

## Article

# European Universities Initiative: How Universities May Contribute to a More Sustainable Society

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**Abstract:** The European Universities initiative, launched by the European Commission in 2018, has its origin in the concept of Civic Universities (CivUs) and consists of transnational higher education alliances throughout the European Union that share long-term strategies. They are expected to become universities of the future, to promote European ideals and character, and to revolutionize the competitiveness and excellence of European higher education. European universities add 41 alliances, involving 31 different countries. This article presents an early quantitative evaluation of this initiative. This paper addresses the coverage of the 41 alliances and selects five of the most advanced for a deeper evaluation of their best practices and their contribution to the realization of CivUs. This paper also outlines the criteria for evaluating the extent to which good practices implemented by these alliances are aligned and can contribute to the attributes of CivUs, based upon state-of-the-art educational standards. A quantitative framework, based on application of the analytical hierarchy process (AHP), is also provided to rank the good practices developed by these alliances against the previous evaluation criteria. Furthermore, by applying a sensitivity analysis, this paper also addresses the robustness of this approach.



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**Keywords:** European universities; Civic Universities; education; sustainability; university alliances; analytical hierarchy process

## 1. Introduction

The educational landscape in Europe is currently undergoing a transformation process, in which the model and role of European universities are being rethought.

The idea of CivUs was originally coined by Boyer in 1996 in the Bulletin of the American Academy of Arts and Sciences, where he discussed the “scholarship of engagement” as “... connecting the rich resources of the university to our most pressing social, civic, and ethical problems, to our children, to our schools, to our teachers, and to our cities” [1]. Along this line of reasoning, CivUs must be deeply ingrained in their communities [2]. As such, they must shape their research and education activities to promote entrepreneurialism for social innovation [3]. They also have to provide viable solutions to several social challenges, such as those identified by the SDGs [4]. Higher education institutions (HEIs) play a very significant role in the development of their regions of influence, due to their contribution to both intellectual and civic progress [5]. The European social model is committed to a type of sustainable development capable of combining economic, social, and cultural dynamism with cohesion, equity, inter-cultural and environmental protection, people’s quality of life, and recognition of their diversity, as well as expanding their opportunities, rights, and capabilities [6].

The potential of a HEI does not depend only on the university, but also on the city and region of influence [7]. Universities can act as a stabilizing influence in local economies [8] as they are generally immune to institutional failure [9], and they must play an active role in regional development. Universities can contribute to regional development, improving

regional innovation through research, as well as promoting business growth and development, by contributing to the development of regional human capital and improving social equality through regeneration and cultural development [10].

To contribute to this goal, universities must play a leadership role in problem solving, in addition to serving as a model of civic behavior for society [11]. They must direct their academic and research activities to the development of an objective and critical awareness of students about the reality in which society lives, the characteristics of the evolution of this reality in the past, and the perspectives at present for the future [12].

In recent decades, important European manifestos related to university institutions have paved the way for open and inclusive European CivUs. The 1988 Magna Carta of European Universities advocated for the reciprocal exchange of information and documentation, and the multiplication of common scientific initiatives, as the fundamental instruments for continuous progress of knowledge. The 1998 Sorbonne Declaration encouraged the mobility of professors and students and considered that a general policy of equivalence in matters of status, degrees, examinations, and scholarships constitutes the essential instrument to guarantee the exercise of their mission. In 1999, the Bologna Declaration “the Europe of knowledge” was recognized as a unique piece of human and social growth and as a crucial factor to consolidate and enhance European citizenship, capable of providing its inhabitants with the essential skills to face the challenges of the new millennium, together with awareness of sharing values and belonging to a common social and cultural space.

These statements are a faithful representation of the open and inclusive spirit of different institutions toward the establishment of a true European university.

There are multiple initiatives and declarations that pursue this objective at national and European levels, such as the “Principles for Responsible Education in Management,” the University Strategy 2015, the “Decade of Education for Sustainable Development” of the United Nations, and the 2030 Agenda for Sustainable Development, which emphasize the need to integrate education for sustainable development (ESD) into all levels of education [13]. All of them consider social responsibility and its contribution to the sustainability of universities.

Continuing along this line, the European Union has rethought the model of European universities in recent years, in which HEIs must play a leading role in solving problems, as well as serving as a model of civic behavior for society.

On 26 September 2017, French President Emmanuel Macron introduced the concept of European Universities in his speech on the refounding of Europe, titled “For a sovereign, united, and democratic Europe,” which identified the great principles that will support them and set a goal for the year 2024 [14].

*I propose the creation of European universities that will be a network of universities from various European countries, pursuing a career in which each of their students will study abroad and in at least two languages. European universities that will be places of pedagogical innovation, of excellent research. We must set ourselves a goal by 2024 to have built at least twenty. But from the next academic year, we must articulate the first ones, with authentic European semesters and authentic European qualifications.*  
(Macron, s.f.)

The concept of European Universities was developed under the leadership of the European Commission, in cooperation with member States, higher education institutions, and student organizations. The project was called the European Universities Initiative and was launched with the support of Erasmus+ in October 2018.

The first call for applications attracted responses from 54 alliances that involved more than 300 higher education institutions from 28 member countries, and the first 17 European Universities were selected. In September 2020, the European Commission announced the results of the second call of the Erasmus+ program for European Universities, selecting 24 new alliances among 62 applications received, involving 165 institutions from 26 EU member States and other countries.

The initiative now totals 41 European Universities, with the participation of more than 280 institutions and with a budget of EUR 287 million from the Erasmus+ and Horizon 2020 programs. Each alliance obtains EUR 5 million from the Erasmus+ program and EUR 2 million from the Horizon 2020 program over three years, to start executing their strategies and to create a path for other EU higher education institutions to follow.

The aim of this initiative is to bring together a new generation of Europeans who are creative and capable of cooperating, beyond languages, borders, and disciplines, to face the great social challenges and the lack of capacities that Europe faces to create a European Education Area. This will allow students to graduate by combining study periods in various EU countries and will contribute to the international competitiveness of European universities.

However, these alliances have an important challenge ahead of them. HEIs that seek to enhance their civic role must be aware that it involves an institutional transformation [9], as they will have to support emerging industries, contribute to public health, disseminate knowledge, and become a reference platform to promote debate on social and scientific challenges [15]. They will have to engage with society through teaching and research activities, which must be designed to provide an effective socioeconomic impact [16] and directly contribute to social inclusion by empowering disadvantaged groups and improving communication in their region.

At the time of presenting this work, these alliances have one or two years of experience, which allows us to examine their potential to achieve the planned objectives. This article presents an early quantitative evaluation of this initiative. The objectives of this study were as follows:

- Address the coverage of the 41 alliances and select five of the most advanced for a deeper evaluation of their best practices and their contribution to the realization of CivUs.
- Outline the criteria for evaluating the good practices implemented by these alliances, considering CivUs-related criteria: innovation, efficiency, sustainability, and replicability.
- Provide a quantitative framework, based on application of the analytical hierarchy process (AHP) for ranking the good practices developed by these alliances against the previous evaluation criteria and benchmark the performances of the European University Alliance against the standards of CivUs.
- Address the robustness of this approach by applying a sensitivity analysis.

## 2. Materials and Methods

The methodological approach followed in this research is outlined in Figure 1.

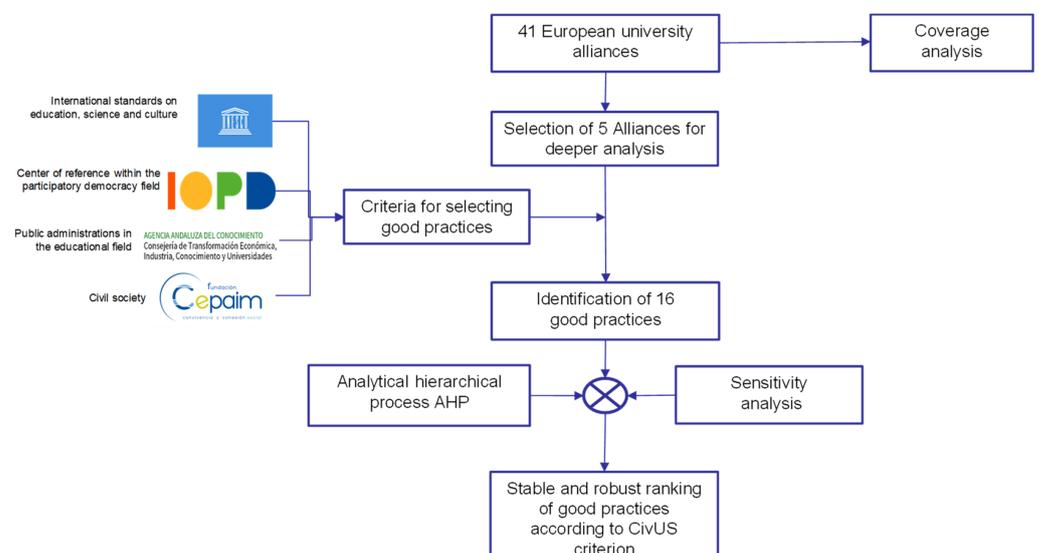


Figure 1. Methodological approach.

