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0.6	Julie Hubeňáková, WP3 coordinator	August-September 2025	Revisions based on the recommendations from the General Project Review Consolidated Report.

SUMMARY

The presented document aims to provide a comprehensive overview of the latest development and evolution of the 4EU+ Flagships in the monitored period November 2022 - October 2023. The portfolio is divided into chapters dedicated to each Flagship separately, each chapter follows very similar structure. After introducing the Flagship and its thematic focus, social relevance and goals, each Flagship shortly summarizes its governance, organizational structure and changes that have occurred in the past year. This is followed by outlining the strategy of facilitating student engagement, involving the external partners or other stakeholders, in general, describing how the Flagship community is being built. Flagship development covers topics as sustainability of already existing activities, as well as consideration of new initiatives and impetus. In separate sections, Flagships focus on their research and educational aspects, also by showcasing a range of examples and activities that take place on the way towards sustainable learning pathways, joint degree programmes and beneficial educational offer.

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Abbreviations of individual universities:

Charles University (CU)

Heidelberg University (UHD)

Sorbonne University (SU)

University of Copenhagen (UCPH)

University of Geneva (UniGe)

University of Milan (UniMi)

University of Warsaw (UW)

OBJECTIVES

The Annual Portfolio of Flagship Activities – 2nd Report aims to present a comprehensive overview of the progress and impact of the 4EU+ Flagships within the framework of the Erasmus+ 1CORE project.

It seeks to showcase the educational mission of 1CORE, which is firmly rooted in research-based learning. The report highlights how the integration of research teams into educational structures drives innovation, enhances curricula, and prepares students to become active contributors to a knowledge-driven Europe.

The document further provides a comprehensive overview of the four 4EU+ Flagships, outlining their organization, leadership, and thematic focus as key structural pillars of the Alliance. It examines their contributions to education, research, and societal engagement, while emphasizing the involvement of students and doctoral candidates in their activities.

As a tangible product and strategic tool of 1CORE, the Annual Portfolio serves to capture, document, and communicate the ongoing development of the Flagships. It functions both as an accountability mechanism, demonstrating achieved results, and as an instrument for planning and shaping future initiatives.

The report also aims to demonstrate the broader impact and added value of 1CORE funding, showcasing how it supports long-term capacity building and sustainability within the 4EU+ Alliance.

Finally, the document provides a comprehensive record of Flagship progress during the first year of 1CORE (November 2022 – October 2023), summarizing major initiatives, collaborative actions, and shared activities undertaken by all four Flagships.

INTRODUCTION

The *"Annual Portfolio of Flagship Activities – 2nd Report"* is not a simple collection of activities. It is a product of the 1CORE project itself, designed to show how the Flagships serve as the backbone of the 4EU+ Alliance and how the Erasmus+ 1CORE project funding enables their development. To read this report correctly, it is important to understand the specific role of 1CORE within the Alliance and how its impact should be evaluated.

People before activities – why 1CORE invests in human resources

The 1CORE project primarily funds the people who work "behind the scenes." Their coordination, planning, and institutional support make all visible activities possible. While mobility schemes or academic events may sometimes be co-funded by universities' own sources, without 1CORE-funded staff the overall structure would not exist. If fewer staff were supported, the effectiveness and impact of the project would decline dramatically. For this reason, the outcomes presented in this portfolio must be read not only as individual activities, but as the result of a stable and professional backbone provided by 1CORE.

Education in focus, with research as a foundation

Primarily and in the first and only place, 1CORE is focused on education. However, the Alliance builds its educational strength on *research-based learning*. This requires close interaction with research teams that generate new knowledge and connect it to teaching. Supporting the Flagship structures therefore ensures that education is enriched by cutting-edge research, making curricula more innovative and preparing students to become active contributors in a knowledge-based Europe. In this sense, support for research teams should be seen not as "research funding," but as an investment in education of the highest quality.

The Flagship Annual Portfolio as a 1CORE product

This Annual Portfolio is itself a tangible product of the 1CORE project:

- Its structure and comprehensive approach are designed within 1CORE to capture the full scope of Flagship development.
- It serves multiple audiences: internal and external stakeholders, and the wider 4EU+ community.
- It provides both accountability and inspiration: a record of progress and a tool for shaping future development (e.g. in 1CORE WP6).

In summary, this deliverable should be read as a demonstration of how 1CORE builds the structural conditions for the Alliance to flourish: through mostly (but not only) human resources, through education enriched by research, and through the creation of sustainable tools like the Flagship Annual Portfolio. The added value of 1CORE lies not only in the activities reported here, but in the long-term capacity it creates for the 4EU+ Alliance.

Four 4EU+ Flagships continue to be pillars of the 4EU+ Alliance, structuring its educational initiatives and contributing to the development of research collaborations.

Who are the Flagships? What impact do they have on the development of education, research and the third-role mission within the 4EU+ Alliance? How are the Flagships organized and led? In what ways do they involve students and PhD candidates?

Flagships are an integral component of the Alliance structure; therefore, this portfolio takes a comprehensive approach to the Flagships 'activities and their development. Therefore, it does not only include activities related to the 1CORE project; on the contrary, the broader context provides an opportunity to examine the impact related to the entire Alliance structures and schemes (e.g., SEED4EU+, Visiting Professorship or mini-grants).

Let's explore how Flagships are formed and developed, how their communities grow, what they offer in the field of education, and how they contribute to the development of research within the Alliance. In the following four chapters dedicated to individual Flagships, we will examine their main initiatives and activities over the past year, the first year of the 1CORE project (November 2022 – October 2023).

To provide a comprehensive introduction, we present a short recapitulation of the activities in which all four Flagships participated at the same time.

Continuing Education Development

In February 2023, the final decision was made by the 4EU+ Governing Board to financially support the continuation of educational projects which have originally started during Erasmus+ European Universities project. Projects that expressed enthusiasm to continue and received positive assessments from the educational experts and the Flagships were motivated and supported on the path toward further development and self-sustainability.

The educational offer is complemented by the offer of shared courses. These may also have an affiliation to individual Flagships. An overview of these courses is provided in the appendix.

#GrowingTogether

The two significant initiatives, SEED4EU+ and 4EU+ Visiting Professorships, have engaged 4EU+ Flagships, albeit in slightly different ways. Both calls, launched to stimulate collaborative research and educational activities and promote out-of-the box projects, received substantial response from academics and researchers across the 4EU+ member universities.

The SEED4EU+ call received 42 applications from teams involving altogether more than 400 academics and students. Out of these, 17 projects have been selected for funding. Over half of the applications involve more than three 4EU+ member universities. The funding of this initiative comes from the budgets of 4EU+ member universities. A number of these projects fall under one of the Flagships and will thus enrich the reach of the Flagships and help build the Flagships´ community.

Under the 4EU+ Visiting Professorships initiative, 9 candidates were selected from among 22 applications. The Flagships representatives have been involved in the evaluation process and thus contributed to the selection of successful candidates who will undertake joint educational

and research activities during the stay of two to three months at another 4EU+ university. They will contribute to the development of new educational frameworks and areas of expertise, promoting the exchange of skills across our universities.

International Geneva: Developing collaborations between 4EU+ and International Organisations

In April 2023, the University of Geneva invited all four Flagships' representatives to meet with International Organizations based in Geneva. This was an opportunity to share best practices on collaboration between universities and international organisations. The workshop gathered, on one side, representatives of the 4EU+ member universities, and on the other side, representatives of the Geneva Science Policy Interface, SDG Solution Space and the SDG Summer School, WHO/Geneva Digital Health Hub, UN Economic Commission for Europe (UNECE), International Telecommunication Union (ITU) and UNEP-GRID. The purpose of the event was to discuss collaboration with the academic world, and how to effectively integrate academic partners and International Organisations into the daily work, as well as to develop collaboration between 4EU+ and International Organizations.

SDG Summer School: 4EU+ participation

As an immediate response to the International Geneva workshop, 4 places were opened for 4EU+ students to attend the SDG summer school. Flagships played a major role in identifying the most suitable candidates and enabling 4EU+ students to take advantage of this great opportunity to join the SDG Summer School, which this year focused on Open-Source Health Solution. For highlights of SDG Summer School 2023, you can watch the video here: https://www.youtube.com/watch?v=tnCQc2rRsUY.

Studying European-style: 4EU+ Student Night at Heidelberg University

In May 2023, Heidelberg University held the first hybrid "Student Night" in the context of the 4EU+ European University Alliance. The event was also livestreamed to the 4EU+ member universities in Prague, Paris, Copenhagen, Geneva, Milan and Warsaw. The event was addressed to Bachelor and Master students and doctoral candidates in all subjects and disciplines. The focus was on the range of courses and the numerous opportunities for exchange within the university Alliance.

The main objective of the 4EU+ Student Night was to give information about the courses offered in the context of the four interdisciplinary Flagships, as well as the university-wide course offerings and funding opportunities for students and doctoral candidates. Furthermore, students from the member universities reported on their experiences. All four Flagships representatives participated in the final conversation.

Forum of good practices: skills and competencies in 4EU+

In June 2023, the 4EU+ Education Days were organised as part of the NAWA-funded "4EU+ for Ukraine" project. The event took place on-site at the University of Warsaw and online.

The programme of the 4EU+ Education Days included various workshops and training sessions. They covered topics such as strategies for digital teaching and learning, the European Degree label project, Erasmus Mundus Design Measures and Erasmus Mundus Joint Masters, joint studies accreditation in EHEA and the 4EU+ Quality Management System. With 1CORE project, we opened the forum for sharing good practices.

4EU+ defined a joint 4EU+ Graduate Skills, Competencies and Values portfolio, which corresponds to the profile of a 4EU+ graduate and stresses five shared competencies. But how is this concept being translated into practice? All four Flagships, also representing seven 4EU+ member universities, shared they success stories and experiences with the broader 4EU+ community¨, as well as with partners from three universities from Ukraine.

Budget for 2023

4EU+ Alliance is currently developing a strategy for years 2025-2035, in which the efforts of all Flagships are being reflected. The Flagships' considerations of new long-term visions and developments at the level of the Alliance's general strategic network are needed. The role of Flagships in building one comprehensive European University will be better articulated, focusing on the conceptual framework, organisational and institutional mechanisms, and financial support for the sustainability of already developed and functioning 4EU+ educational activities.

The effort of all Flagships was also partly reflected in the provision of financial support. A budget of EUR 25,000 for 2023 was provided by the 4EU+ Association to each of four Flagship to support their initiatives, development and enhance the contribution to 1CORE project.

