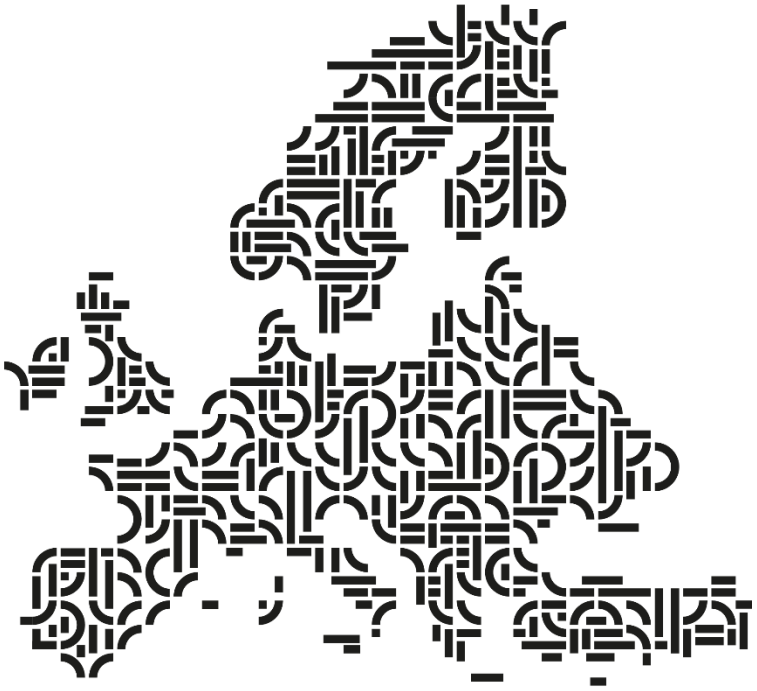
European University



Alliance members

Sant'Anna
Scuola Universitaria Superiore Pisa

PSL
UNIVERSITÉ PARIS

POLITÉCNICA
UNIVERSIDAD POLITÉCNICA DE MADRID

SCUOLA NORMALE SUPERIORE

In Association with

Co-funded by

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EELISA 2.0

MISSION STATEMENT

We, the undersigned alliance partners and sovereign higher education institutions

- Budapesti Műszaki és Gazdaságtudományi Egyetem (BME, Hungary),
- École des Ponts ParisTech (ENPC, France),
- Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU, Germany),
- İstanbul Teknik Üniversitesi (ITU, Turkey),
- Université Paris Sciences & Lettres (PSL, France),
- Scuola Normale Superiore (SNS, Italy),
- Scuola Superiore Sant'Anna (SSSA, Italy),
- Universitatea Politehnica din București (UPB, Romania),
- Universidad Politécnica de Madrid (UPM, Spain),
- Zürcher Hochschule für Angewandte Wissenschaften (ZHAW, Switzerland),

together with our associated partner ENAEE (European Network for Accreditation of Engineering Education),

have joined forces to build the European University **EELISA** - "European Engineering Learning Innovation and Science Alliance". Our transnational alliance aspires to lead the way towards the university of the future, enhancing the quality and competitiveness of European higher education and contributing to Europe's green and digital transition.

The EELISA alliance represents more than 194,000 students and 50,000 graduates each year, 18,500 academic and 12,000 administrative staff, bringing together complementary strengths and profiles across Europe with respect to:

1. Engineering, scientific and humanistic education:

EELISA brings together four technical universities (BME, ITU, UPB, UPM), one *Grande École* specialising in engineering with strong interdisciplinary research components (École des Ponts ParisTech), two full-spectrum universities with extensive engineering and innovation capabilities (FAU, PSL) and three comprehensive higher education institutions (SNS, SSSA, ZHAW). We are all well known as excellent education and research institutions in our countries, although we differ in size (from 2,000 to 40,000 students) and history (ranging from the first engineering institutions in Europe founded in the 18th century to 30-year-old

schools). We all value the integration of research in our curricula and are specifically renowned for both our basic as well as innovation-driven, application-oriented research. Leaning on engineering disciplines and technology domains and covering other disciplines, from medicine to philosophy and economics, from chemistry to business management and architecture, the EELISA Alliance resembles the Renaissance model of integrated education and transdisciplinary approach for the advancement of social, economic and technological progress, with strong links to our local, regional and national economies and mindful of society's grand challenges.

