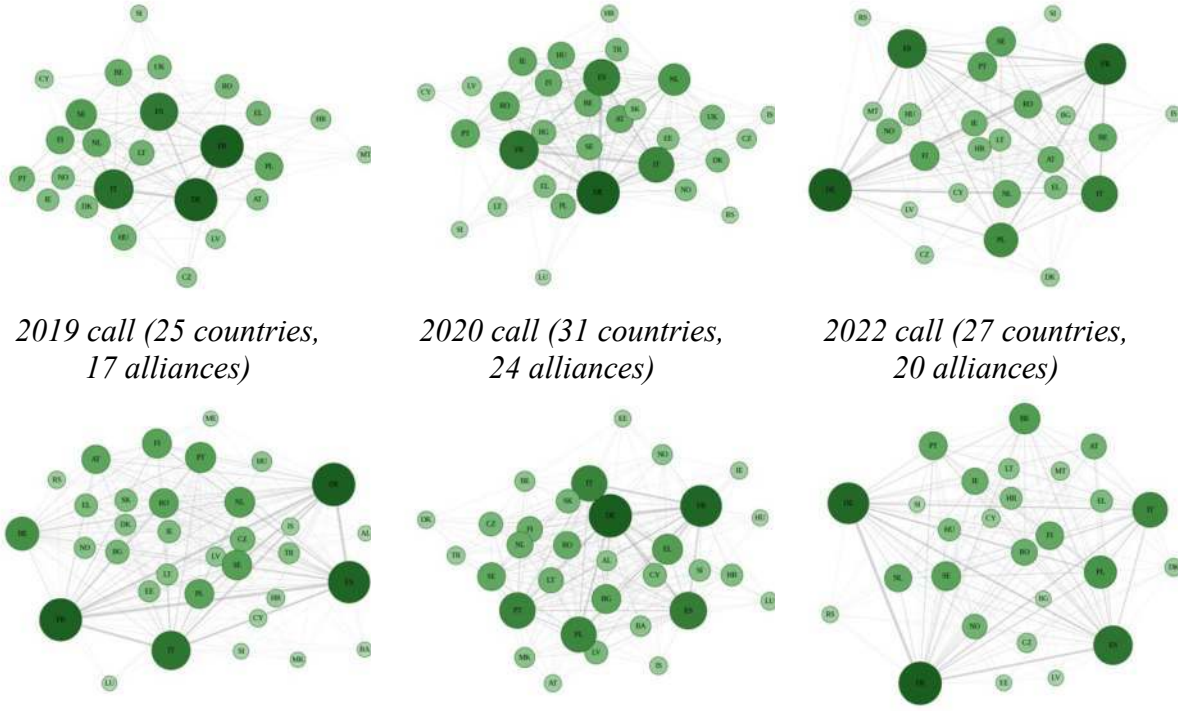
Table 1 Sample of the edge list used for the social network analysis

Call	Source	Target	Weight
2019	DE	FR	11
2019	DE	…	…
…	…	…	…
2026	BG	DE	1
All calls	DE	FR	127

Note: 2-letter country codes (ISO Alpha-2) are used in accordance to ISO 3166 international standard.
Source: Authors' elaboration

4. The Network of Each Call

Figure 1 presents the six networks side by side, drawn with the same conventions: the size and the darkness of a node reflect the 'weighted degree' of the country, and the thickness of an edge reflects the number of joint cooperations between the two countries it connects. For the panel, ForceAtlas 2 has been run with 900 iterations and a scaling ratio of 10, identical for all six networks, so that their layouts remain directly comparable with each other Table 2 summarises the indicators.



2019 call (25 countries, 17 alliances) | *2020 call (31 countries, 24 alliances)* | *2022 call (27 countries, 20 alliances)*

2023 call (34 countries, 30 alliances) | *2024 call (32 countries, 15 alliances)* | *2026 call (27 countries, 20 alliances)*

Figure 1. Country-level social networks of the six calls
Source: Authors' elaboration

Table 2 Indicators of the six networks

Call	Countries	Unique ties	Density	Ties	Gini	HHI	Leaders (%)
2019	25	162	0.540	698	0.436	725	46.8
2020	31	238	0.512	1 024	0.437	568	38.1
2022	27	222	0.632	1 468	0.470	678	42.7
2023	34	311	0.554	2 106	0.512	605	40.6
2024	32	257	0.518	1 154	0.470	583	37.1
2026	27	226	0.644	1 744	0.481	694	43.3
2019-2026	36	429	0.681	8 194	0.541	616	41.3