FLAGSHIP 1 URBAN HEALTH AND DEMOGRAPHIC CHANGE

Introduction: thematic focus, social relevance, education and research

Flagship 1 *Urban Health and Demographic Change* address the mutually interrelated issues of health and well-being, demographic change and urban transformation. These areas and especially their overlaps are among the major societal challenges of our time, that are emphasised in the mission statements, political agendas and activities of the United Nations, the European Union and national governments. The key challenges in the field of urban health and well-being are associated with modern civilization, particularly with lifestyle changes, shifts in dietary habits, exposure to new chemicals, and the overall increase in life expectancy and population ageing. Furthermore, they are conditioned by the living-environments, including housing and transport quality and affordability, access to healthcare and education and quality of green spaces. Addressing these health-related issues requires a comprehensive approach that combines preventive measures, accessible healthcare services, health education, and the development of infrastructures and environments that support healthy lifestyles. Therefore, it is essential to prioritize public health and well-being in urban planning and decision-making processes, ensuring that cities are equipped to respond effectively to health challenges, including both chronic diseases and infectious outbreaks, through sustainable and resilient solutions.

An interdisciplinary and international community of academics from various medical and social science disciplines has been formed to cooperate on issues such as physiology, cancer, psychology, global health studies, urban studies, demography, human geography and economics, all related to Flagship 1 thematic challenges. The educational activities developed within Flagship 1 address diverse topics from Flagship´s thematic fields. These educational activities form the cornerstone of the Flagship´s educational pathways, emphasizing the 4EU+ shared values and competences (critical thinking, social engagement, data literacy, entrepreneurship, multilingualism). They also use 4EU+ promoted innovative pedagogies, such as the ABC LD method (Activity Based Curriculum Learning Design) with emphasis on learning outcomes and active learning through acquisition, inquiry/investigation, discussion, collaboration, practice and production.

In addition, the portfolio of learning activities has significantly expanded with the introduction of virtual mobility courses, i.e., online courses offered by any Alliance member university that are open for enrolment by students from other universities. New innovative ideas and developments in education and research have been supported through specific format of mini-grants provided by CU and UW. In 2023, the SEED4EU+ programme was launched to support the development of innovative education and research projects.

Flagship governance and community building

Flagship 1 is jointly coordinated by three Flagship leaders (academic coordinators) from three different universities: Charles University (Prof. Luděk Sýkora), University of Heidelberg (Prof. Ulrike Gerhard) and University of Milano (Prof. Antonella Delle Fave). Two Flagship assistants from Charles University (Julie Hubeňáková, Ph.D.) and University of Heidelberg (Dr. Editha

Marquardt) support the work of the academic coordinators. Strategic issues are discussed within the Flagship 1 programme committee consisting of 12 members (including Flagship leaders), with two representatives from each 4EU+ university. For the time being, the University of Copenhagen is not represented in the Flagship 1 programme committee.

Leading the Flagship

The three Flagship leaders and assistants meet regularly, through online calls scheduled once in a month, as well as in additional occasions when needed. They communicate by email and use shared documents (MS Teams, SharePoint). All leaders and assistants participate in various 4EU+ meetings and exchange the knowledge gained in these meetings. This includes the 1CORE Kick-off Meeting in Prague (14 November 2022, Luděk Sýkora, Editha Marquardt, Julie Hubeňáková) and the 4EU+ Meeting in Geneva (18-19 April 2023, Antonella Delle Fave, Luděk Sýkora, Julie Hubeňáková). The FS1 coordination team and the FPC also met at the Annual Meeting in Copenhagen in 2022 (28 October 2022). In addition, the leaders and assistants take part in online workshops and meetings. Here, the 1CORE WP3 meetings are to be mentioned (29 March 2023, 16 June 2023, 18 September 2023), the meetings with the General Secretariat (e.g.,13 February 2023) as well as meetings on the student portal (31 January 2023) and the 1CORE workshop on IT and groupware solutions (21-23 June in Warsaw) or the workshop provided by the Working Groups Education and Mobility (13 June 2023). They get involved in additional 4EU+ activities, e.g., reviewing applications under the 4EU+ Visiting Professorship call.

During the last year (November 2022 – October 2023), the general focus of Flagship management was on several issues. First were the discussion and articulation of Flagships´ position within the 4EU+ Alliance, with an emphasis on the need to formulate long-term strategy, enhance internal and external communication, and assure sustainability of existing educational projects. Second was the discussion and development of approaches to fulfil the objectives of the 1CORE project. Third was the articulation of new 4EU+ initiatives (such as SEED4EU+) for the Flagship community and its needs. Forth, and very important, was keeping the strong network between academics from all partner universities that has been established around Flagship educational projects and other initiatives.

On the strategic level, Flagship 1 has identified a need for better integration of the two components of the Flagship – healthcare and urban studies – within both educational and research initiatives. Considering that the UN Sustainable Development Goals and the concept of One Health call for a stronger interdisciplinary effort to address the current global issues, this aim is both challenging and highly needed. The agenda of strengthening Flagship 1 internal collaboration is necessary to design curricula that can provide students at the future European University with the knowledge and competences suited to adequately face and solve the increasingly complex societal and environmental demands.

Building the community

Flagship 1 activities are driven by a committed international community of scholars from various fields of medical and social science disciplines. The community is an informal group that currently consists of about 80 engaged academics from all member universities, namely teachers and researchers experienced with 4EU+ educational projects and mini-grants but also including academicians from the broader community who are interested in the Flagship´s topics and 4EU+ cooperation. Regular quarterly Flagship 1 community meetings are organised to share updates and information about 4EU+ 1CORE project initiatives, calls, and new activities. Additionally,

this forum serves for exchanging, sharing, and networking opportunities, while also providing support as contact persons to facilitate networking among members.

Table 1: Overview of the Flagship 1 Programme Committee and Community meetings

28.10.2022	FS 1 PC Meeting in Copenhagen, Annual Meeting	14 participants
13.01.2023	FS 1 Community Meeting	28 participants, 7 universities
21.04.2023	Meeting PC FS1 FS 1 Community Meeting	18 participants, 6 universities
10.07.2023	FS 1 PC + Community Meeting	22 participants, 6 universities

At the level of individual Alliance member universities, meetings are organised between Flagships and coordinators from local 4EU+ offices to enhance mutual coordination, exchange experiences, and lean about both good practices as well as obstacles and shortcomings.

Involving the students

Within Flagship 1, there are no specific measures to include students or PhD candidates in coordination activities. The Flagship management is convinced that the main goal of the Flagship is to provide and support educational activities within which students and PhD candidates from 4EU+ universities can learn, meet and cooperate[1]. In association with the application of the ABC LD method in 4EU+ courses, students are involved not only in providing ex post feedback, but they also actively shape the design of courses and other educational activities. Furthermore, as there are student-centred initiatives on the 4EU+ level, students participate in both management and social activities, leading to cross-fertilisation among Flagships and other 4EU+ activities[2].

[1] For instance, summer schools offer great opportunity for networking. The summer school "4EU+Against Cancer" held in July 2023 in Mariánské Lázně brought together researchers, teachers and students.

[2] After the last 4EU+ Student Night, which took place in Heidelberg, a new student group emerged at Heidelberg University. Representatives from Flagship 1 supported the students' engagement and one of our students (Ira Borgstedt) is now member of the new group.

Picture 1: 4EU+ Student Night

Picture 2: 4EU+ Student Night

Cooperating with external partners

Besides the 4EU+ universities, scholars/teachers and students from other partner universities, as well as associated or external partners from non-academic organizations, are involved in educational activities. The traditional activity "Urban Health Case Challenges" entails cooperation with external academic and non-academic entities, for example municipalities. The 2023 edition of Urban Health Case Challenge is under preparation. It will take place in Warsaw and involve the World Health Organisation (WHO) and cooperation with the 4th International Scientific Conference on Interdisciplinarity of Health and Healthcare. The 4EU+ course "Resilient Cities" involves partners in the final workshops. In 2023, the workshop held in Paris was anchored by the facilities of the Cité Internationale Universitaire de Paris (Francesco Torrici) and involved several external partners, which contributed to the study field visits, including Paris Batignolles Aménagement (architect Nikola Meyer and Eric L'Helguen, smart city specialist), ZAC du Fort d'Aubervilliers (Loukia Peneau), and Grand Paris Aménagement

(Mathilde Lacroix and Raphaël Bernard). The development of the European Master's programme in epilepsy that develops a multi-disciplinary approach to epilepsy research and epilepsy education cooperates with University of Erlangen, the Royal College of Surgeons of Ireland, UCL, and other universities beyond the 4EU+ Alliance members. The project on "Building a network of student-led teaching of medical ultrasound" cooperates with the University of Cambridge. Guest lecturers are involved in several educational offerings. Specifically, the course "Smart Cities for Ageing Societies "was organised as a series of guest lectures. Also, members of industry or SMEs participate in our educational and research activities.

Flagship's development: sustainability and new initiatives

The role of Flagships and the development potential of Flagship initiatives are largely determined by the general framework set at the level of the 4EU+ Alliance. In the past year, it was mostly driven by the objectives of the 1CORE project (2022-2026), the need to sustain educational activities developed, specific programmes designed within the 4EU+ Alliance to support new and innovative research and educational projects (SEED4EU+, 4EU+ Visiting Professorships) or provided by some Alliance member universities, such as Charles University mini-grants.

Budget for 2023

Flagship 1 launched an open call to all the community members, soliciting the submission of projects and new initiatives addressing key issues of new development and innovation. The Flagship representatives received and accepted two project applications and agreed to support both.

Pilot phase of the "Compatibility of Curricula Initiative in Geography" (Fall Semester 2023/24) involved five universities: UHD, SU, UCPH, UniMi, and UW. As not all universities have the possibility to support their students' mobilities during the pilot phase, the Flagship budget allows for additional funding opportunities for short-term mobilities at three of the participating universities (UniMi, SU, UW). The activity starts in September 2023.

A two-day workshop inviting all members of the Flagship 1 community will take place in Prague in January 2024. The main idea of the workshop is the thematic pathway. The workshop is aimed at promoting exchanges, coordination, networking, negotiations, and further development within several Flagship 1 areas and priorities:

- Educational/Learning Pathways;
- Joint (Master) Study Programmes;
- Innovative and Challenge Based Educational Activities (Research Based Education);
- Cooperation of PhD Candidates and Researchers;
- Compatibility of Curricula.