2. Political background and geographical configuration:

EELISA covers three European regions, ranging from founding members of the European Union (France, Germany, Italy) and countries that joined in the third (Spain), fifth (Hungary) and sixth enlargement (Romania), along with an accession candidate (Türkiye) and a non-EU European country (Switzerland). Large and smaller countries with traditionally strong labour markets are united with countries emerging from or still undergoing structural transformations. All of us are rooted in metropolitan areas of Europe, including four capital cities (Bucharest, Budapest, Madrid and Paris), two non-capital yet global and leading cities, Zurich and Istanbul, and two European and global innovation hubs, Pisa and Erlangen-Nuremberg. All our regions constitute centres of economic activity and attraction that serve as technology hubs for our respective countries, with a growing population and a highly dynamic economic environment able to capitalize on the momentum of scientific innovation.

We, EELISA, are an alliance that focuses on developing and supporting a growing portfolio of joint actions and initiatives in the fields of education, research, innovation and societal engagement. We work to ensure the healthy, organic and synergistic growth of these initiatives and projects through a democratic, participatory, inclusive and transparent governance model that brings together representatives from our institutions with those of associated partners and external stakeholders from business and society.

OUR MOTIVATION

At a crucial moment in the history of Europe, with security and stability under threat, accelerating climate change and environmental degradation, growing inequalities, technological sovereignty becoming an unavoidable priority, Europe's energy systems in turmoil, an aging society and inverted demographic pyramids in the decades to come, Europe's post-pandemic recovery seeks to promote revitalized sustainable and resilient societies and their economies. The recovery process will increasingly rely on the green and digital transitions and on our ability to bridge the technological divide and engage society, while preserving the natural resources needed for future generations to thrive.

Europe's position in the world, the well-being and prosperity of future generations will depend on concerted actions and policies in all spheres of our societies, chief among these, our education institutions.

To meet these political goals and accomplish the twin green and digital transitions, we need a new generation of highly specialized professionals to join Europe's productive fabric. According to the CEDEFOP Skills Forecast[1], the net estimated additional need for science and engineering professionals between 2021 and 2030 is 1 million for the entire European Union. Deep tech, including fields such as digitalization, artificial intelligence, cybersecurity, bioengineering, automation and robotics, is transforming all aspects of our societies and holds great potential for addressing our grand challenges. In order to keep pace with the US, China, and other regions, it is essential that we prioritize the development of these technologies while also upholding human rights and democratic values and protecting the most vulnerable segments of society.

In this context, we, the higher education institutions in Europe are called upon to form strong transnational partnerships, known as European Universities, in order to become key players in achieving the European Union's aims and promoting its values of human dignity, freedom, democracy, equality, rule of law, and human rights. These European Universities will be central to achieving the European Education Area and the European Research Area, in synergy with the European Higher Education Area and in line with the European Strategy for Universities and the New European Innovation Agenda.

We, EELISA, are a European University initiated in 2020, growing in its depth, size, scope, diversity and ambition. We now aim to further develop our collaboration along the six dimensions of the European Education Area – quality, inclusion and gender, green and digital transitions, teachers and trainers, higher education, and the geopolitical dimension – and to contribute to the consolidation of the European Research Area as a single, boundary-free market for research, innovation and technology across the EU. In line with the European Strategy for Universities, we believe that "excellent and inclusive universities are a condition and foundation for open, democratic, fair and sustainable societies as well as sustained growth, entrepreneurship and employment[2]".

During its initial phase, EELISA European University has made significant progress towards realizing its long-term vision and mission by prototyping an enhanced approach to higher education, strengthening the links between education, research and innovation, building a portfolio of three additional projects and setting up shared institutional and management structures that are now fully operational. The roll-out phase of EELISA phase will build upon these successes, making them more operational and visible, expanding its mission to new domains, and laying new bricks to build our alliance. We aspire to grow from a project-based structure and organization towards an institutionalized

[1] https://www.cedefop.europa.eu/en/tools/skills-forecast

[2] Communication from the European Commission on a European Strategy for Universities

one, with streamlined governance and a more agile, decentralized and digitally supported management.

Engineering continues to be the core strength of EELISA, but now it is integrated into a global, interdisciplinary strategy with cross-learning of methods and best practices. But engineering also stands at the interface between science, technology and society, with a historical and a future critical role to play in the ecological and digital transitions. The cross-contribution of engineering, natural and human sciences in providing concrete responses to Europe's ambitious societal challenges stands at the very core of our common vision and motivation. Understanding the need to combine disciplinary approaches and the horizontal skills offered by our consortium members, we believe that this unity in diversity is the appropriate lever to transform education in Europe, and to train a new generation of students and professionals who will be engaged citizens able to face the challenges of tomorrow.