Note: 'Leaders' is the combined share of Germany, France, Spain and Italy in the total number of ties of the respective network. HHI is the Herfindahl-Hirschman index of the same shares.
Source: Authors' elaboration

4.1. The pilot calls: 2019 and 2020

The 2019 network is the smallest and the most unequal one. Twenty-five countries share 698 ties, France and Germany are practically tied at the top with 93 and 92 ties respectively, and together with Italy and Spain they hold 46.8% of everything – the highest concentration ever recorded in the initiative. The Centre/East region accounts for only 13.5% of the ties, the lowest value of all six calls. Eleven countries which would later join the initiative are entirely absent, among them Bulgaria, Estonia, Slovakia and all the Western Balkans.

The 2020 call changed the picture more than any other. Seven new countries entered (Bulgaria, Estonia, Iceland, Luxemburg, Serbia, Slovakia and Türkiye) and the concentration dropped sharply: the share of the four leaders fell by almost nine percentage points to 38.1% and the Herfindahl-Hirschman index from 725 to 568, its lowest level in the whole period. Germany became the clear leader with 128 ties against 99 for France. The Centre/East share jumped from 13.5% to 20.1%. At the same time the network became looser: with 31 countries and 238 unique ties its density fell to 0.512, the lowest of the six, and the average path length rose to 1.488. In other words, the second pilot call bought geographical breadth at the price of cohesion.

4.2. The scaling-up calls: 2022 and 2023

The 2022 call was the first under the full Erasmus+ budget and it renewed sixteen of the pilot alliances while adding four new ones. The consortia grew from an average of 6.9 to 8.9 partners and the network became markedly denser (0.632), but it also became narrower: only 27 countries are represented, since Estonia, Luxemburg, Slovakia and Türkiye had no funded partner and the United Kingdom left the initiative altogether. Poland entered the group of the five most connected countries for the first time, with 103 ties and a 7.0% share. The concentration rose again to 42.7% for the four leaders.

The 2023 call produced the widest network of any single call: 34 countries and 311 unique ties. It was here that Albania, Bosnia and Herzegovina, Montenegro and North Macedonia appeared for the first time, giving the Western Balkans a 1.0% share. Belgium climbed to the fifth position with 121 ties, ahead of Portugal and the Netherlands. The paradox of this call is that the widest network is also the most unequal one among the individual calls, with a Gini coefficient of 0.512: the newcomers entered with a single participation each, while the large countries were present in almost every one of the thirty consortia.

4.3. The widening call: 2024

The 2024 call is the most distinctive of the six. Being reserved for entirely new consortia, it attracted a different population of applicants (universities of applied sciences, polytechnics and smaller regional institutions) and this is immediately visible in the results. The share of the four leaders fell to 37.1%, the lowest of all calls. Portugal reached the fourth position with 84 ties, ahead of Italy, and Poland the sixth. Greece was seventh and Bulgaria eighth with 47 ties and a 4.1% share, by far its best result in the initiative. The Centre/East region peaked at 25.0% and the Western Balkans at 2.7%, while the West fell to 28.5%, more than ten percentage points below its level in the neighbouring calls.

This call also closed the last gaps in the core of the network. Until 2024 there was no funded alliance involving both Italy and Albania, and none involving both Spain and Luxemburg. BAUHAUS4EU, UNINOVIS and EUonAIR closed

all three of these missing links, which is why in the aggregate network the four leading countries reach the maximum possible degree.

4.4. The renewal call: 2026

The 2026 call reverses most of these movements. Because it renewed the twenty large consortia selected in 2022, in which the leading countries are heavily represented, the share of the four leaders rose again to 43.3% and the West to 41.2%, while the Western Balkans disappeared entirely and nine countries which had been present in earlier calls have no funded partner at all. France returned to the first position with 231 ties against 208 for Germany. On the other hand, this is the densest network of the six (0.644) with the shortest average path length (1.356), and the average consortium reached 9.7 partners from 9.0 countries, the largest of the whole period.

Figure 2 summarises these movements. Neither the concentration nor the cohesion of the network follows a trend. The share of the four leaders oscillates in a band of nine percentage points, and its turning points coincide exactly with the change in the purpose of the call. Density behaves in the same way but with the opposite sign: the renewal calls produce dense and concentrated networks, the calls for new consortia produce loose and dispersed ones. Only the Gini coefficient shows a slow but consistent rise from 0.436 in 2019 to 0.481 in 2026, which reflects the fact that each new call adds countries at the bottom of the distribution faster than it redistributes ties away from the top.