New impetus for the development

To stimulate new innovative collaborations, the 4EU+ Alliance launched two schemes in 2023 that provided seed money: SEED4EU+ call for research and education and the Visiting Professorships. While these calls were not coordinated with Flagships leadership, project application had to be associated with Flagships. Consequently, based on the thematic association the funded projects are becoming part of Flagship thematic area. They can bring new

impetus for the development as well as challenges how to integrate and coordinate a pool of rather diverse activities.

Out of the 17 projects selected for SEED4EU+ funding, five projects are affiliated to Flagship 1 themes. Two projects deal with medicine and healthcare topics, one with questions of health and migration, and the other two with urban studies. Some projects were submitted by existing members of Flagship 1 and thus benefit from and extend the previous collaboration among partner universities, established during the first phase of the 4EU+ Alliance activities.

The **DETERMINANT** project aims to ensure the long-term sustainability of the 4EU+PharmacoEpi programme, launched during the previous phase of the 4EU+ Alliance activities, by establishing a Joint Master's Programme in pharmacoepidemiology and pharmacovigilance involving all partner universities, as well as associated partners.

The **NECTAR** project brings together neuroglia and epilepsy specialists to investigate the role of glial cells in brain diseases, particularly epilepsy. The main goals of the project are (a) to establish a consortium including experts for different disciplines to explore the mechanisms of brain diseases; (b) to collectively address crucial unanswered questions in epilepsy; (c) to submit competitive grant proposals to major international funding agencies such as Horizon and ERC Synergy, thereby securing long-term sustainability.

The **MIHE** project aims to develop a MOOC on migration, health and equity. The course bundles expertise from all universities. It targets not only students and researchers but also policymakers and professionals providing new knowledge within this important societal field.

The **UNREAD+** project builds upon the already established collaboration between four partner universities (UW, CU, UNiMi and SU) Its primary objective is to advance knowledge in the field of spatio-temporal aspects of urban development. This initiative includes both teaching and research activities, as well as the strengthening of organisational and administrative collaboration. Furthermore, it aims to broaden the consortium by involving academics from other faculties and engaging social stakeholders and policymakers.

The **ICRR** project aims to design an interdisciplinary challenge-based research and Joint Study Programme on urban health and climate change (ICRR). A highly diverse group of academics will address various aspects of the urban environment, co-creating an innovative education programme that provides competencies in areas such as data literacy, mobility and infrastructure, homes and housing, anticipation and prevention, social and environmental epidemiology, citizen science projects, climate change, and urban dystopias and utopias.

As for Visiting Professorships, out of the 9 proposals selected for funding, two are affiliated to the Flagship 1 community. The first one involves a scholar in Urban Studies from UCPH, who will be visiting UniGe. The collaboration topic is the increase of inequalities due to the COVID-19 pandemic, especially in urban contexts. The goal is to unify intersectional research methods from both the humanities and data sciences to study the effects of the COVID-19 pandemic on cities. The second programme involves a collaboration between CU and UNIMI in the field of medical biochemistry and laboratory diagnostics, with the aim of advancing knowledge about cardiometabolic diseases, which are dramatically increasing in Europe and worldwide. Activities will include lectures, seminars, joint publications, the establishment of an inter-university centre dedicated to the study of biomarkers of organ diseases, and the development of educational programmes on this topic.

Research: seed funding as an opportunity

Flagship 1 community has benefited from several research-oriented mini-grants, in both urban studies and medicine. In the medical field, the funded projects show a remarkable convergence in topics with the educational activities developed in the first phase of the 4EU+ collaboration (described in the following section), as well as with the projects selected through the SEED4EU+ and Visiting Professorship (described in the previous section). This convergence is a major asset for ensuring the long-term sustainability of all the Flagship initiatives, their development into university courses, and their contribution to the global health and societal challenges posed by chronic and progressive diseases. In the field of urban studies, the 4EU+ Master in Urban Studies aims to explore possibilities and potentials to develop joined master's programme and provide its first outline. The effort focuses on the thematic division of urban studies fields between partners, composition of lectures/seminars, time schedule in relation to the compatibility of curricula, definition, scheduling and time allocation for core study activities, development and use of plug-in modules, and the options for the study programme's final accomplishment. This effort contributes to 1CORE WP3: 4EU+ Flagships: research-based education and specifically T3.2: Towards 4EU+ joint study programs.

Table 2: List of Flagship 1 mini-grants (2023)

Project Title	Participating 4EU+ Universities
4EU+ BLOOD-GAS: Education and Research Joint Initiative in Acid-Base Physiology and Homeostasis	CU, UCPH, UniMi
Emerging new concepts and approaches to target diabetes pandemic in urban areas: from physiology to successful implementation	CU, SU, UCPH, UniMi
The programming power of the placenta: A short-lived organ with a long-lasting impact on global health	CU, UCPH, UniGe
Dual Antiplatelet Therapy For Shock Patients With Acute Myocardial Infarction - DAPT-SHOCK-AMI study	CU, UHD, SU, UW
4EU+ Master in Urban Studies	CU, UHD, SU
Visual teaching in challenging themes for teacher practice	CU, SU, UW
Teaching Excellence at 4EU+ universities	CU, UHD, SU, UCPH

Examples of news and developments in the past period

The programming power of the placenta: A short-lived organ with a long-lasting impact on global health

The project team is currently arranging mobilities between the team and other members from the University of Geneva and the University of Copenhagen. One mobility successfully took place in April 2023 when Prof. Marie Cohen (University of Geneva) visited Hradec Kralove and gave a lecture on her past and current research activities entitled "Ovarian cancer progression and placentation: Parallels in the modulation of cell fusion". Approximately 10 PhD students attended the event and gained insights into ovarian cancer progression and placentation. Placental cells, although not malignant, share with cancer cells many molecular mechanisms involved in invasion, cell fusion, or tolerance to the immune system. This lecture raised an interesting discussion afterward on collaboration between the teams both in method exchange and mutual projects.

In addition, the principal investigator attended the European Placenta Perfusion Workshop in Graz, Austria, which was a fruitful meeting with an inspiring programme. It provided a unique opportunity to meet with associated and external partners in the field of placental biology.

4EU+ Prague Summer Scientific Symposium

Emerging new concepts and approaches to target diabetes pandemic in urban areas: from physiology to successful implementation

The 4EU+ Prague Summer Scientific Symposium, held on 15-17 June 2023 in Karolinum, brought together academics from several 4EU+ universities to discuss new concepts and approaches to target diabetes pandemic in urban areas.

Picture 3: The 4EU+ Prague Summer Scientific Symposium

"The 4EU+ Prague Summer Scientific Symposium was much more than a conference. It was a place where scientists from all over Europe came together to share ideas and learn from each other. The event was a great opportunity for everyone to build connections, start new collaborations, and lay the groundwork for an ongoing scientific platform within the 4EU+ Alliance. The enthusiasm for the possibilities ahead made the symposium a resounding success.

We hope to continue this in other cities, such as Copenhagen," says Jan Gojda, main organizer of the event.

Picture 4: The 4EU+ Prague Summer Scientific Symposium

Some activities and initiatives create and test innovative approaches and tools, enriching the university environment. Many of them continue to develop and advance.

Education: from educational projects towards study programs

Within the thematic scope of the Flagship 1, the offer of educational activities focuses on diverse issues such as physiology, cancer, psychology, global health studies, urban studies, demography, geography or economics. In Flagship 1, the educational offer has not been guided by an intention to develop a complex and comprehensive educational pathway. Instead, the focus has been on developing individual education elements, namely courses, seminars and summer schools that could be elected by students from their existing study programmes. These new and innovative educational activities are intended to be incorporated as regular parts of existing study programs at the respective partner universities. Through such a bottom-up approach, the 4EU+ educational activities that address key social challenges in the areas of health and demographic change in an urban environment are integrated into existing teaching and learning processes as part of curricula.

The key objective of Flagship 1 is to contribute to educational pathways that offer high-quality, research-based education, while promoting shared values, skills and competences, and open opportunities for such learning pathways that allow for flexible choices from diverse high-quality educational activities. The teaching and learning employ innovative pedagogies with the emphasis on high quality research-based education, student-centred and student-driven inclusive education, critical thinking, social engagement, creativity and entrepreneurialism, data literacy and attention to multiculturalism and multilingualism. Innovative organizational and technical solutions support on-site and on-line teaching and learning and related virtual and physical mobility.

With the missing 4EU+ strategic framework that would define the role of Flagships and provide institutional setting for long-term sustainability of educational activities and development of learning pathways, the actual educational offering is provided in the form of individual educational projects that pilot, test and practice cooperation between 4EU+ Alliance member universities. The major and forthcoming challenge associated with the 1CORE project is the development of joined master study programmes and co-operations in doctoral studies.

Table 3: List of Flagship 1 Educational Projects

Project title	Participating universities
The development of the European Master's program in epilepsy	SU, UNIMI, UW, CU (leader)
Resilient Cities: challenges, risks and response	UHD, SU, CU (leader)
Perineal Trauma Prevention, Evaluation, Education, Repair and Scanning Blended Learning (PEERS+)	SU, UNIMI, UHD, CU (leader)
Comprehensive and integrative educational program in oncology	UW, SU (leader), CU
4EU+ Urban Health Case Challenge	CU, SU, UM, UW, UCPH. UHD
Development of an integrated 4EU+ Pharmacoepidemiology educational program	UCPH, UNIMI, SU (leader), CU
Urban Regulations and Political Memory: Towards understanding Spatio-Temporal aspects of Urban Development	CU, UNIMI, UW (leader)
Building a network of student-led teaching of medical ultrasound	CU, UNIMI, UHD (leader)
Understanding and Supporting Caregiver-Child Interactions	UW, UHD (leader), UCPH, UNIMI
Course: Designing, implementing, & analyzing online questionnaires on career development during the COVID-19 pandemic	UHD (leader), SU, UNIMI

Examples of various educational activities in the past period

The development of the **European Master's program in epilepsy** has benefited from 4EU+ support through educational projects and minigrants. During the projects, we set up the International Online Course on the Pathogenesis of Epilepsy. Approximately 80 participants and undergraduate students from Charles University and the University of Milano participated in the project. We have established a 4EU+ epilepsy consortium that includes partners from other European universities, research institutes, and members from the industry. Our long-term plan is to maintain and expand the course to a micro-credential. We plan to set up a European Ph.D. training program. As a final step, we will explore the possibilities of a Master's program.