This article addresses the coverage of the 41 initiatives and selects five of the most advanced and outstanding for a deeper evaluation of their good practices and their contribution to the realization of European CivUs.

To evaluate to what extent the alliances are aligned and can contribute to CivUs attributes, the proposed framework identifies good practices implemented by the alliances pursuing any of the characteristics of CivUs: integration into their communities, societal research, innovation, entrepreneurship, addressing societal changes, etc. This paper also outlines the criteria for evaluating the extent to which good practices implemented by these alliances are aligned and can contribute to the attributes of CivUs. The criteria for identifying good practices were extracted from international standards. UNESCO, within the framework of the Management of Social Transformations (2003) program, specifies four basic features to identify best practices in the social sphere: innovation, efficiency, sustainability, and replicability. These four criteria have been incorporated into most contemporary systematizations.

This study also considered the standards of the International Observatory of Participatory Democracy (2015) and the Andalusian Agency for Educational Evaluation (2012). Both represent the perspective of public administrations in the educational field, municipal in the first case and regional in the second. The criteria suggested by the CEPALM Foundation (2014), an NGO that works in communities and is an intercultural key to coexistence and social cohesion that exemplifies the work of the third sector, were also considered [17].

This paper also provides a quantitative framework for evaluating, ranking, and benchmarking these good practices in order to identify the most successful and those with the greatest potential to promote European CivUs values. The framework is based on the application of the analytical hierarchy process (AHP).

The AHP is a method that allows us to analyze and make complex decisions using mathematical and psychological principles. This methodology was developed in 1980 by Thomas L. Saaty and has been developed for the better. The method is based on a series of psychological, mathematical, and empirically proven foundations in innumerable applications [18–20].

The AHP selects alternatives based on a series of criteria or variables, usually hierarchical, that tend to conflict. In this hierarchical structure, the end goal is at the highest level, and the criteria and sub-criteria are at the lowest levels, as shown in Figure 2. The methodology is structured in four main steps. The first is the definition of the problem to be solved, the characterization and hierarchization of the criteria for decision-making, and the quantification of the possible solutions or alternatives according to such criteria. The second step consists of conducting pairwise comparisons by organizing the importance of identified criteria into matrices that allow pairwise comparison of all possible combinations of criteria. The third step is the calculation of the importance weight of each criterion; and finally, the fourth step is the identification of the best option by calculating a function called utility, which represents a numerical representation of how useful or beneficial something is.

Once the hierarchical structure has been defined, the criteria for each group are compared at the same hierarchical level, and the matched alternatives are directly compared with the criteria at a lower level. For this, a basic scale is used (Table 1), implementing the paired comparison matrix based on the Weber–Fechner law [21].

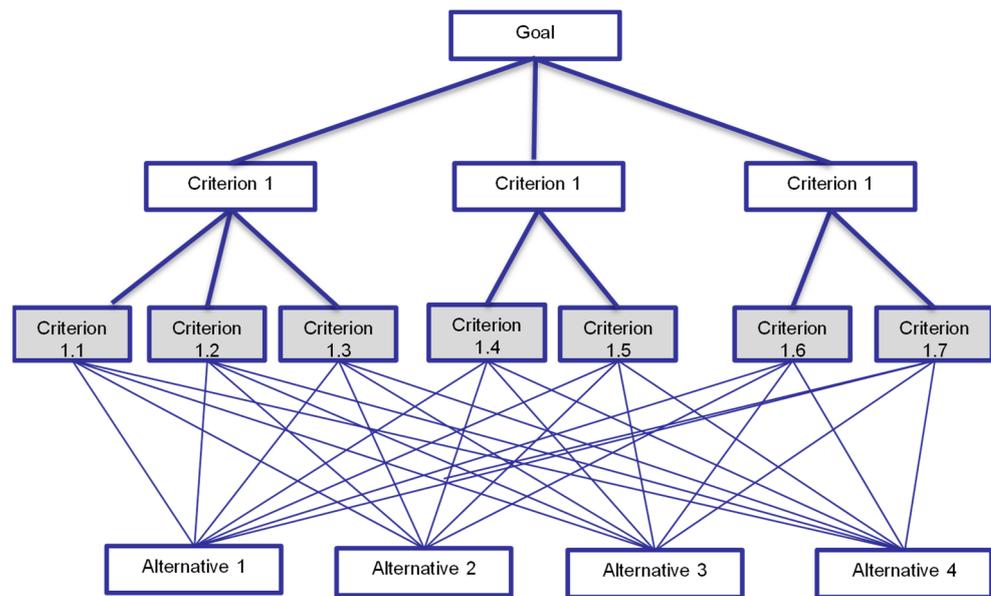


Figure 2. Structure of the hierarchical analytical process.

Table 1. Paired comparison scale.

	Verbal Scale	Explanation
1	Just as important	The two elements contribute equally to the property or criterion
3	One element is moderately more important than the other	Judgment and previous experience favor one element over the other
5	One element is more important than the other	Judgment and previous experience strongly favor one element over another
7	The importance of one element is much stronger than that of the other	One element dominates strongly; the dominance is proven in practice
9	Extreme importance of one element over the other	One element dominates the other with the highest order of magnitude

Saaty proposed a paired comparison scale in which, when two elements are equal with respect to a criterion, the weight is 1; when one element is moderately more important than another, the weight is 3; when the importance of one element is much stronger than that of another, its weight is 7; and if the importance of one is extreme compared to another, the weight is 9.

The comparison of the different alternatives with respect to the criteria and the comparison of criteria at the same hierarchical level generate a square matrix named the decision matrix. This matrix complies with the following premises:

- Reciprocity:

$$\text{If } a_{kl} = x, \text{ then } a_{lk} = 1/x, \tag{1}$$

- Homogeneity:

$$\text{If } k \text{ and } l \text{ are equally important, } a_{kl} = a_{lk} = 1 \text{ and, furthermore, } a_{kk} = 1 \text{ for all } l \tag{2}$$

- Consistency: The matrix must not reflect contradictions in the assessment.

Consistency is given by the Consistency Index (CI) (3), where  $\lambda_{max}$  is the maximum eigenvalue and  $n$  is the dimension of the decision matrix. A Consistency Index of zero means that the consistency is complete. Once the CI has been obtained, the consistency ratio (CR) is calculated. CR will be accepted if it does not exceed the values indicated in

Table 2. If the maximum *CR* is exceeded in a matrix, the weightings must be reviewed. *RI* is the random index, which indicates the consistency of a random matrix (Table 3).

$$CI = \frac{\lambda_{max} - n}{n - 1} \quad CR = \frac{CI}{RI} \quad (3)$$

**Table 2.** Random index (*RI*).

Matrix size	2	3	4	5	6	7
Random index	0	0.58	0.9	1.12	1.24	1.32

**Table 3.** Maximum percentages of the consistency ratio (*CR*).

Matrix Size (n)	Matrix Size (n)
3	5%
4	9%
5 or higher	20%

Once consistency has been verified, weights can be obtained. Weights characterize the relative importance of each criterion or the importance of the alternatives with respect to a criterion. To calculate weights, the AHP uses the eigenvalue method (4), where *A* is the comparison matrix, *w* is the eigenvector or preference vector, and  $\lambda_{max}$  is the eigenvalue.

$$A * w = \lambda_{max} * w \quad (4)$$

This methodology provides a rational framework for decision-making by quantifying the criteria and decision alternatives and establishing a structure that relates them to the general objective. The method also allows benchmarking of the performances of the European University Alliance against the standard of CivUs.

Furthermore, by applying a sensitivity analysis, the paper also addresses the robustness of this approach.

### 3. Results and Discussion

#### 3.1. Coverage Analysis Results

European Universities are transnational alliances that pave the way for the development of universities of the future and have a strong symbiotic relationship with the city and the region of influence in which they are located.