However, we believe that, to realize their full potential in Europe, it is indispensable for engineering and science, both at the academic and industrial levels, to address the following critical challenges:

- First, European Universities have visible weaknesses in attracting outstanding international students and young talents as compared to other countries, are less internationalized and perform worse in international University rankings. The competition for top researchers and young professors is very strong, not only in terms of salary but also in the quality and internationalization of campus and city life, career paths, quality of students' body, scientific and technological infrastructure, and the support services provided at the early career stages.

- Second, Europe leads the world in human development indicators, but its model is at risk in the face of the United States and China, which are experiencing stronger growth thanks to new technologies. Europe is falling behind in technological fields that have become transversal to the rest of the economy and are crucial to competitiveness, whether in industry or services. Europe is at the forefront of advanced materials and green technologies, holds a relatively good position in biotech, automation and connectivity but lags behind in distributed computing infrastructures, artificial intelligence, software and digital trust technologies, areas in which the EELISA partners excel and are recognised leaders. If Europe were to fall behind in the coming years in the new breakthroughs in the maturation phase, this would entail a heavy economic opportunity cost.

- Third, boundaries still exist restricting the mobility of professionals within Europe. While the Bologna process is already established, enabling higher education institutions to evolve within a common Bachelor-Master-Doctorate framework, in some professional spheres, including engineering, each country follows different undergraduate and master's education models and professional accreditation requirements. Although graduate schools of

engineering and universities in Europe have engaged highly in student mobility, professional practice remains largely intra-national due to professional regulations. An engineering student often gets the chance to take part of the curriculum abroad, but may, upon graduation, find it difficult to get this experience recognized for professional practice in other European countries due to country-specific accreditation requirements, despite the similarity of programme contents and learning outcomes.

- Fourth, as indicated in EELISA's European Engineer Profile, engineering graduates must acquire skills encompassing scientific, technical and more relational outcomes. In today's competitive business environment, students can learn in many ways the professional skills that employers demand. There is a thinner frontier between formal and more ad-hoc education institutions, with many companies increasingly taking more responsibility in training in-house the younger generations for their own direct purposes. However, universities are called upon to contribute to Europe's resilience and recovery, taking transnational cooperation to a new level of depth and scope and to develop a genuinely European dimension in the higher education sector, built on shared values and a long-term vision. The EU strategy recognizes the importance of both excellence and inclusion in higher education, which sets European universities apart from those in other parts of the world and is exemplary of our European way of life. In Europe, higher education not only trains professionals but also educates citizens, and this goal cannot be achieved through shortcuts or short-term solutions.

- Finally, women are largely underrepresented in the STEM disciplines, in top management positions and in the entrepreneurial spheres, where very few women start, manage or lead deep tech companies. With still very low enrolment rates in the STEM disciplines, the time to catch up and see more women at the higher end of the career ladder is likely to take decades. This reduces future opportunities for female school pupils today, who encounter barriers or expect to face them as adults if they choose to pursue careers in some of the most promising sectors. This waste of human resources is detrimental to our societies and productive fabric, which are already and will continue to be in short supply of engineers and scientists.

OUR VISION: INSPIRING EDUCATION, RESEARCH AND INNOVATION; BRIDGING EUROPEAN ENGINEERING, SCIENCES AND HUMANITIES FOR INCLUSIVE, SUSTAINABLE AND DIGITAL SOCIETIES

OUR MISSION

We, EELISA, aim at a sustainable, deep and permanent collaboration to transform education, research and innovation, across disciplines and cultures, through a network of collaborative platforms, co-created by students, researchers and staff, together with all sectors of society, by:

- Addressing grand socio-economic, environmental and technological challenges in line with UN 2030 Sustainable Development Goals.
- Boosting the European ecological transition, combining the creation of value, the development and circulation of talents and the permeability in the territories.
- Combining basic, applied sciences and engineering with social sciences and humanities to afford challenges from a global vision, including local educational challenges.
- 'Europeanising' our institutions, our communities, and our mindsets.
- Promoting challenge-based education, research and innovation based on excellence, inclusiveness, diversity, ethics and gender equality.
- Affirming our ambition to achieve and deploy European degrees, applying the framework initiated in engineering to other fields of science, technology and humanities as well, making this disruptive leap in accreditations a model for the European higher education area and a pole of attractiveness vis-à-vis the rest of the world.

OUR VALUES

We, EELISA, embrace a set of general values and are willing to act as a role model on the global landscape:

- **Humanistic approach**: EELISA seeks the advancement of humanity as a whole putting engineering and interdisciplinary education, research and innovation to serve the enhancement of human dignity and a civil society founded on European identity. In order to fulfil these goals, we respect and share the fundamental declarations of the Magna Charta Universitatum.