Initiatives by the 4EU+ Alliance at the 35th Annual International Epilepsy Congress (IEC)

Members of the 4EU+ Epilepsy Consortium and faculty members of the 4EU+ International Course on the Pathogenesis of Epilepsy organized and participated in two teaching sessions at the International Epilepsy Congress that was held this year in Dublin, Ireland, 2-6 September 2023. The speakers were internationally recognized experts from various fields of experimental, clinical, and translational epilepsy research who were brought together during the successful 4EU+ educative and research projects led by the Second Faculty of Medicine, Charles University.

The IEC teaching sessions focused on the role of animal epilepsy models and electroencephalography in current and future epilepsy research. During the preparation of the sessions, organizers put emphasis on the highly didactic nature of the lectures and case studies so that learning objectives could reach experts and non-experts interested in these crucial aspects of epilepsy research. The sessions were endorsed by the International League Against Epilepsy and Young Epilepsy Section. Overall, both sessions were very well attended. The session organizers were also approached by the editors of the international epilepsy journal with the invitation to prepare a review article on these scientifically highly relevant topics.

Picture 5: 4EU+ at the 35th International Epilepsy Congress

Resilient cities educational project took place between the three universities: SU, UHD and CU. The course was organized with ten weekly online sessions between February and May 2023, involving ten students from each of the three universities. During this period, students prepared discussions, presentations and written exams to design and prepare the classes. In June, a three-day workshop in Paris followed, during which the participants visited different neighbourhoods of sustainable urban development, supported by local partners and experts. The field visits provided challenging case studies to understand the growth of resilient cities. Consequently, the

class could address urban theory, as well as applied urban geography and planning. The organisational and travel costs were funded by the participating member universities of the 4EU+ Alliance.

Picture 6: Resilient Cities 2023

Picture 7: Resilient Cities 2023

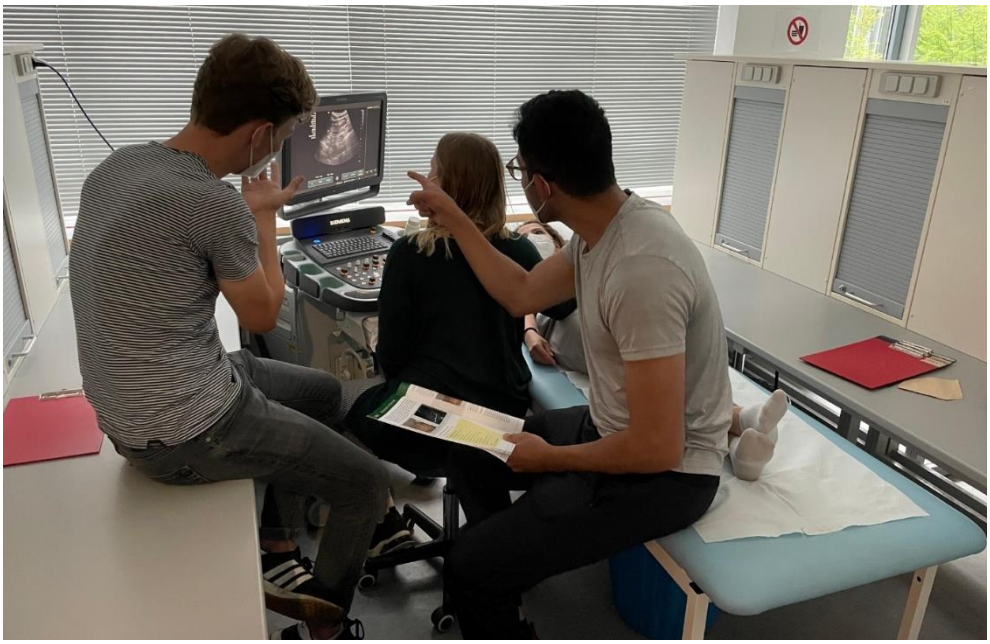
The 4EU+ PharmacoEpi project **was founded to** enhance students' knowledge of fundamentals methods in pharmacoepidemiology and provide an understanding of the structure of the French administrative health databases, the Danish registries, and the Italian National Health Service databases, to develop multi-country research project in pharmacoepidemiology within the 4EU+ Alliance. The first course session was organised in March 2022 with a blended format, consisting of 10-day online course [40 hours] followed by a short-term mobility of 3 days at Sorbonne University, Paris. The course was highly successful, with 29 students from 5 universities of the 4EU+ Alliance attending the course (62 applications submitted), and it received very positive feedback from students (91% of students would recommend the course to others). The course has been renewed this year and extended to two formats to accommodate students' varying levels of knowledge (Beginner / Advanced). One course occurs in Copenhagen and the other one

in Paris. The first session (Advanced Course) was held in Paris in May and June 2023, with 19 students from 5 universities participating. The second session (Beginner Course) is scheduled for November 2023 in Copenhagen.

Picture 8: 4EU+ PharmacoEpi

The project on "**Building a network of student-led teaching of medical ultrasound**" successfully organised two summer schools of anatomy-based sonography at Heidelberg, SASH. Each year, we instructed 20 students from 4EU+ and other universities in the theoretical background of abdominal ultrasound, followed by daily hands-on practice sessions. Our tutors taught small groups of five participants using state-of-the-art ultrasound devices that allowed participants to recognize organs at high resolution. As many participants had never seen abdominal organs with such clarity before, these scanning sessions left a lasting impression on them, as they told us in written feedback, and led them to improve their ultrasound proficiencies even after they returned to their home institutions. All participants completed SASH by taking a mini-OSCE (objective structured clinal examination), a widespread type of assessment in clinical medicine. Without exception, students demonstrated their proficiency in performing accurate abdominal ultrasounds on their peers. Having acquired this fundamental practical medical skill in just one week is an excellent achievement for relatively inexperienced medical students. An impressive network was developed including cooperation with the Institutes of Anatomy at the Universities of Prague and Milano. The team aims to establish SASH satellite curricula at both institutions to build a network of student-led teaching of medical ultrasound. For that, prospective ultrasound tutors were invited to Heidelberg to be trained in the instruction of their respective local students. These first-generation tutors can be the starting point for training further tutors in Prague and Milan.

Picture 9: Building a network of student-led teaching of medical ultrasound



Picture 10: Building a network of student-led teaching of medical ultrasound

On 2-5 July 2023, the highly anticipated Summer School "**4EU+ Against Cancer**" took place in the picturesque setting of Mariánské Lázně in the Czech Republic. Led by esteemed academics from Charles University, Masaryk University, Sorbonne University, and the University of Warsaw, this event brought together aspiring researchers and experts in the field of oncology. The National Institute for Cancer Research (NICR) contributed a team of esteemed scientists, including Prof. Aleksi Šedo from Charles University, Prof. Ahmed Idbaih from Sorbonne University, and Dr. Catherine Suski-Grabowski from the University of Warsaw, who expertly prepared and led the school programme, many of whom also actively engaged in the event. The objective of this collaborative effort between the 4EU+ Alliance and NICR was to foster a fruitful

exchange of knowledge and experiences among participants, with plans already in motion to continue this partnership in 2024 at Sorbonne University.

Picture 11: 4EU+ Against Cancer Summer School

4EU+ UNREAD project successfully finalises its second edition

The final conference of the 4EU+ course "Urban Regulations and Political Memory" was held in Prague at the Faculty of Science of Charles University on 23 and 24 March 2023.

The 4EU+ course „Urban Regulations and Political Memory: Towards understanding Spatio-Temporal aspects of Urban Development" (UNREAD) was supported as one of the educational projects developed under Flagship 1 of the 4EU+ Alliance. A team of historians, lawyers and geographers from the University of Warsaw, the University of Milan, and Charles University conducts this interdisciplinary course. The topics of this course are driving forces of urban changes, the development of smart cities and interdisciplinary methodologies of urban studies applied to cases in Czechia, Poland and Italy.

Picture 12: 4EU+ UNREAD: Urban Regulations and Political Memory

Compatibility of Curricula in Geography and Geoscience

In Flagship 1, an important project to develop new educational pathways is the Compatibility of Curricula process in Geography and Geosciences. It aims at creating new mobility possibilities for students in these disciplines. By offering short-term mobilities lasting 2-3 months, the programme develops innovative pathways in addition to the regular ERASMUS offer, addressing the evolving needs of students. To achieve this, an extensive process was initiated in 2021, involving colleagues from all 4EU+ universities. The process included several workshops in presence and virtually, which allowed to generate an overview of the different MA programmes. From that, a joint offer of 13 modules was created. All courses are accepted by the involved universities. A pilot phase will be realised during the academic year 2023/24 involving five 4EU+ universities. Following that, an evaluation phase is planned. Another future task is to involve the University of Geneva, new member of the 4EU+Alliance.

Longer-term perspective

Longer-term perspective must be taken into consideration, a range of activities is in the preparatory phase, leading towards micro-credentials, (plug-in) modules, joint study programmes, etc. Following initiatives could be mentioned in this regard:

- The Compatibility of Curricula in Geography is working towards the development of Plug-In modules. After the pilot phase, these modules can be integrated into the universities' existing study programmes.
- At the University of Milan, as part of the 4EU+ educational activities, a set of training tracks in various clinical areas was designed and included in the curriculum of the Medical School, as a micro-credentials offer to 6th year students. This opportunity will be available to students from all the member universities; to this purpose, a collaboration has been developed with Charles University.

Within the Flagship 1, three educational projects aim to develop joint study programmes:

- Epilepsy - A multi-disciplinary approach to epilepsy research and epilepsy education

- 4EU+Against Cancer
- 4EU+PharmacoEpi: an integrated 4EU+ Pharmacoepidemiology educational course

FLAGSHIP 2 EUROPEANNESS: MULTILINGUALISM, PLURALITIES, CITIZENSHIP

Introduction

Europeanness as the main theme of Flagship 2 encompasses the manifold aspects of Europe and being European seen as an elaborate human-made construct of integrative potential. It addresses questions regarding European identity and culture in their past, present, and future dimensions.

These topics constitute some of the main challenges that Europe, national governments, and the European Union are currently facing, therefore a better understanding of the similarities and diversities that form Europeanness is fundamental for building a community based on values such as democracy, equality, tolerance, and the rule of law. Especially in light of ever-present or even growing tendencies such as populism or national extremism, Flagship 2's activities that focus on these core European values in their many facets are of utmost importance for shielding Europe against xenophobia, authoritarianism, and other practices that undermine human rights.

Consequently, the research and didactics undertaken within Flagship 2 that address these issues are inevitably heterogeneous and deal with various aspects of multiculturality, economy, cultural heritage, political ideas, and legal traditions.