These alliances test models of the concept of EUI and examine their potential to transform higher education. More than 280 higher education institutions participate in the initiative. Although this figure represents only 5% of all higher education institutions in Europe, the synergies developed by the alliances have the potential to involve 20% of European students [22].

Figure 3 shows the countries participating in the EUI in different shades of blue; the stronger the intensity, the higher the participation of national HEIs. The countries with the highest participation are Germany, France, Italy, and Spain. They are represented in dark blue in Figure 3, since they have a participation rate of greater than 15 alliances. Germany is the most represented country, participating in 31 out of 41 alliances.

All of the member countries of the European Union have representation; in addition, we also found others such as the United Kingdom, Turkey, Serbia, Norway, and Israel. Figure 4 shows the spread of participation between countries. The countries with a single representation are Slovakia, Iceland, Malta, Serbia, and Turkey. Norway and the United Kingdom, although not being part of the EU, have five and eight universities, respectively.

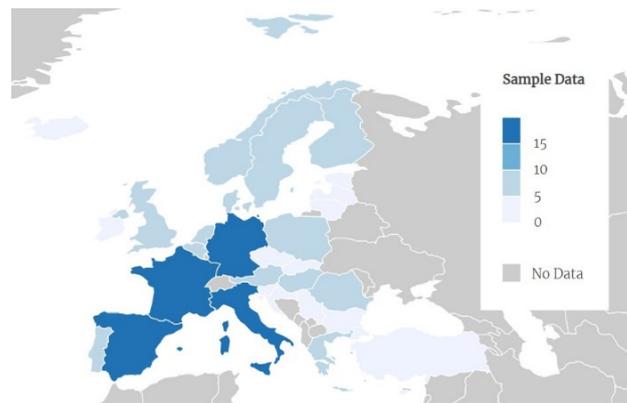


Figure 3. Countries participating in the European Universities Initiative.

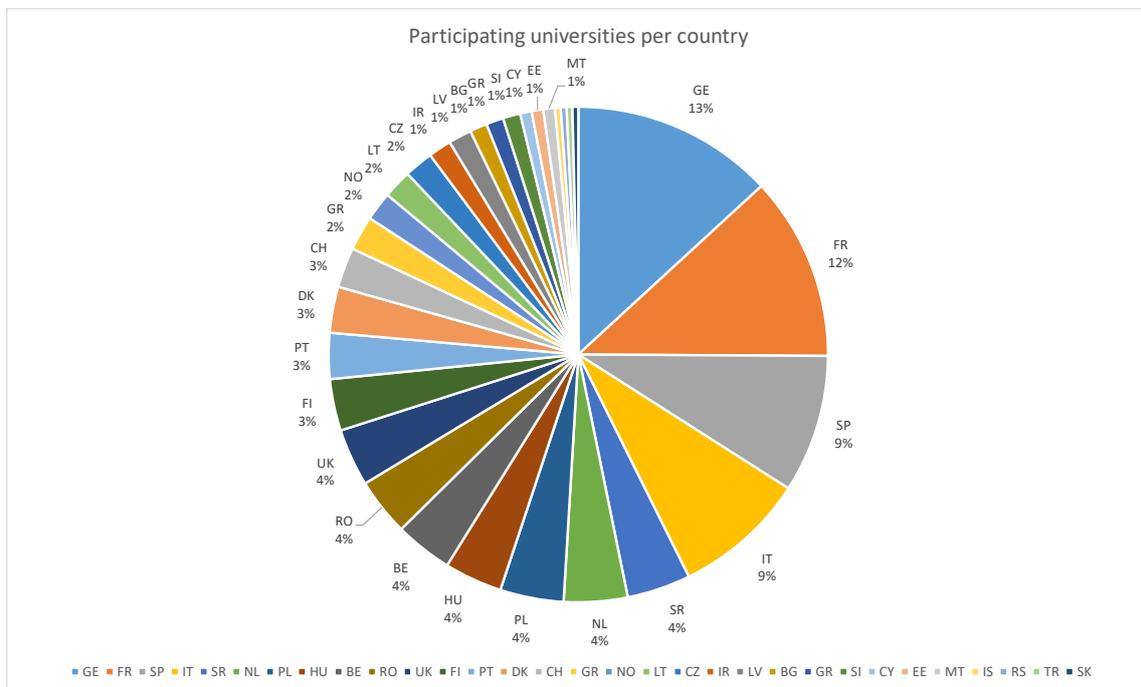
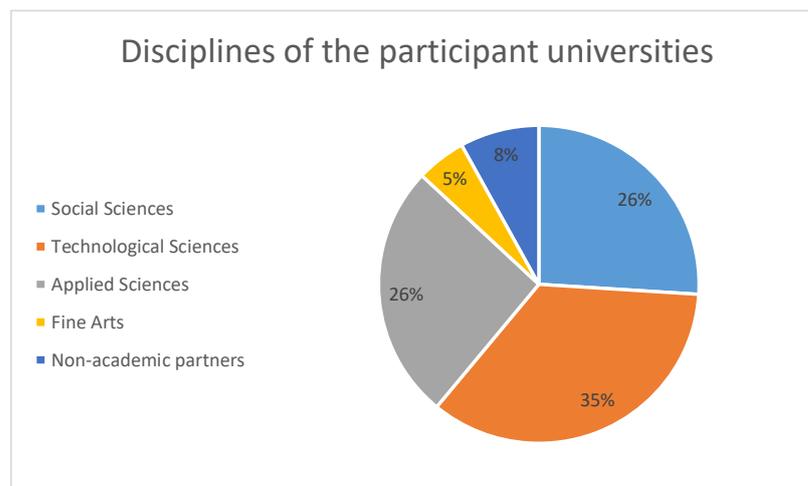


Figure 4. Participation per country.

Countries such as Switzerland and Russia are not represented in the initiative. Despite not being part of the European Union, these countries have universities ranked among the 100 best in the world, ahead of other countries such as Turkey and Serbia, although the latter do have representation.

The hyper-concentration of European institutions can become a weak point in the initiative. Alliances would benefit from increasing the participation of institutions of high quality and relevance outside the European Union, and initiatives pursuing this objective should be encouraged. Alliances do not need to be static bodies or be tightened by geopolitical boundaries; the evolution of a proportion of the current alliances by extending geographical participants would be very beneficial.

While some partnerships are comprehensive and span all disciplines, others focus, for example, on sustainable development, health and well-being, digitization and artificial intelligence, art, engineering, or space. Figure 5 shows the different disciplines that can be found in different alliances of European Universities. Higher education institutions come from different states, located not only in capitals, but also in the most remote European regions. Each alliance is made up of an average of seven higher education institutions.



**Figure 5.** Graph of the different disciplines in the alliances. Note: The label “non-academic partners” refers to institutions that are part of the alliances but are not universities. This category includes research centers, incubators, businesses and innovation enterprises, chambers of commerce, regional and/or national authorities, NGOs, etc.

The alliances share a series of objectives and proposals embedded in the concept of CivUs:

- Promote a common European identity for all students, researchers, teachers, and staff.
- Encourage cooperation between different cultures and in different languages.
- Co-create knowledge across borders, integrating different sectors and academic disciplines.
- Establish physical and virtual European inter-university campuses.
- Pool physical and online resources to leverage strengths and become more resilient in the face of disruptions and threats.
- Bet on strategies for a shared and long-term position that integrates education, research, and innovation in the service of society.
- Explore new avenues for hiring and professional development.
- Increase the cooperation of a university with its surrounding innovation ecosystems to address societal challenges.
- Expand and strengthen doctoral and postdoctoral training programs.
- Integrate the 2030 Agenda for Sustainable Development into educational and research proposals at all levels and disciplines.
- Increase the mobility of students and staff at all levels.
- Promote practical experience, foster an entrepreneurial mindset, and develop civic engagement.

Among the most common topics, there are practices that pursue:

- The use of challenge-based approaches.
- Combining education, research, and innovation to increase the interdisciplinary critical mass.
- Sharing capacity and pooling resources.
- Strengthening the appeal of academic and research careers.
- Institutional change, for example, through inclusive gender equality plans.
- Promoting open education and science projects.
- Commitment to citizens to solve social challenges.
- Reinforcing excellence in education and research for global competitiveness.