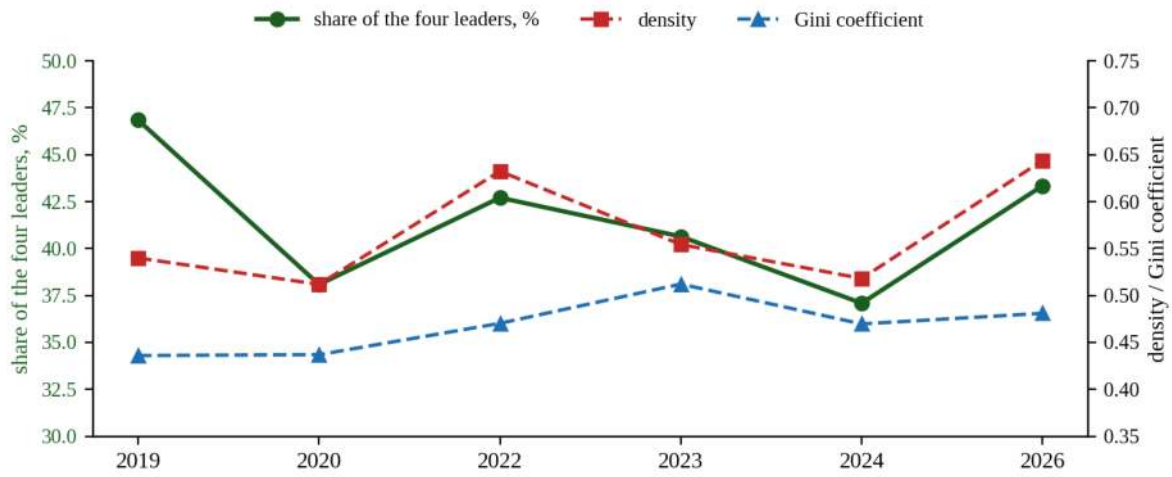


Figure 2. Concentration and cohesion of the network by call
Source: Authors' elaboration

The regional breakdown on Figure 3 tells the same story in a more direct way. In five of the six calls the West holds between 37.7% and 41.9% of the ties. Only in the 2024 call does it fall to 28.5% and this is the single call which financed exclusively new alliances. The Centre/East and the Western Balkans reach their maxima in the same call. The geographical balance criterion is therefore not inert,

but it can only operate at the moment of the initial selection. Once an alliance exists, its renewal reproduces the composition that was approved years earlier.

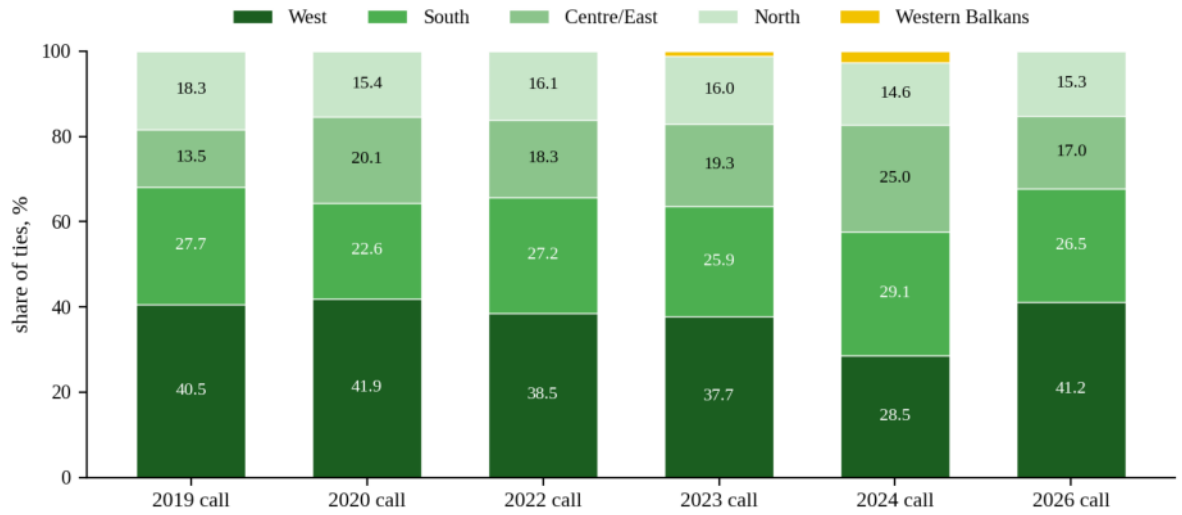


Figure 3. Share of the four European regions and of the Western Balkans by call
Source: Authors' elaboration