The multitude of topics related to Europeanness entails the use of different perspectives and methodologies, linked to the disciplines represented in Flagship 2, which guarantees a holistic view- However, three main thematic areas have been identified by the 4EU+ Alliance that characterize research questions and educational programmes of Flagship 2: "European citizenship", "Multilingualism", and "Pluralities".

European citizenship, used as a legal and philosophical term, focuses on the values, rights, and burdens that define and serve European citizens. It includes the issues of governance, regulation, justice from political, economic, and social perspectives, European regulations, and institutions. Also, subjects such as migration flows, EU core visions, digital environment, and multidisciplinary challenges are undertaken here, together with issues regarding historical aspects of European political and economic relations, international law, societal diversities, not to mention cultural representations of Europeanness and European identity in literature and arts.

Multilingualism, as the main idea of the second pathway, revolves around the ability of Europeans to use multiple languages to communicate and mediate their ideas, beliefs, values, and convictions with one another. The main topics that this pathway explores are multilingual cognition and language acquisition, language distribution, migration, minority languages, and multilingual society dynamics. It focuses also on languages in contrast, from the grammatical, to pragmatical and discursive point of view, as well as on multilingual and multicultural mediation (for example, translation and interpreting).

Pluralities, as the third learning pathway, has been introduced recently and tackles the internal plurality of European cultures, politics, and societies. It deals with the plurality of memories in Europe (especially concerning mass violence, politics of memory, and memory wars in Central, East, and Southeast Europe), European spaces (regional studies), European external relations, and European practices in the field of education, environmental matters, etc. This pathway aims at understanding better Europe's own complexity so that European citizens are appropriately prepared to face challenges and opportunities that arise.

The interdisciplinary character of Flagship 2, which gathers scholars from the humanities and social sciences, contributes to high-quality research-based education that addresses various topics from the Flagship 2's main theme "Europeanness". The skills and competencies students acquire are not only those indispensables in specific disciplines within Flagship 2 but also reflect the 4EU+ shared values such as multilingualism, data literacy, critical thinking, entrepreneurship, and social engagement.

The common trait of education and research offered within Flagship 2 is the idea that only this multidisciplinary, integrated approach to Europeanness will help preserve European diversity within Europe seen as a whole.

Flagship community building

Flagship 2 gathers scholars from the 4EU+ member universities whose academic interests align with the main theme of Europeanness. Currently, Flagship 2 is jointly coordinated by two coordinators: Morten Rasmussen of the University of Copenhagen and Kamila Miłkowska-Samul of the University of Warsaw. Their work is supported by Andra Jeanina Jensen of the University of Copenhagen. All fundamental issues and decisions are discussed and taken within the Flagship 2 Programme Committee that consists of 14 members (Flagship coordinators included), representing each university involved in the 4EU+ Alliance (for the time being except for the new member Paris-Panthéon-Assas University).

The three learning pathways identified within Flagship 2 have their own coordinators chosen in accordance with their expertise in the field. For European Citizenship the coordinators are Prof. Angela Lupone from the University of Milan and Prof. Zuzana Kasáková from the Charles University. Prof. Vahram Atayan of the Heidelberg University is responsible for Multilingualism and Prof. Agata Bareja-Starzyńska from the University of Warsaw for Pluralities.

The two Flagship coordinators are in constant contact through online calls and email exchanges, updating each other on the activities of Flagship 2 and 4EU+ Alliance in general. Also, online meetings of Flagship 2 Programme Committee are organised as frequently as required. The coordinators participate in other 4EU+ meetings and events, such as the 4EU+ Meeting in Geneva (18-19 April 2023, Morten Rasmussen) or 1CORE Intranet workshop (21-23 June 2023, Kamila Miłkowska-Samul). Additionally, coordinators take part in meetings that ensure the efficient operation of Flagship 2, for example: meetings with local financial officers, 1CORE WP3 + Flagship's meetings.

Flagship 2 representatives participate in other events organised within the 4EU+ Alliance, such as Solidarity with Ukraine – 4EU+ for Ukraine at the University of Warsaw (Prof. Bogdan Babych) and take part in reviewing process for internal 4EU+ grants.

Last year the attention of Flagship 2 was mostly set on the discussion around the future of Flagships in general and the shift in their focus from mostly didactics to research activities, too. Questions about the development of learning pathways, programmes, and micro-credentials were raised, the main point being maintaining and guaranteeing sustainability and further development of the existing projects. To this end, an internal call was published within Flagship 2 in June 2023 as a part of the Flagship budget for 2023. The idea behind this internal grant was to support mobility in educational activities under Flagship 2 that take place during 2023 or 2024 and in this way enhance cooperation and strengthen relations between partner universities.

As for student involvement, although it is not seen as mandatory in the coordination activities of Flagship 2, the general belief is that students and PhD candidates are, and should be, the main beneficiaries of Flagship 2 educational and research activities since one of the main goals of Flagship 2 is to provide students with tools and skills that will help them build the future according to the values of Europeanness.

Flagship's development

Flagships' development is strictly determined by the organisational and financial policy the 4EU+ Alliance adopts. Consequently, in the last year, Flagship 2's efforts were mainly directed towards supporting existing educational projects and promoting new innovative activities through SEED4EU+ and 4EU+ Visiting Professorships calls.

Budget for 2023

The budget for 2023 was divided into two parts, the first of which was dedicated to enhancing the educational activities within Flagship 2, and the second to organising a Flagship 2 conference. The Flagship 2 management committee received and reviewed 5 project applications. Considering the relatively equal value of all the applications presented, the Flagship 2 management committee decided to finance all 5 of them, reducing, however, in some cases the amount requested.

Table 4: The projects that received funding in the 2023 mobility call.

Principal Investigator	Project Title
Elena Landone – Università degli Studi di Milano	SHADOW - Peer-to-peer shadowing: A pilot project for foreign language and culture learning
Vahram Atayan, Heidelberg	COOPERATIVE NETWORK PHILOTRANS
Cédric Sarré, Sorbonne University	EducatioN for The EuropeaN TEacher of the 21st century (ENTENTE21)
Karen Saban (PI – University of Heidelberg) Karolina Kumor / Katarzyna Moszczynska-Dürst (PI - University of Warsaw)	Frontiers, boundaries, thresholds: rethinking European citizenship with contemporary Latin-American migrant writers residing in Europe (2000-2020)
Kateřina Králová, Charles University	"Borderlands of Memory: Nationalism, Religion and Violence in Europe" 4EU+ Winter School 2024

The second part of the 2023 budget has been allocated to a Flagship 2 conference. The conference *Citizenship, Multilingualism, and Pluralities: Challenges and Opportunities for Europe in the 21st Century* is to be held on 4-5 December 2023 at the University of Warsaw. The conference aims to provide an opportunity for scholars from the 4EU+ Alliance member universities to share their experiences and ideas for research projects within the Flagship 2 framework. The research findings will contribute to the creation of research-based didactic programmes and the development of learning pathways focused on the main topics of Flagship 2, namely citizenship, multilingualism, and pluralities.

Visiting Professorships and SEED4EU+ calls

Reviewers from Flagship 2 took part in the selection process in both grant calls.

Among the nine selected proposals in the Visiting Professorships call, three are closely related to the themes encompassed by the Flagship 2 framework. They involve experts specialising in law, archaeology and history, literature and rhetoric. The visiting professorships promote collaboration between participant universities, and at the same time will develop research-based didactics. Moreover, they will also result in conferences, seminars, and publications.

Out of the 17 projects received in the SEED4EU+ call, three projects that fall within the framework of Flagship 2 were granted funding. These are:

(NODE) - Naming for othering in a diversified Europe across selected European languages, the University of Warsaw as the leading university;

(KTUM) - Knowledge for teaching upper-secondary mathematics: comparison and benchmarking across Europe, the University of Milan as the leading university;

(3MultiAccess) - Raising accessibility in tertiary education: 3D teaching and learning aids in the multisensory approach, the University of Warsaw as the leading university.

Towards joint degree programmes

Joint degree programmes are in many respects essential to achieve great sustainability in the teaching portfolio of the Flagship. Through the 1CORE project, dedicated human resources for coordinating the design and development of joint programmes have been secured. This ensures the structured and sustained advancement of activities in this area. This year, the first joint degree programme has been developed and signed in February 2023. It is a collaborative venture between Charles University, University of Warsaw and University of Milan and is entitled 'International Migration and New mobilities'.

Research: Seed funding as an opportunity

During the first project period, Flagship 2 has focused its activities on developing innovative education. The introduction of mini-grants for Flagship 2 researchers has added a valuable research dimension, which directly enhances the quality and sustainability of educational innovation. Together with the new 4EU+ grant formats such as seed funding and visiting professorships, these initiatives create a stronger link between research and teaching, ensuring

that students benefit from research-based education. This development is essential, as it underlines that high-quality, future-oriented teaching can only be achieved when rooted in active and collaborative research. Moreover, the mini-grants have engaged a broad selection of Alliance universities and enhanced cooperation even beyond the Alliance, further enriching the educational impact.

Table 5: List of Flagship 2 minigrants (2022-2023)

Project Title	**Participating 4EU+ Universities**
Hope and Empathy in Times of Conflict in Europe	Heidelberg University University of Copenhagen University of Milan
Educating heritage language (HL) learners and pupils learning a second language (SL): Differences in approaches	Sorbonne University University of Geneva University of Milan University of Warsaw External Partner: University of Iceland
European perspective on Teaching French Language and Literature, and International Certification	Sorbonne University University of Warsaw
Bible and Europe in the Changing World	Heidelberg University University of Copenhagen University of Warsaw
Displacements: Gendered-based violence. Women's writing and creative practices in modern central and southeastern Europe	Sorbonne University University of Warsaw
From Silence to Resilience II: Assessing the Communication of Public Institutions	University of Milan University of Warsaw
Use of metaphors in languages (standard / non-standard language, slang register	Heidelberg University University of Warsaw External Partner: Université Paul Valéry Montpellier III
Plurality of Memories in Europe in a Global Perspective	Heidelberg University Sorbonne University University of Copenhagen University of Milan University of Warsaw
RESONANT+ RESearch cOllaboration in the area of iNstitutional trANslator Training	Sorbonne University University of Copenhagen University of Geneva University of Warsaw External Partner: Ionian University, Greece
Workshops for initiation of 4EU cooperation in social sciences of sport	University of Copenhagen University of Heidelberg
European Identity Studies Network	University of Warsaw Heidelberg University Charles University
SAMSON. Nature(s) and Norms	University of Warsaw Charles University Sorbonne University

Three examples of news and developments

Educating heritage language (HL) learners and pupils learning a second language (SL): Differences in approaches

This project, coordinated by Andrea Hudousková and Marie Boccou Kestřánková, promotes plurilingualism and linguistic diversity—long-standing priorities of the European Union. Supported by a Charles University 4EU+ mini-grant together with the Czech Ministry of Foreign Affairs, the Ministry of Education, and the Czech National Agency, the initiative focuses on educating heritage language learners and pupils acquiring a second language.