There is still room to explore new and innovative human resource practices in institutions where human resources have evolved little compared to other areas of society. Alliances can be a playground for innovation with more attractive ways for the professionalization (including evaluation, hiring, and compensation) of academic and research staff, but also of administrative and management staff that support all functions of the university—and why not? Alliances can also become incubators for new models of work

and recruitment for their graduates, facilitating their insertion into the world of work and the long-term connection between industry, society, and university.

Another area that might benefit from the development of good practices is the growth of start-ups and emerging companies within universities, so far restricted by the local dimension of universities, which could very much benefit from the scale and mobility offered by the European dimension of alliances.

This first stage of the European Universities project is a lab where alliances can test different models whose benefits can be analyzed and valued competitively. By selecting the best practices from the 41 current projects and integrating them into more mature alliances with greater economies of scale, the future stages of the European Universities project are referred to as a revolutionary step in interinstitutional cooperation, by offering diverse visions, models, and, above all, inspiring themes of interaction to support the future development of the European Education Area (EEA) in accordance with the changing needs of society.

### 3.2. Identification of Good Practices

A good practice is not only defined as good in itself, but it is a practice that has been shown to work well and produce good results, endowed with a series of actions that serve as references for other future actions, and therefore, it is recommended as a model. Good practice is a successful experience, tested and validated in a broad sense, that can be repeated and that deserves to be shared and adopted by as many people as possible [23]. Good practices help to face, standardize, improve, or solve problems and/or difficulties that arise in the daily work of people in the clinical, management, user satisfaction, or other fields. Generally, good practices are defined as follows:

- Innovative experiences that can solve problems by improving processes.
- Actions that have been recognized for their excellence and for their ability to be transferable to other contexts.
- Valuable contributions, characterized by having a palpable impact on improving the quality of life of individuals and communities.
- Socially, culturally, economically, and environmentally oriented toward sustainability.
- Having reflection—intentionality in their design, development, and evaluation—as well as flexibility to adapt to different realities.

Different national and international organizations have made important efforts to narrow down the criteria that allow a practice to be described as “good”. We took, as a reference, the 2003 UNESCO Management of Social Transformations program, which specifies four basic features to identify best practices in the social sphere: innovation, effectiveness, sustainability, and replicability. These four starting elements have been incorporated into most contemporary systematizations.

From a methodological perspective, Table 4 combines them with those of the International Labor Organization (2003), those proposed by the International Observatory of Participatory Democracy (2015), those suggested by the Andalusian Agency for Educational Evaluation (2012), and those advanced by the CEPAIM Foundation (2014).

### 3.3. Selection of Alliances and Good Practices

To build and demonstrate the proposed evaluation framework, five out of the 41 alliances were studied in more detail to extract the good practices that they have managed to implement.

Good practices were identified from desk research on the web pages of the alliances and verified by phone interviews with a member of each alliance. All good practices were already implemented by the alliances and had been in operation for at least two years. To be selected as a good practice, an alliance initiative must have scored positively on at least one of the criteria identified in Table 4.

**Table 4.** Criteria for selecting good practices.

UNESCO (2003)	OIT (2003)	Andalusian Agency for Educational Evaluation (2012)	CEPAIM (2014)	International Observatory of Participatory Democracy (2015)
Innovation Effectiveness Sustainability Replicability	Innovation–creativity Efficacy–impact Replicability–sustainability Relevance Ethics and responsibility Networking Efficient	Verifiable facts Responds to needs Innovation Sequenced and reflective Documented Effective and efficient Citizen participation Sufficient and defined resources Rigorous monitoring and feedback Ethical code	Sustainable Effective Innovative Transferable Generates cohesion Strengthens empowerment Social networks Gender perspective	Goals related to participation Innovation, transferability, and feasibility Planning and practices in local government Stewardship political leadership Defined responsibilities Educational process impact and transformation Evaluation return of the information

Although all alliances implement practices related to the pillars of CivUs, such as education, student and staff mobility, innovation, sustainability, research on SDGs, interaction with citizens, and governance, all proposals were significantly different between alliances, so we can say that none of the identified practices were carried out by more than one of the alliances.

### 3.3.1. EELISA

This alliance brings together universities of different sizes, histories, and disciplines, but with the same common goal: to transform European higher technological education. Its main objective is to promote the European engineering model by jointly creating society-oriented EELISA communities, to identify and contribute to solving social challenges.

Members: EELISA is led by the Polytechnic University of Madrid and brings together the following universities: Budapest University of Technology and Economics, École des Ponts ParisTech, Friedrich-Alexander-Universität Erlangen-Nürnberg, Istanbul Technical University, Scuola Normale Superiore, Scuola Superiore Sant’Anna, Polytechnic University of Bucharest, and Paris Sciences et Lettres University.

Goal: The goal of the alliance is the creation of “communities”, multidisciplinary groups to solve social challenges, and to offer the following services:

- Exchange of experiences and knowledge between teachers and researchers.
- Communication and dissemination of actions and results.
- Incentive support for teachers and students.
- Larger-scale integration of students in solving these real challenges, connected to a far-reaching mission.
- Definition and management of the EELISA credential; this recognizes the students’ contributions to solving socio-technological challenges, and evolves as elements are added after participating in the activities or projects of the EELISA communities.

Potential impact: This alliance brings together a total of 16,000 faculty, 11,000 staff members, and 180,000 students.

The alliance’s good practices. The following good practices have been identified in this alliance:

- Alliance Communities: EELISA communities are mission-driven working groups that bring together students, teachers, and researchers from all partner universities with prestigious professionals, grassroots organizations, citizens, private companies, and public institutions to find innovative solutions to real-world challenges. An EELISA community is a collaborative platform oriented toward a specific mission, which encourages the use of knowledge, research, and innovation to solve complex problems, such as those framed in the 2030 Agenda or the European Green Deal. An

EELISA community produces an ecosystem that is based on cooperation, built on formal structures that already exist within partner organizations. Four communities are currently active:

- Circular and Sustainable Production, Energy, and Natural Resource Management.
  - Technological and Digital Solutions for Health.
  - Culture, Creativity, and Social Sciences and Humanities for STEM.
  - Cities and Communities.
- Alliance Credentials: A modern system of recognition of achievements that identifies the contribution of students (attitude and involvement) in EELISA communities and their contribution to solving social challenges.
  - Supplement to the Diploma: Promote the European commitment of students through mobility abroad, courses recognized by the EELISA alliance, and participation in EELISA communities. This is about encouraging students to take mobility courses recognized by the EELISA alliance and participation in EELISA communities. When students graduate, their diploma is not only valid in one country; it is a cross-border diploma. This encourages them, and after this, the European engineering notion can be revised and linked with innovation for the future.
  - Common alliance degree: Multisite titles based on a common internal quality assurance mechanism for the management of EELISA activities that establish guidelines to prove the identity of a European engineer.

### 3.3.2. CIVIS

The CIVIS project combines efforts and experiences in innovative teaching and scientific activities to build a European university connected to its environment and aimed at responding to local, European, and international challenges.

Members: CIVIS is an alliance made up of eight leading HEIs: The University of Aix-Marseille, the National Kapodistrian University of Athens, the University of Bucharest, the Free University of Brussels, the Autonomous University of Madrid, La Sapienza University of Rome, Stockholm University, and Eberhard-Karl University of Tübingen.

Goals: CIVIS aims to create a unique European campus in which students, academics, researchers, and staff can move and collaborate with the same freedom as they do within their home institution. It works on a European integration model through joint itineraries and degrees and shared research facilities. Its main objectives are the following:

- A solid governance and management structure, with its own legal status.
- New joint European-recognized Bachelor's, Master's, and doctoral programs.
- Research and innovation projects in response to local, regional, and international challenges.
- Increase in student mobility of 10% by 2022 and 50% by 2025.
- Constitution as a legal entity in 2022 and consolidation as a civic and participatory university in 2030.

Potential impact: The alliance brings together more than 384,000 students and 55,000 employees, including 30,000 teachers and researchers.

The alliance's good practices. The following good practices have been identified within these alliances:

- Open Labs: CIVIS's Open Labs are open and collaborative spaces where knowledge and social commitment are shared with local communities to reinforce the way in which the university and its environment interact. Its mission is to build a forum for debate within the CIVIS European university, through co-creative spaces that offer knowledge-based solutions to local challenges, linked to the Sustainable Development Goals and aligned with CIVIS's strategy based on challenges. CIVIS's Open Labs also function as project incubators and feed CIVIS's hubs, established around CIVIS's five challenges.
- Hubs: CIVIS's hubs are thematic and interdisciplinary research and education nodes on which the European university is structured. The aim is to create innovative

study and research programs focused on global social challenges. They work on five topics related to the main social challenges and the United Nations Sustainable Development Goals:

- Health;
- Cities, territories, and mobility;
- Climate, environment, and energy;
- Digital and technological transformations;
- Society, culture, and heritage.