- **Diverse and Inclusive**: EELISA aims to provide equal opportunity for all to excel. We specifically target equality in gender and diversity in culture.

- **Sustainable**: EELISA develops sustainable and integrated models for education, research and innovation. We involve all stakeholders in our design to co-create specific actions through close, meaningful and value-adding collaboration when addressing global challenges.

- **Socially and environmentally committed**: EELISA strives to contribute to a technologically autonomous and geographically and socially balanced Europe, by helping co-create a new, digital and sustainable world, with a focus on the necessary outreach to achieve resilient and agile industrial and societal impact, while also improving human health and well-being and protecting the natural environment.

- **Disruptive and innovative**: EELISA defines and applies the 'research-to-innovation continuum' (from basic research to industrial innovation) to create long-term solutions to societal challenges.

- **Open**: EELISA is aligned with the European goals of openness in education, science and innovation engaging a wide range of stakeholders and understanding the benefits of an interdisciplinary, symbiotic approach and coopetition.
- **Responsible**: EELISA understands and represents the importance of ethics while promoting innovation and competitiveness. Fair play and the ethics and integrity in science and education are promoted within and throughout our activities and transferred to the next generations.

EELISA STRATEGIC GOALS

EELISA offers a unique opportunity for a diverse alliance of universities to come together and address the full range of European and global challenges across all disciplines and knowledge domains, bringing together broad and specialized expertise. Engineering, a vital bridge between science, technology and society, will see its critical role in the ecological and digital transitions grow by embracing other sciences, including social sciences and humanities. Building on the innovative outcomes of our first phase, which include a shared ecosystem of mission-driven, interdisciplinary and international EELISA Communities, a co-created framework for the evaluation of societal engagement and impact through EELISA Credentials, a specific recognition format for mobility within the alliance (EELISA Supplement) and joint multi-site programme initiatives (EELISA Degrees), and with a renewed emphasis on interdisciplinarity to understand and face the global challenges, we have agreed on a set of strategic goals that seek to mobilize and enhance the individual strategies and missions of our partner universities while helping to build and further develop the European Education Area and European Research Area in line with the European Strategy for Universities and the New European Innovation Agenda.

EELISA's five strategic goals are:

SG1- Leaning on engineering, sciences and technologies while embracing social sciences and humanities to tackle the EU grand challenges, particularly the ecological and digital transitions.

EELISA will leverage the strengths and complementarities of its partners to effectively address the grand challenges facing society, particularly the twin green and digital transitions. This will materialize in a growing portfolio of accredited programs at the Bachelor, Master, and PhD levels, strengthening interdisciplinarity in course content. Students will have the flexibility to choose from a wide range of courses, modules and pedagogical activities, the opportunity to work on challenges in interdisciplinary teams in the context of EELISA Communities and further activities in the future EELISA Living Labs. Additionally, students will take advantage of a variety of seamless mobility options, in physical, digital and hybrid format, and enjoy a multicultural, diverse and multilingual learning experience with individualized pathways. These enhanced opportunities will extend throughout the study period, to include also joint and transnational internship, apprenticeship and traineeship programmes, but also beyond its traditional boundaries, with an EELISA Academy for Lifelong Learning, a teaching and learning environment that will engage with stakeholders to provide upskilling, reskilling and training offers for lifelong learners.

SG2 – Transforming education & training towards challenge-based learning and a strong education ecosystem built around research and innovation.

EELISA's ambition is to transform education and training by adopting a challenge-based approach that prioritizes societal needs. This means empowering students and other learners to take on real-world challenges through engagement with external actors and problem-owners. EELISA Communities, our main platform for innovation, will enjoy more streamlined administrative support, enhanced digital services and greater visibility. By mobilizing educational resources in this way, we aim to cultivate a strong education ecosystem that is anchored in research and innovation to render service to our society. To achieve this goal, we will be further developing and implementing innovative teaching models that foster student creativity and engagement, and helping teachers develop the necessary skills to lead this new approach. EELISA will ensure that these activities are continuously improved and embedded in the reality of the local innovation ecosystem, leveraging the support and guidance from mentors from the private sector and fostering permeability between study and work-based training in innovative companies, providing students and lifelong learners with innovation and entrepreneurship skills and supporting the development of student incubators to explore and turn their innovative ideas into business ventures.

SG3 – Improve European competitiveness and well-being and contribute to a more resilient and inclusive Europe.