A first conference, organised by the Institute of Czech and Deaf Studies at Charles University on 13–14 July 2023, brought together educators and experts from Charles University, Sorbonne University, the University of Milan, University of Geneva, University of Warsaw, and the University of Iceland. The event highlighted diverse approaches to language education and encouraged collaboration in advancing inclusive, high-quality teaching that values linguistic diversity.

Picture 13: Conference at Charles University in Prague 13-14 July 2023

Displacements: Gendered-based violence. Women's writing and creative practices in modern central and south-eastern Europe

This project is organised by Eva Krásová and involved Sorbonne University and the University of Warsaw. Using a transnational and interdisciplinary approach, the proposed research programme confronts the polysemic category of displacement/dépaysement (exile, disorientation, dislodgement…) with the literary and artistic trajectories of Central European

women. The project aims at observing how the experience of gendered-based oppression fuels the literary and artistic practices of women from a region that has been torn between different imperial structures, marked by mass violence (the Holocaust, forced migrations, war crimes…) and where culture has always been permeated by a strong dialectical relationship between norms and transgressive gestures: Two scientific events devoted to Central European women's displacements and creative trajectories will lead to the establishment of an Erasmus+ network of researchers, bringing together junior and senior scholars as well as PhD students via a hybrid methodological seminar :

1. International conference "Displacements: Women's writing and creative practices in modern Central and South-eastern Europe – emancipatory experiences and transnational trajectories?", Prague, 16-17 March 2023: devoted to the displacement of Central European women, their trajectories of exile and emancipation from a transnational perspective. (https://cefres.cz/en/events/event/displacements-women-writing)

2. International workshop "To undergo but to resist: violence against women and strategies of resilience in the literary and artistic practices of Central Europe in the 20th-21st century", Prague, 9-10 November 2023: focusing on the impossibility of exile, as well as women's creative response strategies to different forms of violence endured in the region in the light of an interdisciplinary enquiry (historical, philosophical, literary and comparative approaches). Both events are partially financed by other sources: SU, CU, UW; CEFRES.

Plurality of Memories in Europe in a Global Perspective

This project is led by Jiří Kocián and involves five Alliance universities. The project focuses on promoting a transnational approach to the multicultural plurality of memories in Europe in general, and memory conflict in Central and Eastern Europe in particular. Multiple dimensions of the narratives of the past and present are explored and viewed in the context of national and transnational actions both within and beyond Europe. The goal is to promote transnational and inclusive public history and collective memory, which is a crucial component of building a tolerant community of people and nations. In terms of implementation, as Charles University has become the leading partner within the consortium, the long-term ambition is to create a European pole of excellence in Memory Studies and to institutionalise the discipline of Memory and Public History Studies in the form of Ph.D. and M.A. study programmes. This effort is coming to fruition with a 4EU+ Certificate of Memory Studies Excellence awarded for student participation from this academic year and onwards. The project has continued the common workshops, seminars, summer schools, conferences and online platform (mailing list/website) to build a broad network of experts, joint teaching projects and mobility which are vital for the educational part.

Picture 14: Students proudly display their 4EU+ Certificate of Memory Studies Excellence

Education: from educational projects to sustainable learning pathways

Flagship 2 develops innovative teaching on 'Europeanness' understood in a broad sense as both institutional and grassroots perspectives as well as collective and individual facets of living in Europe and being European. It groups scholars and networks that conduct research into the past, present and future of European identity and culture. As such, it is one of the actors promoting the European model, recognised and recommended by the European Commission in its strategy for higher education institutions. Research-based education organised within Flagship 2 aims to equip students of the 4EU+ Alliance with fundamental competencies and skills that will allow them not only to thrive at the job market but also be ready to respond to the present and future challenges. Above all, it promotes values such as human rights and the rule of law, respect and tolerance for diversity and plurality as well as democratic practices. Hence, Flagship 2 addresses key societal challenges such as the preservation of a united Europe against the ever-present national extremism and protection of European values against the attempts to dismantle democracy and introduce dictatorship.

To go beyond the bottom-up innovation of 4EU+ educational initiatives funded in the first project period, Flagship 2 has developed three flexible learning pathways: European Citizenship, Multilingualism and Pluralities.

Following one of the main aims of 4EU+, the goal of Flagship 2 is to offer students a way to personalise their education by completing and enriching their curricula. This has been achieved by giving students access to educational activities co-developed by scholars from different academic institutions and to courses offered by other 4EU+ universities in general. Challenge remains to make the learning pathways fully operational. Firstly, at a formal level the question of certification of the accomplishments in the LP is still to be clarified. Secondly, to generate an adequate offer of dedicated shared courses for the LP, a systemic and institutional way to contact the relevant teaching staff is needed, Thirdly, to generate an active participation of students, an efficient institutional way to inform potentially interested groups is necessary. In these three domains, the Flagship needs support from different levels of the Alliance. In the coming years, Flagship 2 furthermore aims is to underpin the three learning pathways with research activities during the new project period and at the same time continue to create and facilitate new innovative teaching initiatives within these broader themes.

From 2022 to Spring 2024, twelve courses have been or will be conducted, financed by the Alliance. However, courses that have successfully become part of existing study programmes also continue, e.g., the course "Framework for Area Studies" based at the University of Warsaw and offered via the 4EU+ Student Portal.

Table 6: Overview of Flagship 2 educational projects

Educational project	Coordinator	Participating Universities
Europe as a discourse community: language, emotion, and argumentation	Ekkehard Felder/ Vahram Atayan	UW, UHD, SU, UniMi
Cooperative Network Philotrans	Vahram Atayan, Martine Delmas	UW, UHD, SU, CU, UniMi

SHADOW - Peer-to-peer shadowing: A pilot project for foreign language and culture learning	Elena Landone	UHD, SU, UniMi
Plurality of memories	Nicolas Maslowski	UW, UHD, SU, CU, UCPH, UniMi
Dimension Francophone		SU, CU, UniMi
College of Central European Studies	Laurent Tatarenko	UW, UHD, SU, CU, UniMi
European and Comparative Legal Studies: between Globalisation and Legal Tradition	Antonia Baraggia	UW, UCPH, UniMi
Frontiers, boundaries, thresholds: rethinking European citizenship with contemporary Latin-American migrant writers residing in Europe (2000-2020)	Katarzyna Moszczyńska-Dürst / Karolina Kumor	UW, UHD, CU
Artefacts, Creativity, Technology, and Skills from Prehistory to the Classical Period in Greece. Communities of Learning in the Past and in Higher Education Today	Diamantis Panagiotopoulos	UW, UHD, CU, UCHP
MA-PhD Course on the history and politics of European cooperation since 1919. Research skills for junior researchers.	Morten Rasmussen	UW, SU, UCHP
Visual Literacy: Understanding Images across Europe - Past and Present	Karolina Mroziewicz	UW, CU, UniMi
EducatioN for The EuropeaN TEacher of the 21st Century	Cédric Sarré	UW, UHD, SU, UniMi

Three examples of the courses that have been conducted in 2022 and 2023.

Visual Literacy: Understanding Images across Europe – Past and Present

Karolina Mroziewicz

Visual literacy can be understood as the ability to "*know how to look*" at images and to deduce meanings from them. Thanks to the combination of the complementary teaching methods adopted, 4EU+ students had the chance to experience first-hand the artistic, curatorial and educational approaches to visual literacy. The project has a form of an educational module and consists of an online class, five tutoring programmes and three in-person two-day workshops,

which were held in Milan (January 2023), Prague (March 2023) and Warsaw (June 2023). Thirty students (10 from Charles University, University of Milan and University of Warsaw) and 9 faculty members participated in the project. The main outcome of the module was five group research-artistic projects carried out under the supervision of tutors. We are working on the new, more research-based format of the educational module, involving BA, MA and PhD students.

Picture 15: The annual conference of Visual Literacy 12-13 June 2023 at University of Warsaw

SHADOW – Peer to peer shadowing: A pilot project for foreign language and culture learning

Elena Landone

The project develops student-centred learning of a foreign language-culture based on immersive peer-to-peer tandem video-collaboration. This approach is highly innovative because it combines mobile video communication with shadowing, which is an ethnographic field technique that has never been applied to didactics of foreign languages. It consists of a student shadower being video-connected with a student shadowee for everyday life live sessions (e.g., family meals, at academic lessons, etc.).

In 2023, about 20 students were involved and combined video-shadowing with short-term physical visits. We also conducted cycles of Action-research, and four scientific papers are being evaluated and published on the intercultural learning experience of the participants.

The aim is to continue with these long-term goals, especially the strengthening of the network of Departments within the Alliance that could offer the video-shadowing to their students

within their regular curricula and in compliance with the Multilingualism pathway of Flagship 2.

Cooperative Network PhiloTrans: Applied Linguistics and Translation Studies

Ekkehard Felder and Vahram Atayan

Collaborating with partner universities, the project group has successfully organised a wide range of online and blended courses, doctoral colloquiums, and workshops. In the 2022/2023 winter semester, a comprehensive portfolio of mutually recognised online courses was introduced. This included a range of 12 seminars and lectures, reflecting our commitment to providing diverse educational opportunities. From the 2023 summer semester, the project group have seamlessly integrated the PhiloTrans online courses also into the 4EU+ shared course offer. This integration has not only improved the accessibility of our courses but also streamlined the registration procedures.

During the summer semester of 2023, a PhD/MA workshop was organised by Professor Waldemar Czachur at the University of Warsaw from 21 to 24 June. Each partner university was represented by 2-3 students, strengthening a rich and interdisciplinary learning environment.

On 9-10 October 2023, a kick-off meeting in Heidelberg will mark the beginning of an innovative course offering. This unique initiative will concentrate on the translation of texts relevant to the 4EU+ Alliance, selected in collaboration with the Alliance's Secretary General. Lecturers and MA students from our partner institutions, proficient in languages such as Czech, French, German, Italian, and Polish (beyond English), will participate in this exciting venture.