Each of these thematic nodes provides Bachelor's, Master's, and doctoral programs at each of CIVIS's member universities and promotes multidisciplinary research projects, through innovation in teaching.

- Free interdisciplinary training courses for students: CIVIS has designed a set of 21 interdisciplinary and challenge-based short-term courses, and mobility programs are free and open to all students enrolled in one of its member universities. CIVIS provides access to innovative tools for learning and mastering foreign languages, and has implemented language café sessions, running digitally via Zoom, where students and university staff from a CIVIS member university have the opportunity to practice languages in an informal setting, together with other students and native speakers. The cafés are run by student native speakers on a voluntary basis. No credits are given, and no teachers are present, unless they are learners as well. Twenty languages are currently offered, and you can participate in as many language café sessions as you want.

### 3.3.3. YUFE

YUFE is based on cooperation between universities, governments, civil societies, and the business sector following the quadruple helix approach. Companies participate in YUFE as associate partners and contribute by bringing the public and private sectors closer together.

Members: The academic partners include the University of Maastricht in the Netherlands, Nicolaus Copernicus University in Poland, Carlos III University of Madrid in Spain, the University of Antwerp in Belgium, the University of Bremen in Germany, the University of Cyprus in Cyprus, the University of Eastern Finland in Finland, the University of Essex in the U.K., the University of Rijeka in Croatia, and Tor Vergata University of Rome in Italy. Non-academic members are ETS Global, CEA-PME European Entrepreneurs, Kiron Open Higher Education gGmbH, and The Adecco Group.

Goals: The main objectives of the YUFE alliance are as follows:

- Involve all European regions for intercultural and intergenerational exchange, enrichment and education, and social responsibility to close the social gap.
- Place an emphasis on student-centered education, driven by research and work experience for entrepreneurship and high-impact innovation.
- European citizens work together to improve and train the local workforce.
- Develop and translate knowledge through a multidisciplinary and intersectorial approach to address European challenges, thus redefining Europe, starting with European Universities.

Potential impact: This alliance brings together a total of 19,400 faculty members, 11,280 staff members, and 170,400 students.

The alliance's good practices: The following good practices have been identified within these alliances:

- Star System: This is an innovative system that rewards YUFE students for participating in YUFE extracurricular activities and reflecting on their learning goals through personal development plans. At this time, the YUFE Star System is only open to students, but will be expanded in the near future. The YUFE Star System consists of four stars:

- The YUFE Mobility Star: This award is given to students who participate in physical or virtual mobility through academic courses or extracurricular activities. The main objective of the YUFE Mobility Star is to encourage students to gain international experience as part of their education and to seek interaction with different cultures and mindsets.
- The YUFE Language Star: This is designed as a reward for the efforts students make to acquire, improve, and refine their language skills and competencies through a combination of activities. The YUFE Language Star program is a triple model and consists of formal learning, combined with practical and real life experience of multilingualism, completed with a short personal reflection.
- The YUFE Professional Star: This recognizes and rewards personal and professional development activities carried out by students within YUFE. The YUFE Professional Star is based on the European Entrepreneurship Competency Framework (EntreComp), which is organized into the following three pillars, (1) Ideas and opportunities: creativity and vision, detection of opportunities, evaluation of ideas, and ethical and sustainable thinking. (2) Resources: self-awareness, motivation, financial and economic literacy, resource mobilization, and others. (3) Ability to take action: take initiative, plan and manage, copy at risk, work with others, and learn through experience.
- The YUFE Civic Star: This is awarded for actions related to active citizenship, in which universities and cities work together to develop solutions to local challenges, many of which are also of European and global relevance. Obtaining the YUFE Civic Star means that citizenship and personal competencies have been developed, in addition to contributing to society.
- Student Forum: The purpose of the YUFE Student Forum is to ensure that the perspective of students is always present in the implementation of the YUFE vision. Each partner university elects three students who represent their institution in the YUFE Student Forum and work packages, who are responsible for the implementation of YUFE. The president of the YUFE Student Forum also co-chairs the YUFE Strategy Board, the highest decision-making body of the YUFE alliance. Therefore, the governance structure of YUFE reflects the extent to which the representatives of the YUFE Student Forum are important actors in the co-direction and co-creation of the YUFE project and vision.
- Training and mobility activities: Under this epigraph, the alliance groups conference cycles, mini-courses, workshops, language courses, personal training, job shadowing, and innovative research projects that promote job placement. An example of innovation by public and private companies in this area is Smart Working. These are training videos that aim to support the professional development of students and professionals, as well as to provide some tips to help improve their job skills.

#### 3.3.4. CONEXUS

The European University for Smart Urban Coastal Sustainability encompasses smart urban sustainable coastal development from a global point of view.

Members: The CONEXUS partners are: The University of La Rochelle, the Agricultural University of Athens, Klaipeda University, the Catholic University of Valencia, the University of Zadar, and Bucharest Technical University of Civil Engineering.

Goals: The main objectives of the CONEXUS alliance are as follows:

- Provide common European diplomas and degrees.
- Mobility of 50% of academics and students.
- A European inter-university “campus” based on closer integration, both academic and administrative.
- Integrate Bachelor’s, Master’s, and doctoral programs that combine strengths in education, research, and innovation.
- Bring education and business closer together.

- Turn universities into world leaders in research and education in smart urban coastal sustainability.

Potential impact: The alliance has 41,223 students and 5421 employees, including 3952 academic staff and researchers.

The alliance's good practices: The following good practices have been identified within this alliance:

- The Buddy System: This is an initiative of the CONEXUS Student Board with the aim of connecting students within the alliance. Through this system, students can connect with students from other universities and share their own knowledge and experiences about each partner institution. When students attend classes at another university, they raise numerous questions and doubts, which is why this system was implemented in the first place. Therefore, a buddy becomes a mentor and guide when attending classes at another university to ensure a faster adaptation to the new environment. To make this process more efficient, a buddy combines his/her personal interests to allow a better exchange of experiences. In this way, students have a deep understanding of how different universities treat their areas of interest, which can generate additional work motivation and improve work in different areas of interest.
- Smart Campus: This is a virtual pedagogical environment to help students and teaching staff from each partner institution share information and work together. The objectives are to provide each student from all collaborating institutions with the same work environment and all the necessary tools to work remotely with any student from any institution. The tools developed for the academic year 2021 include Moodle courses, Moodle videos on the POD transmission platform, and virtual classes.
- European Student Card: This develops an online one-stop shop through the Erasmus+ mobile application for students to manage all of the administrative steps of their mobility period before, during, and after their stay. It allows students to find all of the information they need to have a high-quality mobility experience abroad. By 2025, all students in Europe should be able to enjoy the benefits of the European Student Card initiative.

### 3.3.5. ARQUS

The name of this alliance comes from the Latin term *arcus/arqus*, for arc, which represents the solid foundations that the consortium lays to build bridges toward a shared future, to respond to the great global social challenges, and to move toward a deeper European integration.

Members: The ARQUS European Universities alliance includes the universities of Bergen, Granada, Graz, Leipzig, Lyon, Padua, and Vilnius.

Goals: The main goal of ARQUS is to act together as an institutional knowledge laboratory from which to advance in the design, testing, and implementation of an innovative model of deep inter-university cooperation. The following objectives have been set for 2025:

- Become a laboratory for the design, testing, and implementation of an innovative model of deep inter-university cooperation.
- Develop joint governance, policies, and action plans.
- Foster a diverse student body and promote individual and collective professional development.
- Expand access to diverse populations of students and staff.
- Favor inclusive recruitment policies and attract talent from underrepresented groups.
- Favor new forms of mobility and truly multilingual environments.
- Stimulate entrepreneurship and creativity through mutual learning, the participation of regional resources, and the complementary strengths of all its members.
- Promote joint doctorates and post-doctorates.

Potential impact: This alliance brings together a total of 17,950 faculty members, 6840 staff members, and 291,100 students.