EELISA aims to become a game-changer in education and research by promoting gender equality, inclusiveness and diversity in all areas and through all stages of the career lifecycle. By pursuing joint diversity directives internally and engaging in dialogue with policy makers, employers and civil society and collaborating with other European Universities, EELISA aims to become a role model in higher education, inspire others and serve as a catalyst for positive change in Europe. EELISA will stand out as an engaged alliance, a powerhouse for smart and sustainable solutions to societal challenges, and set a standard for the green, digital and inclusive universities of the future.

SG4- Foster excellence in research and contribute to the continuum of research-education—innovation.

EELISA aims to raise the excellence in research of its individual partners and of the alliance as a whole, thereby contributing to raising excellence at EU level, by building on the common R&I agenda defined by EELISA InnoCORE (SwafS-Horizon 2020). EELISA will foster research-based learning and develop joint PhD programmes, strengthen research careers through collaborations and mobilities, boost researchers' and academics' skills by providing them with more training opportunities and international experiences, stimulate the development of joint research projects, share research infrastructures, reinforce research management and foster active participation of society and industry in research. This will enable EELISA to become a stronger and more attractive network capable of competing with leading universities from around the world, and to attract top researchers and talents, in order to drive innovation and make an impact on the global stage.

SG5 – Strengthen the dynamic integration with industry and business organizations' needs following the future trends and perspectives of the global and European job markets.

EELISA will consolidate its innovation and entrepreneurship dimensions, participating in hubs of Alliances to pursue the objectives of the New European Innovation Agenda. Building on the results of EELISA InnoCORE and EELISA

Unfolds (EIT HEI initiative), EELISA will consolidate its innovation and entrepreneurship ecosystem, facilitating cross-institutional engagement with parties interested in starting a business, engaging with and gathering support from innovators, founders, entrepreneurs, start-ups, and spin-offs and establishing programmes designed to host young entrepreneurs at EELISA partner incubators. EELISA will also prioritize the engagement with society and partnerships with industry to co-design new career development pathways, supporting the transition to the job market facilitating the employability of our graduates in Europe by working on the recognition of the different degrees across the continent, redefining the competences and skills of the students in line with the needs of business actors in relation to the ecological and digital transition, and developing lifelong learning programmes.

OUR SLOGAN: "BUILDING BRIDGES, BRIDGING BOUNDARIES"

To meet our five Strategic Goals, our mission and vision will be advanced by:

- **Bridging disciplines**: Combining the strengths of all EELISA University partners to create truly interdisciplinary educational programs.

- **Bridging missions:** Developing activities and initiatives that blend the four key missions of universities: education, research, innovation, and service to society.

- **Bridging sectors:** Building strong partnerships with different industries, economic sectors, civil society actors and NGOs to address complex societal challenges.

- **Bridging institutions:** Creating an EELISA Inter-University Campus to foster mobility and collaboration among our partner institutions.

Thus, as Presidents, Rectors and Directors, we commit our higher education institutions to join our strengths to reinforce Europe through the long-term continuation of our European Engineering Leaming Innovation and Science Alliance (EELISA),

Europe, January 2023

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Rector İsmail Koyuncu
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President Alain Fuchs
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Director Luigi Ambrosio
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ENAEE
European Network for Accreditation of Engineering Education

President José Carlos Quadrado
European Network for Accreditation of Engineering Education (ENAEE)

EELISA Partners

Number	Name in original language	Name in English	Short name	Country
1	Universidad Politécnica de Madrid	Technical University of Madrid	UPM	Spain
2	Budapesti Műszaki és Gazdaságtudományi Egyetem	Budapest University of Technology and Economics	BME	Hungary
3	École Nationale des Ponts et Chaussées	National School of Civil Engineering	ENPC	France
4	Friedrich-Alexander-Universität Erlangen-Nürnberg	Friedrich-Alexander University Erlangen-Nürnberg	FAU	Germany
5	İstanbul Teknik Üniversitesi	Istanbul Technical University	ITU	Turkey
6	Scuola Normale Superiore	Higher Normal School	SNS	Italy
7	Scuola Superiore di Studi Universitari e di Perfezionamento Sant'Anna	Sant'Anna School of Advanced Studies	SSSA	Italy
8	Universitatea Politehnica din Bucuresti	Politehnica University of Bucharest	UPB	Romania
9	Université Paris Sciences et Lettres	Université PSL	PSL	France
10	Zürcher Hochschule für Angewandte Wissenschaften	Zurich University of Applied Sciences	ZHAW	Switzerland
11	European Network for the Accreditation of Engineering Learning (Associated Partner)	European Network for the Accreditation of Engineering Learning	ENAEE	Belgium

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