In addition to maintaining a broad online offer of shared courses, they intend to offer, on a regular basis, one PhD colloquium and one joint course or seminar. These offerings will enrich the learning experience for our students and provide them with opportunities to collaborate with leading scholars in their field of study.

The PhiloTrans scheme is the basis for the structuring of the Learning Pathway Multilingualism. PhiloTrans online courses, which are also open to students from other disciplines within the Alliance through the general Shared Courses programme, and the joint activities of our cooperative network are an integral part of the pathway. Credits for courses taken at a PhiloTrans member institution/department can be more easily recognised, even for courses that are not explicitly labelled as part of the pathway.
They are currently exploring the possibility of offering an MA Double Degree (Heidelberg/Sorbonne) in Translation Studies, and compatibility between courses and programme profiles is being considered.

FLAGSHIP 3: DIGITISATION - MODELLING - TRANSFORMATION

Introduction: thematic background and goals

In Flagship 3, we use mathematical and computational methods to solve challenges related to both engineering and societal problems. Our goal is to contribute to solutions that aim not only to take technology to an unprecedented level, but also to support the transformation of society into the digital/AI age. This transformation will have a significant impact on issues such as quality of life through learning healthcare systems, Industry 4.0, and the digital transformation in society. It is also the key to tackling climate change and to using technology to achieve the EU's Green Deal targets. Students and the next generation of researchers are being trained in these technologies to be even better equipped to fulfil their societal responsibility as scientists.

Digital data, combined with intelligent analysis thereof, is the foundation of most – perhaps, in the future, all scientific disciplines. As universities of excellence in both education and research, our seven participating 4EU+ members are and must be at the forefront of this development. By pooling our expertise and ambitions, Flagship 3 aims to provide a wider and broader platform with a greater variety of educational pathways and opportunities, thereby increasing the potential and opportunities for both our researchers and students. We work in our core disciplines of Computer Science and Mathematics as well as in various fields of application, such as Physics, Chemistry, Biology, and Economics. We also more generally support any activity that involves the manipulation of models, data, and transformations. Our aims are put into practice through our projects listed below.

Flagship coordination and building the community

The established leadership team of Flagship 3 (prof. Jürgen Hesser, University of Heidelberg, and prof. Fabien Pazuki, University of Copenhagen) has focused on dividing the agenda, which is gradually growing, in the past period. The Flagship Programme Committee has been enlarged with new members replacing their colleagues and by new colleagues from the University of Geneva.

Table 7: Current list of Flagship 3 representatives (by university and alphabetically)

Name	University	Function
Kuboň, Vladislav	Charles University	PC member
Tůma, Miroslav	Charles University	PC member
Hesser, Jürgen	Heidelberg University	Flagship Lead, PC member
Queisser, Angela	Heidelberg University	Flagship Administrative Officer
Winckler, Michael	Heidelberg University	PC member
Biau, Gérard	Sorbonne University	PC member
Fresquet, Xavier	Sorbonne University	Academic staff SU
Patel, Rakhee	Sorbonne University	Administrative staff SU

Salanne, Mathieu	Sorbonne University	PC member
Pazuki, Fabien	University of Copenhagen	Flagship Lead, PC member
Sander Johannsen, Katja	University of Copenhagen	Administrative staff UCPH
Di Marzo Serugendo, Giovanna	University of Geneva	PC member
Piuri, Vincenzo	University of Milan	PC member
Vistoli, Giulio	University of Milan	PC member
Miasojedow, Błażej	University of Warsaw	PC member
Turzynski, Krzysztof	University of Warsaw	PC member

Responsibilities and contact information are kept up-to-date in the official list provided on MS Teams.

Coordination and communication

- Flagship internal: Monthly PC Meetings (online)
- Public: Development of the new Flagship website in cooperation with WG Communications.

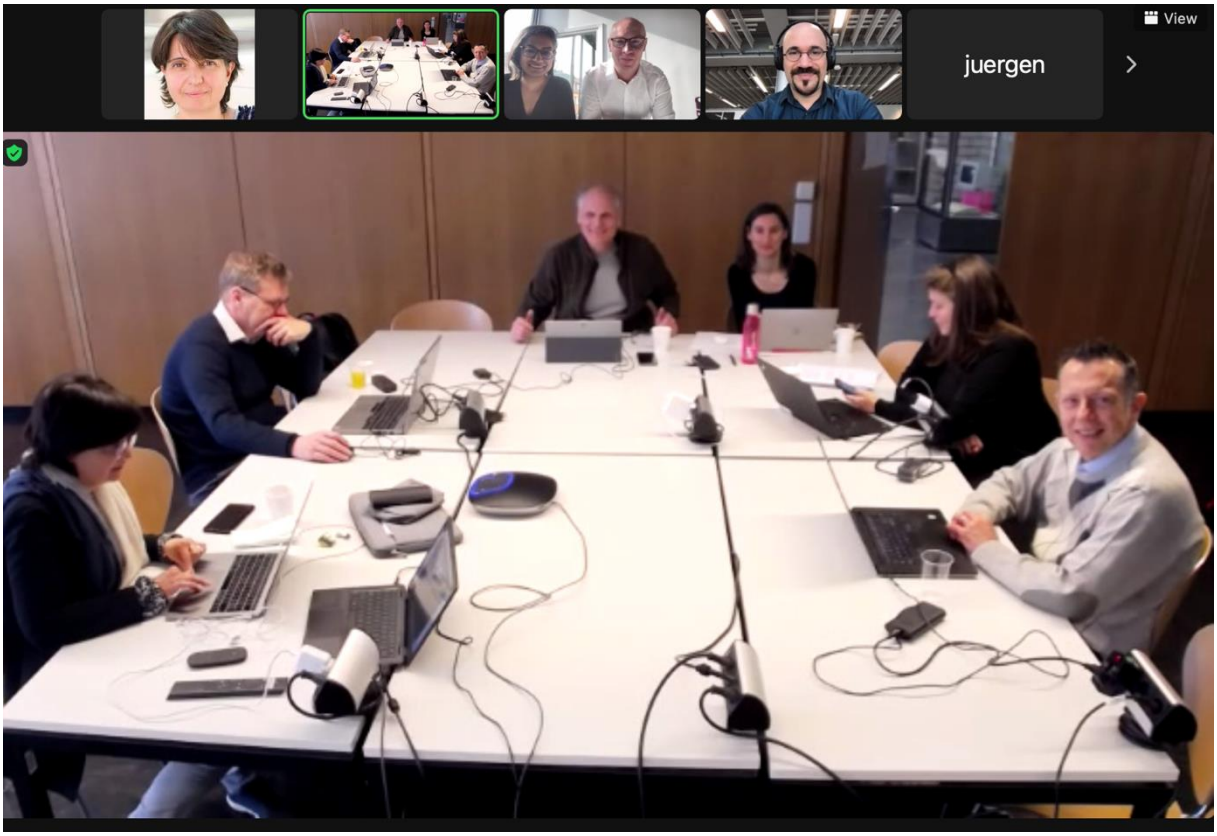
Communication at individual partner institutions:

- Charles University: Inside Flagship: Regular meetings of the Flagship are organized approximately every three months. Outside Flagship: Communication via standard channels inside faculties and departments.
- Heidelberg University: Weekly meetings organized by the local office and open to all 4EU+ representatives in Heidelberg; cross-Flagship and local office meetings every two months for matters concerning the Flagships in particular.
- Sorbonne University: Monthly meetings organized by the local office for all Flagship representatives.
- University of Copenhagen: Internal coordination and information sharing practices meetings with the vice-dean for education and in the UCPH coordination committee presided by prorector, presentations at meetings with heads of studies and heads and vice-heads of departments. Calls etc. are distributed both in a digital newsletter and by direct mail to key actors such as heads of studies. For the promotion of educational activities targeting PhD students, we rely on PhD secretaries at the relevant departments. For educational activities targeting bachelor's and master's students we collaborate with the central communications department to announce them on the study information pages on the intranet.
- University of Geneva: The University of Geneva representative is the head of an interfaculty centre (computer science centre), communication through the members of the centre reaches de facto various faculties. Additional communications directly through specifically identified colleagues in other departments or through the dean's office complete the communication. The University of Geneva international office holds regular meetings with representatives of all four Flagships.

The Flagship sees in-person meetings as instrumental for community building. Our PC meeting on 16-17 March2023, took place in person at the University of Geneva. Some PC members participated online. The agenda covered project topics, financial topics, and organisational

topics. Community building also took place during the meetings as well as informally during shared lunches and a dinner.

Picture 16: Flagship 3 meetings as instrumental for community building



Picture 17: Flagship 3 meetings as instrumental for community building

Facilitating students' engagement

Advertising of events and opportunities to the student community:

Events and opportunities within 4EU+ are actively advertised to students. For instance, students are encouraged to undertake an exchange semester at one of the 4EU+ member universities. Both students and doctoral candidates are informed about summer schools and funding opportunities within 4EU+. Through direct engagement with the student community, a Heidelberg student from the Flagship was selected to attend the SDG Summer School in Geneva and received a full stipend through 4EU+:

"Hello! My name is Raaj and I'm a Biomedical Engineering student at Heidelberg University. From 2 to 28 July 2023, I was selected for a summer school at Geneva University, Switzerland for which I received a scholarship by the 4EU+ Alliance. The highlight of the summer school was developing open-source health solutions using Artificial Intelligence and its subsets. It also involved study visits to the UN headquarters, international organizations, NGOs, etc. Lectures by experts and weekly pitching sessions of projects really helped me to broaden my knowledge. Along with the technical advantages of such an immersive program, I also got to travel around and explore a huge part of Switzerland and make loads of new lifelong friends."

Picture 18: SDG Summer School 2023

Participation in the 4EU+ Student Night in Heidelberg (10 May 2023, Heidelberg):

The Flagship presented its thematic field and course offer at the 4EU+ Student Night 2023 in Heidelberg. This event was organised by representatives of the Student Executive Committee and the 4EU+ local office in Heidelberg.

Sustainable student involvement

A group of students who participated in the 2021 edition of the Bachelor Mathematics Student Task (BMST) (see below) applied (on their own) for a Charles University minigrant in 2022 and received the funding. The project was completed in December 2022. The plan is for these students to be involved in the next edition of the BMST, which is currently being prepared. Report from the completed minigrant project.