The alliance's good practices: The following good practices have been identified within this alliance:

- The Arqus Academy: This is a joint body of the alliance that offers a wide range of shared face-to-face, blended, and virtual opportunities for student learning, doctoral education, staff development, social outreach, and certification. It was created to act as a general coordinating body for all learning and development activities of the staff and their certification. The itineraries and content of the ARQUS Academy are disciplinary and address issues related to inclusion, Sustainable Development Goals, entrepreneurship, transversal and prospective competences, and linguistic and intercultural competence, all through innovative work-based learning methodologies, service learning, mentoring programs, and inquiry-based learning.
- ARQUS Café: This is a virtual meeting place where ARQUS alliance students can practice their foreign languages outside of language classes and where students expand their linguistic and cultural knowledge informally with other language learners. It is supported by language tutors who are not language teachers but are competent native or mother tongue speakers. They are not language courses, but rather an opportunity to practice different languages in a relaxed atmosphere and in a small group.
- The Virtual ARQUS Lounge: This is an opportunity for staff to meet people from other universities and discuss current issues, their daily work, or problems, and perhaps to find solutions.

### 3.3.6. Synthesis of Good Practices

According to the analysis carried out in the previous section, 16 good practices were identified and synthesized hereafter, as shown in Table 5.

**Table 5.** Synthesis of good practices.

Good Practice	Name	Description	URL
GP1	Community credentials	This is a system in the EELISA community that acknowledges the engagement (attitude and implication) of a student, his/her participation within an EELISA community, as well as his/her contribution to the process of solving social challenges.	<a href="https://eelisa.eu/the-european-engineer/">https://eelisa.eu/the-european-engineer/</a> (accessed on 1 October 2021)
GP2	Diploma supplement	This promotes the European commitment of students through mobility abroad, courses recognized by the EELISA alliance, and participation in EELISA communities.	<a href="https://eelisa.eu/the-european-engineer/">https://eelisa.eu/the-european-engineer/</a> (accessed on 1 October 2021)
GP3	Alliance grades	Multisite titles based on a common internal quality assurance mechanism for the management of EELISA activities that establishes the guidelines to prove the identity of a European engineer.	<a href="https://eelisa.eu/the-european-engineer/">https://eelisa.eu/the-european-engineer/</a> (accessed on 1 October 2021)
GP4	Communities	An EELISA community is a collaborative platform oriented to a specific mission, which encourages the use of knowledge, research, and innovation to solve complex problems, such as those framed in the 2030 Agenda or the European Green Deal.	<a href="https://eelisa.eu/communities">https://eelisa.eu/communities</a> (accessed on 1 October 2021)
GP5	Open Labs	These are open and collaborative spaces where discussion forums can be built through co-creative spaces that offer knowledge-based solutions to local challenges, linked to the Sustainable Development Goals and aligned with the CIVIS strategy based on challenges.	<a href="https://civis.eu/es/activities/civis-openlab">https://civis.eu/es/activities/civis-openlab</a> (accessed on 1 October 2021)

Table 5. Cont.

Good Practice	Name	Description	URL
GP6	Hubs	These are thematic and interdisciplinary nodes of research and education on which the European Universities Initiative is structured. Their aim is to create innovative study and research programs focused on global social challenges. Each node provides Bachelor's, Master's, and doctoral programs in each of the CIVIS member universities and promotes multidisciplinary research projects through innovation in teaching.	<a href="https://civis.eu/en/activities/civis-hubs">https://civis.eu/en/activities/civis-hubs</a> (accessed on 1 October 2021)
GP7	Free interdisciplinary training courses for students	Free interdisciplinary courses (CIVIS members), based on short-term challenges abroad, where members can learn new skills, gain practical experience, and expand their knowledge.	<a href="https://civis.eu/en/civis-courses">https://civis.eu/en/civis-courses</a> (accessed on 1 October 2021)
GP8	Training and mobility activities for staff and researchers	These are cycles of conferences, mini-courses, workshops, language courses, personal training, job shadowing, and research projects for staff and researchers.	<a href="https://civis.eu/es/activities/civis-openlab">https://civis.eu/es/activities/civis-openlab</a> (accessed on 1 October 2021)
GP9	Student Forum	The purpose of the Student Forum is to ensure that the students' perspective is always present in the implementation of the vision. Each partner university elects three students who represent their institution in the Student Forum and work packages, who are responsible for the implementation of YUFE.	<a href="https://yufe.eu/who-we-are#yufe-student-forum">https://yufe.eu/who-we-are#yufe-student-forum</a> (accessed on 1 October 2021)
GP10	Star System	This is an innovative system that rewards students for doing extracurricular activities and reflecting on their learning goals through personal development plans.	<a href="https://yufe.eu/students/">https://yufe.eu/students/</a> (accessed on 1 October 2021)
GP11	Smart Campus	This is a virtual pedagogical environment to help the students and teaching staff of each partner institution share information and work together.	<a href="https://www.eu-conexus.eu/en/smart-campus/">https://www.eu-conexus.eu/en/smart-campus/</a> (accessed on 1 October 2021)
GP12	European Student Card	This develops an online one-stop shop through the Erasmus+ mobile application for students to manage all of the administrative steps of their mobility period before, during, and after their stay. It allows students to find all of the information they need to have a high-quality mobility experience abroad.	<a href="https://www.eu-conexus.eu/en/introduction/eu-conexus-student-card/">https://www.eu-conexus.eu/en/introduction/eu-conexus-student-card/</a> (accessed on 1 October 2021)
GP13	Buddy System	This helps students in mobility and offers services such as language tandems or distance peer tutors for students in virtual mobility or for students who are not yet in mobility.	<a href="https://www.eu-conexus.eu/en/buddy-system/">https://www.eu-conexus.eu/en/buddy-system/</a> (accessed on 1 October 2021)
GP14	Alliance Academy	This offers a wide range of face-to-face, blended, and virtual shared opportunities for student learning, doctoral education, staff development, social outreach, and certification.	<a href="https://www.arqus-alliance.eu/index.php/arqus-academy">https://www.arqus-alliance.eu/index.php/arqus-academy</a> (accessed on 1 October 2021)
GP15	Alliance Café	This is a virtual meeting place where students can practice their foreign languages outside of language classes. They are not language courses, but rather an opportunity to use foreign languages in a relaxed atmosphere and in a small group.	<a href="https://mahara.uni-leipzig.de/view/">https://mahara.uni-leipzig.de/view/</a> (accessed on 1 October 2021)
GP16	Alliance Lounge	This is an opportunity for staff to meet people from other universities and discuss current issues, their daily work, or problems, and perhaps to find solutions.	<a href="https://www.arqus-alliance.eu/news/arqus-lounge-next-discussions">https://www.arqus-alliance.eu/news/arqus-lounge-next-discussions</a> (accessed on 1 October 2021)

### 3.4. Application of the AHP to the Evaluation of Good Practices

Figure 6 represents the structure of the AHP, including the four decision criteria and the 16 good practices being evaluated

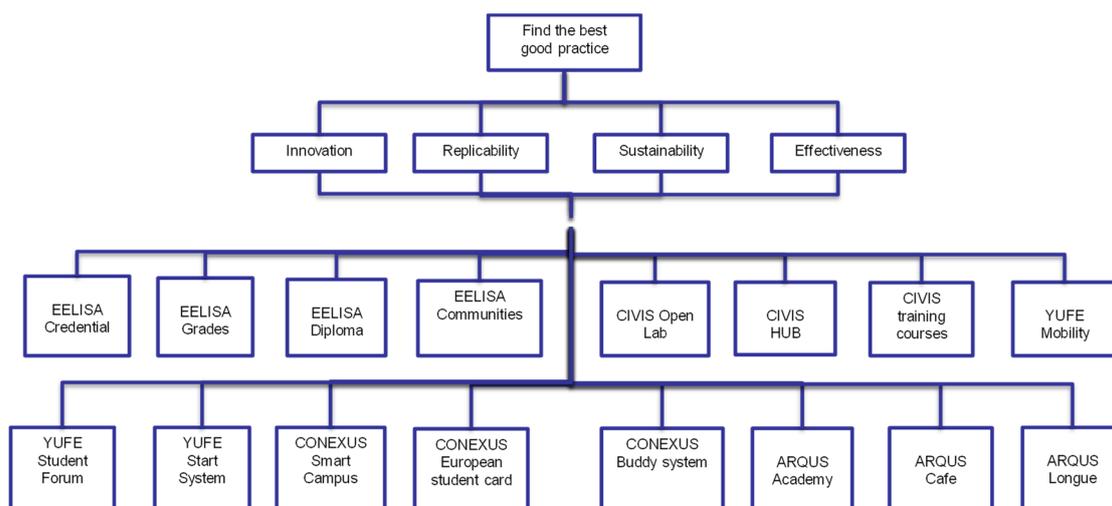


Figure 6. AHP analysis of “good practices”.