5. The Aggregate Network (2019-2026)

Superimposing the six cohorts gives the network on Figure 4. It contains all 36 countries which have ever had a funded partner, connected by 429 unique ties which carry 8194 joint cooperations. Its density of 0.681 is higher than that of any individual call, the diameter is 2 and the average path length 1.319, which means that any two countries of the initiative are either direct partners or partners of a common partner.

Applying the elbow rule to the distribution of the 'weighted degree' values yields four groups of countries (Table 3). Germany, France, Spain and Italy form the core of the network with between 983 and 673 ties each and 41.3% of the total. All four cooperate with every other country including themselves, which gives them the maximum degree of 37 and identical values of 'betweenness centrality' (19.535), 'closeness centrality' (1.000) and 'eigenvector centrality' (1.000). The second group of seven countries holds a further 30.2%. Poland leads it with 436 ties, although Sweden has a marginally higher 'eigenvector centrality' (eigenvector $\text{centrality}_{\text{Sweden}} = 0.975 > \text{eigenvector centrality}_{\text{Poland}} = 0.972$), which means that Poland owes its position to the number of its participations rather than to the importance of its partners. The twenty peripheral countries share 27.4% and the five extremely peripheral ones only 1.2%.

Bulgaria belongs to the third group. Over the six calls it has taken part in 19 alliance-call records and has accumulated 144 ties with 28 different countries, cooperating most intensively with France (16), Germany (15), Spain (14) and Italy (13). Its position, however, is entirely the product of two calls: the country was absent from the pilot call of 2019, held only 1.1% of the ties in the renewal call of 2022, and reached 4.1% and the eighth place overall in the widening call of 2024.

Measured by ‘eigenvector centrality’ in the aggregate network, Bulgaria (0.877) is the best positioned country of the whole peripheral group, ahead of Greece (0.850) and Czechia (0.820).

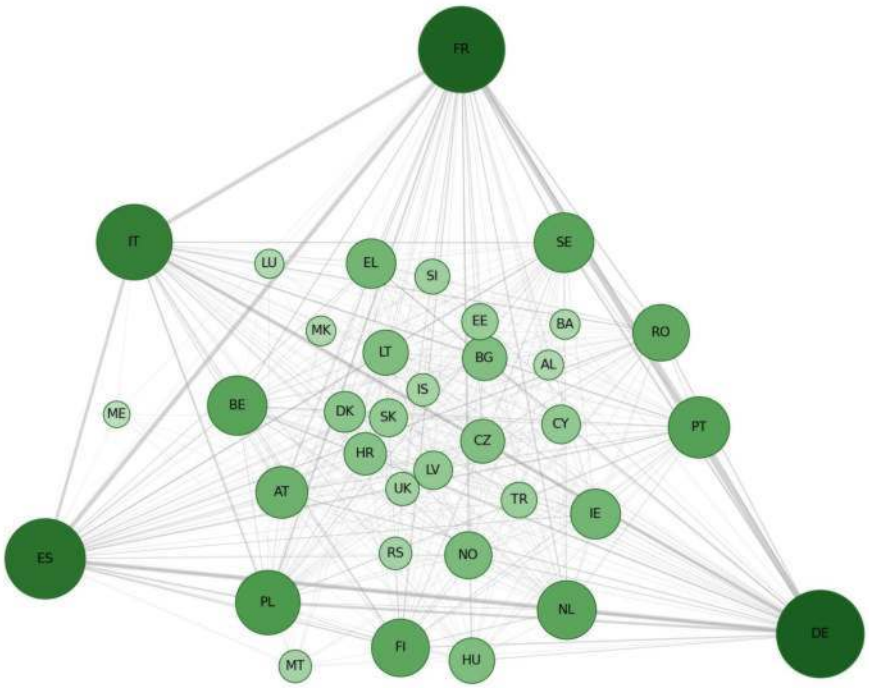


Figure 4. Country-level social network of the EUi, 2019–2026
Source: Authors’ elaboration