Table 6 presents the criteria comparison matrix, the normalized matrix A, and the calculated weightings. The calculated values of CI, RI, and CR were 0.0583, 0.99, and 0.0589, respectively.

Table 6. Criteria comparison matrix.

Criteria Comparison Matrix									
Criteria	C1	C2	C3	C4	Normalized Matrix A				Weighting
C1	1	1/3	1/3	1/5	0.08	0.05	0.06	0.12	0.08
C2	3	1	1	1/5	0.25	0.14	0.19	0.12	0.17
C3	3	1	1	1/3	0.25	0.14	0.19	0.19	0.19
C4	5	5	3	1	0.42	0.68	0.56	0.58	0.56
TOTAL	12.00	7.33	5.33	1.73					

In the criteria comparison matrix, each criterion has its own row and column, where C1 corresponds to the criterion “innovation”, C2 corresponds to “replicability”, C3 stands for “sustainability”, and C4 for “effectiveness”. The resulting square matrices allow pairwise comparisons of all possible combinations of criteria using the scale described in Table 1.

To fill in this matrix, a group of experts were presented with the four criteria and they were asked to rate them comparatively using the Saaty scale presented in Table 1. For example, the experts had to rate the relative importance of “innovation” vs. “replicability” with a number from 1 to 9. If the expert considered that both the criteria innovation and replicability were equally important, the corresponding cell in the matrix was filled with a “1”. If the expert considered that “innovation” was extremely more important than “replicability”, the corresponding cell in the matrix was filled with a “9”. Conversely, the extreme importance of replicability over innovation was represented in the matrix with the inverse number “1/9”.

Therefore, each cell in the matrix contained a number that represents the relative importance of the two criteria as a result of the pairwise comparison. For example, a score of 1 means that both criteria are equally important. When a criterion is compared with itself, its relative importance is 1, because the criteria being compared are the same. Larger numbers show that a criterion is becoming increasingly important, with 9 being the highest score. Reciprocals, or inverses (1/x), are used to describe the opposite relationship between two. If criterion 1 is x times as important as criterion 2, then criterion 2 must be 1/x as

important as criterion 1. This scoring process was repeated for all spaces on the grid to the right of the diagonal.

The normalized matrix was derived from the pairwise comparison matrix by making equal to 1 the sum of the entries on each column. The normalized matrix was used to calculate the “weight” (last column of Table 7), which tells us how much each criterion will influence the decision. The greater the weight of a given criterion, the more influence it will have on the final decision.

**Table 7.** Matrix comparison of the alternatives based on criterion 1.

Alternative	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16
A1	1/1	1/5	1/3	3/1	1/1	3/1	1/3	1/3	1/7	1/5	1/1	1/9	1/7	1/3	1/7	1/7
A2	5/1	1/1	1/1	5/1	5/1	5/1	1/3	1/3	1/7	5/1	5/1	1/3	3/1	5/1	3/1	3/1
A3	3/1	1/1	1/1	5/1	5/1	5/1	1/3	1/3	1/5	5/1	5/1	1/3	3/1	5/1	3/1	3/1
A4	1/3	1/5	1/5	1/1	3/1	1/1	3/1	3/1	1/5	3/1	5/1	1/1	3/1	5/1	3/1	3/1
A5	1/1	1/5	1/5	1/3	1/1	1/3	1/5	1/5	1/5	1/3	1/1	1/7	1/5	1/3	1/7	1/7
A6	1/3	1/5	1/5	1/1	3/1	1/1	1/5	1/1	1/5	1/3	1/1	1/7	1/3	1/1	1/3	1/3
A7	3/1	3/1	3/1	1/3	5/1	5/1	1/1	1/1	1/1	5/1	5/1	1/3	3/1	3/1	3/1	3/1
A8	3/1	3/1	3/1	1/3	5/1	5/1	1/1	1/1	1/1	5/1	5/1	1/3	5/1	5/1	3/1	3/1
A9	7/1	7/1	5/1	5/1	5/1	5/1	1/1	1/1	1/1	1/1	5/1	1/3	3/1	5/1	3/1	3/1
A10	5/1	1/5	1/5	1/3	3/1	3/1	1/5	1/5	1/1	1/1	3/1	1/5	1/3	3/1	1/1	1/1
A11	1/1	1/5	1/5	1/5	1/1	1/1	1/5	1/5	1/5	1/3	1/1	1/7	1/3	1/1	1/3	1/3
A12	9/1	3/1	3/1	1/1	7/1	7/1	3/1	3/1	3/1	5/1	7/1	1/1	5/1	7/1	3/1	3/1
A13	7/1	1/3	1/3	1/3	5/1	3/1	1/3	1/5	1/5	3/1	3/1	1/5	1/1	5/1	1/1	1/1
A14	3/1	1/5	1/5	1/5	3/1	1/1	1/3	1/5	1/5	1/3	1/1	1/7	1/5	1/1	1/5	1/5
A15	7/1	1/3	1/3	1/3	7/1	3/1	1/3	1/3	1/3	1/1	3/1	1/3	1/1	5/1	1/1	1/1
A16	7/1	1/3	1/3	1/3	7/1	3/1	1/3	1/3	1/3	1/1	3/1	1/3	1/1	5/1	1/1	1/1
TOTAL	62.67	20.4	18.53	23.73	66	51.33	12.13	11.7	9.35	36.53	54	5.42	29.54	56.67	26.15	26.15

The weightings in Table 7 show that the most important criteria were effectiveness with 56%, followed by sustainability (19%), innovation (17%), and, finally, replicability (8%). The AHP is a systematic process to structure expert knowledge into a thorough, rational, and understandable decision that is intuitively appealing and that can be communicated and justified. According to the experts participating in the evaluation, effectiveness was considered the most relevant criterion. For the sake of this study, the four criteria were defined according to the UNESCO standards:

- Innovation: Good practice implies not only a different and creative way of carrying out traditional practices or reorganizing them by incorporating new elements, developing new solutions, or improving current ones.
- Effectiveness: Good practice demonstrates a positive and tangible impact on improvement.
- Sustainability: Due to its social, economic, and environmental demands, good practice can be maintained over time and can produce lasting effects.
- Replicability and adaptability: Good practice must be able to adapt to different educational and social realities, so that it serves as a model for developing policies, initiatives, and actions in other places and as inspiration to replicate it.

These weights can vary depending upon the decision-maker’s priorities, and therefore, the weightings of the alternatives would also change. To see the effect of such changes, a sensitivity analysis was also performed as part of this study.

For the sake of illustration, Table 7 shows the alternative comparison matrix based on criterion 1, replicability. Similar matrices were obtained for the remaining criteria.

The matrix was a real  $n \times n$  matrix, where  $n$  is the number of options evaluated. As in this case we had 16 good practices to compare,  $n = 16$ . Each cell of the matrix represents the evaluation of the  $i$ -th option against the  $h$ -th option with respect to the  $j$ -th criterion. If the value of the cell is  $>1$ , then the  $i$ -th option is better than the  $h$ -th, while if the value of the cell is  $<1$ , then the  $i$ -th option is worse than the  $h$ -th option. If the two options are evaluated as equivalent with respect to the  $j$ -th criterion, then the input is 1. As can be seen, the scale for the pairwise comparison that the experts applied in this evaluation was also the one indicated in Table 1.

In the matrix, the alternatives A1–A16 stand for: A1 (EELISA Credentials), A2 (EELISA grades), A3 (EELISA diploma), A4 (EELISA communities), A5 (CIVIS Open Lab), A6 (CIVIS Hubs), A7 (CIVIS training courses), A8 (YUFE mobility), A9 (YUFE Student Forum), A10 (YUFE Star System), A11 (CONEXUS Smart Campus), A12 (CONEXUS European Student Card), A13 (CONEXUS Buddy System), A14 (ARQUS Academy), A15 (ARQUS Café), and A16 (ARQUS Lounge).

To fill in this table, the group of experts were asked to evaluate each pair of best practices against each criterion. For example, the experts had to quantify how best practices A1 (EELISA Credentials) and A2 (EELISA grades) contributed to the criterion “innovation”. If the experts considered that both practices were equally innovative, the corresponding cell in the matrix was filled with a “1”. If the experts considered that “A1” was extremely more innovative than “A2”, the corresponding cell in the matrix was filled with a “9”. Conversely, if “A2” was more innovative than “A1”, the cell was filled with the inverse number “1/9”.

All of the inputs from the experts were captured through a structured questionnaire survey that included a full set of consistent questions. The set of questions were the same for all experts and followed the same sequence. An explanation of the purpose of the investigation and pairwise comparison method of selecting preferences and the measure of their intensity was also described, provided with the questionnaire. Data processing and analysis from individual questionnaires was performed using the AHP technique with an ad-hoc Excel application to determine the individual weightings assigned to the aspects and factors by the practitioners.

Table 8 shows a matrix of the alternatives against the criteria (also known as matrix option scores), including the global weighting. Each entry in the matrix represents the score of the *i*-th option with respect to the *j*-th criterion, and the values are normalized. For example, according to the experts:

- CONEXUS European Student Card scored the highest in terms of replicability, while CIVIS Open Lab scored the lowest.
- CONEXUS Smart Campus scored the highest in terms of innovation, while YUFE Star System scored the lowest.
- EELISA communities scored the highest in terms of sustainability, while ARQUS Café scored the lowest.
- CONEXUS European Student Card scores the highest in terms of effectiveness, while ARQUS Café and ARQUS Lounge scored the lowest.

**Table 8.** Matrix of alternatives.

Matrix of Alternatives					
	Replicability	Innovation	Sustainability	Effectiveness	Global weighting
EELISA Credentials	0.02	0.09	0.07	0.05	0.18
EELISA diploma supplement	0.08	0.04	0.04	0.02	0.14
EELISA grades	0.08	0.09	0.04	0.09	0.11
EELISA communities	0.09	0.16	0.19	0.13	0.10
CIVIS Open Lab	0.01	0.18	0.15	0.05	0.09
CIVIS Hubs	0.02	0.22	0.10	0.11	0.08
CIVIS training courses	0.09	0.09	0.09	0.10	0.08
YUFE training and mobility activities	0.10	0.08	0.07	0.05	0.08
YUFE Student Forum	0.12	0.05	0.02	0.03	0.06
YUFE Star System	0.04	0.02	0.07	0.02	0.06
CONEXUS Smart Campus	0.02	0.23	0.05	0.05	0.04
CONEXUS European Student Card	0.16	0.22	0.02	0.22	0.04
CONEXUS Buddy System	0.05	0.04	0.02	0.01	0.03
ARQUS Academy	0.02	0.21	0.05	0.06	0.02
ARQUS Café	0.05	0.04	0.01	0.01	0.02
ARQUS Lounge	0.05	0.05	0.02	0.01	0.02

Finally, the global weighting (last column in Table 8) tells us the weight of each alternative, and therefore tells us which is the best. As the final step, option ranking was accomplished by ordering the global weightings in decreasing order.

Regarding the ranking of good practices, the AHP showed that the best place, with 18% importance, was taken by the European Student Card, which was a balanced practice in all criteria, except sustainability. As effectiveness was where it scored the highest percentage, it was placed in first position.

The second place was taken by EELISA communities with 14% relevance, followed by Open Labs with 11%. Both were balanced in all criteria, except for replicability. Next was training courses, with 10% of the total weight. This practice was more balanced, having almost the same percentages in all criteria.

Tied in sixth place, with the same percentage of importance (8%), were EELISA grades, Smart Campus, and ARQUS Academy.

Mobility activities together with the EELISA Credentials achieved 6%, ahead of other alternatives such as diploma supplement, Student Forum (both with 4%), and Star System (3%).

The last position was taken by the following alternatives: ARQUS Café, ARQUS Lounge, and Buddy System, with 2% importance.

The realization of a sensitivity analysis allowed us to quantify how small variations in the weighting of the criteria could affect the results obtained in the AHP. That is, whether the ranking and relevance of the selected practices remained the same or, on the contrary, the ranking of good practices changed.

By applying a sensitivity analysis, the paper addressed the robustness of this approach. To test the sensitivity, the weighting of the innovation and sustainability criteria increased by 10%, and the effectiveness criterion reduced by 20%. The tables below present the new weights for the criteria and the global weightings. As can be seen when comparing the two tables, the order of alternatives changed slightly, as did the weights, being insignificant changes from 1% to 2% (Table 9).

**Table 9.** Results of the sensitivity analysis.

Criteria weighting	
Replicability	0.08
Innovation	0.27
Sustainability	0.29
Effectiveness	0.36
Overall weighting	
European Student Card	0.16
EELISA communities	0.15
Open Labs	0.13
Training courses	0.11
Hubs	0.10
EELISA grades	0.09
Smart Campus	0.09
ARQUS academy	0.07
Mobility activities	0.07
Credentials	0.06
Diploma supplement	0.05
Student Forum	0.04
Star System	0.04
Buddy System	0.03
ARQUS Café	0.02
ARQUS Lounge	0.02

#### 4. Conclusions

Following two Erasmus+ calls for proposals, 41 European Universities pilot alliances were created involving more than 280 higher education institutions. Through this paper, the first results of the European Universities Initiative (EUI) were analyzed. This paper developed and illustrated the application of a quantitative framework, based on the application of the analytical hierarchy process (AHP) for ranking the good practices developed by these alliances as per their contribution to the concept of CivUs. The framework includes a proposal, based on state of the standards, for the most relevant characteristics to identify best practices in the social sphere: innovation, effectiveness, sustainability, and replicability.

The alliances and good practices discussed in this paper together contribute to strengthen strategic partnerships between higher education institutions throughout the EU. This strengthening should encourage the integration of existing alliances and the sharing of their best practices.

These pilot projects are a sample of balance between quality and excellence, on the one hand, and inclusive and equitable geographic coverage, on the other. Although they all support innovative education, knowledge transfer, research, and innovation, each of them implements different models. Analysis of their best practices will help to identify the most successful elements of each of them and with the greatest potential to promote cohesion and competitiveness, as well as European civic values.

Although there is a broad representation in the countries in the initiative, four countries represent almost half of the participants. This hyperconcentration of European institutions could become a weak point in the initiative. Alliances would benefit from increasing the participation of institutions of high quality and relevance outside the European Union, and initiatives that pursue this objective should be encouraged.

Additionally, there are three fundamental characteristics of the EUI that contribute to enhancing the concept of CivUs:

- On the one hand, the EUI is a novel form of alliance formation that can be seen as a “network of networks” that can enrich all dimensions of CivUs and extend their influence.
- Additionally, alliances have the potential to generate collaborative advantages for their members, which is also one of the most important challenges of the EUI scheme itself: to generate and enhance the competitive advantages of alliances.
- Finally, these alliances are pruned to become supranational organizations that also act as role model institutions.

The ability to meet the changing needs of society means being able to solve real and everyday problems of society. In this sense, all alliances are committed to a model of universities that signifies an advance in the capacity of societies to accelerate the achievement of sustainable development objectives. Good practices focused on these objectives have proven to be the most powerful for generating innovation and social integration and, therefore, would have the greatest potential for replication in future models of CivUs.

The ranking of good practices favors those that balance all of the evaluation criteria, with the European Student Card, alliance communities, and Open Labs, followed by common grades, Smart Campus, and internal academies for students and staff being the ones with the highest scores.

The realization of a sensitivity analysis allowed us to quantify that 10%/20% variations in the weighting of the criteria only induces insignificant changes from 1% to 2% in the score of the best practices.

The assessment also identified some areas not well covered by good practices, such as the development of new and innovative human resource practices and the growth of start-ups and emerging companies within universities.

A final outcome of this analysis is that, although all alliances implement practices covering common areas such as student and staff mobility, innovation, sustainability, research on SDGs, interaction with citizens, and governance, the 16 best practices identified were significantly different among them.

One possible explanation for this finding is that the alliances were the outcome of a competitive call launched by the European Commission. Only 41 consortiums were selected out of 116 applications. This evaluation process might have had a great influence in the content of the proposals and the best practices implemented by the awarded consortiums. On one side, the consortiums made an effort to introduce differential factors in their proposals, and on the other side, evaluators normally put a premium on original proposals. In particular, the European Alliance Initiative was conceived as a kind of test bed, where alliances could essay new approaches so that the most promising ones could be later extended to other universities. Thus, the outcome of the evaluation might have favored diversity and differentiation. This topic could be the subject of future research by extending the analysis of best practices to the 41 alliances and deepening into the differential/common factors in the best practices.

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