Table 3 Groups of countries in the aggregate network

Group	Countries	Ties	Share (%)	Members
Alpha stars	4	3 384	41.3	DE, FR, ES, IT
Beta stars	7	2 473	30.2	PL, PT, SE, BE, NL, FI, RO
Peripheral	20	2 242	27.4	AT, IE, EL, NO, HU, LT, BG, CZ, HR, DK, CY, LV, SK, EE, TR, SI, UK, MT, RS, IS
Extremely peripheral	5	95	1.2	AL, BA, MK, LU, ME

Source: Authors’ elaboration

The most instructive result of the aggregation concerns the community structure. Applied to the individual calls, Louvain algorithm returns modularity coefficients between 0.075 and 0.114 for the four calls which contain new consortia, and between 0.034 and 0.045 for the two renewal calls. These are low values, but they are not zero: within a single selection round the alliances do form loose groupings, mostly by size and by the type of the participating institutions. In the aggregate network, however, the coefficient falls to between 0.028 and 0.033, the lowest value of all seven networks. Superimposing six cohorts selected under six different sets of priorities dissolves the weak structures visible in each of them separately. There are no cartel-like groupings of countries within the

initiative, and the absence of such groupings is itself a cumulative product of the way the calls have been designed.

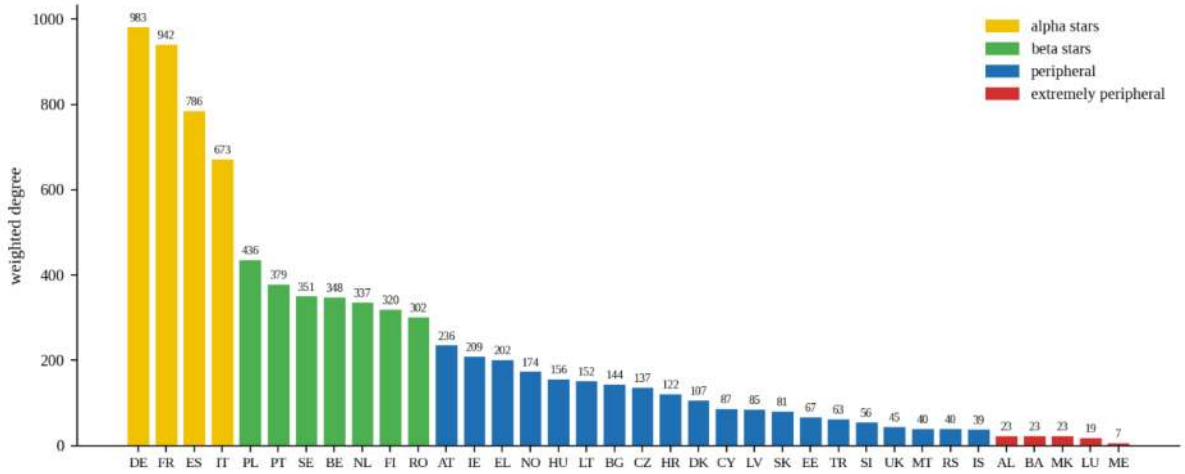


Figure 5. EUi countries sorted by 'weighted degree' (2019–2026)
Source: Authors' elaboration

6. Conclusions

Reading the European University initiative call by call leads to three conclusions which are not visible when it is examined as a whole. First, the concentration of the network does not follow a trend. The share of the four leading countries moves between 37.1% and 46.8% and its turning points coincide with the purpose of each call rather than with the passage of time. Second, the calls which finance new consortia are consistently more balanced in geographical terms than the calls which renew the existing ones: the 2024 call brought the West down to 28.5% and the Centre/East up to 25.0%, while the 2026 renewal call restored the earlier proportions almost exactly. The geographical balance criterion works, but only at the moment of the initial selection.

Third, the aggregate network is less structured than any of its components. The modularity coefficient of the pooled network is lower than that of every individual call, which means that the diversity of the initiative is produced not within a single selection round but by the succession of rounds with different priorities. This is an argument in favour of maintaining a regular flow of new consortia rather than concentrating the available budget on the renewal of the existing ones.

The main limitation of the analysis is that it stops at the level of the country. Whether the position of a node is better explained by its national origin or by the type of the participating institution (comprehensive university, technical university or university of applied sciences) is a question which the present data cannot answer and which we intend to address next.

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