International Student Workshop on Interdisciplinary Applications of Mathematics

In mid-November 2022, the Student Workshop on Applied Mathematics took place at CU. The three-day international event, supported financially by 4EU+ and organised by Charles University students in cooperation with students from Heidelberg University and the University of Copenhagen, brought closer the application of mathematics across disciplines.

Picture 19: 4EU+ Student Night

Cooperating with external stakeholders

In 2022, SAP and Volume Graphics were partners in the Integrative Think Tank organised by Heidelberg University.

Supporting key activities

The obtained budget 25.000EUR provided by the 4EU+ European University Alliance e. V., was allocated mainly to support mobilities with the aim, among other things, of strengthening the community (Flagship meetings).

Ahead of Flagship 3, there is also a challenge to incorporate new projects that are affiliated with Flagship 3 in the SEED4EU+ call. Flagship 3 was successful with two applications within SEED4EU+:

Quantum information and quantum many-body theory (QuantEU+)

The project aims to provide students from participating 4EU+ universities with an opportunity to learn about quantum technologies in an interdisciplinary and inter-European manner. The project has three main objectives. Firstly, it seeks to offer students access to the forefront of technological developments and research in quantum technologies, allowing them to engage in discussions with experts in the field regardless of their home institution. Secondly, the project aims to facilitate the expansion of professional networks for both students and partners involved, extending beyond the confines of a traditional Master's programme at a single university. Lastly, the project aims to promote collaborative education among partner universities by exploring innovative approaches to lecture organization, such as blended learning experiences that combine online components, group work, peer review, and in-person discussions. Given the multidisciplinary nature of quantum technologies and quantum information science, this collaborative approach is crucial, as it requires expertise from diverse fields in both research and education.

Applications of deep-learning in life sciences (DeepLife)

Project DeepLife is a comprehensive and application-oriented teaching project aimed at introducing students to advanced algorithms and applications of deep learning in life sciences. The project builds on existing complementarities between the bioinformatics master programmes of five universities and offers a new and comprehensive course covering various aspects of deep learning approaches in life sciences. The project will focus on three active application areas of deep learning in life sciences: structural bioinformatics, application of deep learning to single-cell genomics, and biomedical image analysis. The course will be conducted in hybrid mode, with online lectures by teachers from different institutions and on-site practical exercises in the form of Q&A sessions in smaller groups. The objective of the project is to bring together strong and complementary expertise in structural bioinformatics, single-cell genomics, and image analysis from different universities. The course will culminate in a 2-day on-site hackathon where mixed teams will work on small implementation projects related to selected topics of deep learning.

Education in the Flagship 3: pathways for BA and MA students, doctoral and postdoctoral training

With projects for Bachelor level students, two Master's degree programmes currently in development, and an annual Summer School for PhD and Master's students, Flagship 3 spans all levels of higher education. Our annual 'Integrative Think Tank (ITT)' connects advanced Master's students and PhD candidates with industry representatives, confronting them with real-world challenges and putting their research into practice on a societal level. Our 'Thinking AI' project brings computational research methods further into traditionally more analogue fields, while our 'Data Literacy' project is aimed at the public and at empowering individuals to make more informed decisions about their digital behaviour.

The educational offer in Flagship 3 consists of Bachelor's and Master's programmes in the relevant thematic fields at the partner universities as well as doctoral and postdoctoral training.

In addition, the Flagship facilitates student exchanges and conducts educational projects within the framework of 4EU+. These projects are described in more detail below. In 2023, some central projects are:

- Flagship Summer School (October 2023, Copenhagen)
- Thinking AI workshop (May 2023, Paris)
- VIRTCHEM workshops (March 2023, Milan; May 2023, Prague)

Educational offer: progress, achievements and new projects

Flagship Summer School

- Participating: all partners (lead: UW, organizer and host 2023 UCPH, co-organizer 2023 SU)
- Aim(s): Teach young scientists advanced methods to broaden their perspective and enhance their toolbox, explore innovative ideas to transform the traditional format of a summer school into a sustainable long-term event, and build scientist networks within 4EU+ for future project applications in education and research.
  Current progress: After editions in Heidelberg, Warsaw, and Milan, the 2023 Flagship summer school will take place in Copenhagen from 16 October to 20 October 2023. The topic is "Modeling and statistical analysis of extremes in time series".

Integrative Think Tank (ITT)

- Participating: all partners (lead: UHD)
- Aim(s): Connect advanced MA students and PhD students with the industry to translate real-world challenges into research questions.
- Current progress: After the first edition in 2022 in Heidelberg, the ITT will take place at Heidelberg University again in 2024.

Master Artificial Intelligence

- Participating: UniMi (lead), CU, UHD, SU, UCPH, UniGe
- Aim(s): This Master's Degree Pathway aims at creating experts in artificial intelligence and machine learning, capable of translating theoretical knowledge into practical applications by promoting industry innovation and building innovative solutions for the citizens.
- Current progress: The new consensus is to offer this programme as a 'double degree pathway' to avoid confusion with a 'joint programme'. There has been progress in the preparation of the framework agreement and comparison of curricula between the University of Milan and Charles University. It may be possible that the State Final Examination in the Czech Republic, a major obstacle for the pathway, will be waived for this programme. The next step is to extend the comparison of curricula to Heidelberg University. In collaboration with the Alliance Referee for Quality Management of 4EU+, provisions on quality management of the project were included in the framework agreement.

Thinking AI

- Participating: SU (lead), UCPH, UniMi
- Aim(s): Invite people to learn about the ethical, sociological, and legal implications of AI technologies. This project is designed specifically as a service to society.

- Current progress: The Thinking AI courses are still available online to all, 100 students are registered (Feb 2023). The procedure allowing ECTS to be awarded is in progress. A follow-up workshop for PhD students was held in May 2023 at SU on the topic of "Societal Impact of AI". PhD students and researchers from the following partners attended: Sorbonne University, University of Milan, University of Warsaw, Heidelberg University, and Charles University. The second edition will take place at another 4EU+ member, potentially at the University of Copenhagen.

Picture 20: Thinking AI, PhD workshop, Paris, May 2023.

Heidelberg PhD student Marcel Kückelhaus (mid-center) provided the following testimonial for the 4EU+ Instagram channel.

"Hey there, my name is Marcel and I'm a PhD student @uniheidelberg. #phdlife is full of challenges and amazing opportunities. Quite recently, I was able to participate in a workshop at the Sorbonne Centre for Artificial Intelligence @sorbonne_univ where I met a group of young researchers from four different countries and various scientific fields. But we all are concerned with the same topic #AI.

Being a #phdstudent, there is the risk of sitting alone at your desk at home, losing yourself in your own research. #4euplus gives students and PhD students the opportunity to make the best of your time at university. Studying is a phantastic and unique experience. Being able to go abroad and get to know people from different backgrounds enriches this experience even more.

The workshop #ThinkingAI gave me a lot of new insights into my research topic, new motivation that what I do really matters, and maybe even some new friends! Coming together from all over #Europe, exchange ideas and views, support and help each other to develop a topic even further - that's part of the European dream. "

Data Literacy

- Participating: UCPH (lead), UW, SU, UNIMI, CU (Data Literacy MOOC); UCPH (lead), UHD, UNIMI, CU (Cross campus online course)
- Aim(s): The aim of these two projects is to support the development of digital and data literacy for students at the 4EU+ universities
  Current progress: A MOOC in Data Literacy has been developed and is available on Coursera (+2500 enrolments, average review 4.4 out of 5).

Master Mathematical Modeling

- Participating: CU (lead), UHD, SU, UW
- Aim(s): Provide a 4EU+ double degree pathway on MA level, allowing students to pursue a programme that best fits their educational goals.
- Current progress: There were some formal discussions with persons involved in accreditation at the level of the rector's office. Some items have been cleared up formally. The next step will include agreement preparation and its communication with our partners. We need to emphasize that this project seems to relate to such activity in Computer Science and we plan to exploit best practices and experience obtained by close communication inside the Flagship.

Research-based teaching: interdisciplinary projects for MSc students (key project in development)

@SWitCH: Crash Course on Data Analytics for Students of Social Studies and Humanities

- Participating: CU (lead), SU, UW
- Aim(s): The aim of the project is two-fold: first, to increase the competitiveness of European higher education by creating a new educational research-based teaching partnership of 4EU+ universities. Second, to introduce a new interdisciplinary crash course aimed at improving the digital literacy of SSH students by exploring the potential of existing data and tools of the participating universities.
- Current progress: The course is available here. It consists of 11 recordings made in 2022, and 4 more recordings were added in 2023.

The 4EU+ Network of Bioinformatics Master Programs

- Participating: SU (lead), CU, UHD, UniMi, UW
- Aim(s): The network aims to establish permanent exchanges between the 4EU+ bioinformatics master programmes and construct new student curricula based on the programmes' complementarities.
- Current progress: A student mobility was carried out in February 2023.

Quantum Mechanics

- Participating: UCPH (lead), UniMi, UW (first and second editions), UniGe, CU, SU and UHD (second edition)
- Aim(s): The main objective is to offer 4EU+ students the possibility to learn about quantum technologies in an interdisciplinary and inter-European manner and to discuss with experts in the field irrespective of their home institution.
- Current progress: The project received funding from the SEED4EU+ call for a second edition of the course with more partners, so that all universities (except Paris-Panthéon-Assas) are involved. The course will run in the spring semester of 2024.

VIRTCHEM project: The VIRtual Immersive Education for CHEMistry and Chemical Engineering

- Participating: UniMi (lead), CU, SU
- Aim(s): Provide an innovative training course in the field of chemistry and industrial chemistry utilising different types of virtual reality (VR) software for an immersive experience within the reproduction of chemistry laboratories, an industrial chemistry plant, and investigation of structure of molecules.
- Current progress: The second edition ran with a workshop in Milan in March 2023 and a workshop in Prague in May 2023.

Flagship 3 Learning Pathways

Learning pathways in Flagship 3 are designed as double degree Master pathways. Two such pathways are currently under development. The details about the progress are listed above in the section dedicated to the educational activities and their progress and achievements. The pathways are:

- Master Artificial Intelligence
- Master Mathematical Modeling

Beyond the Master pathways, on a larger scale, the Flagship sees learning pathways as individual lifelong learning experiences. This encompasses the choice of a disciplinary BA programme, a specialized MA programme, possibly a doctorate, and continuing education during one's professional life and beyond. In this vein, courses offered by the Flagship, e.g., MOOCs, Summer Schools, and training for young researchers should eventually serve as micro-credentials or plug-in modules amounting to a specialized certificate to serve the specific needs of students, researchers, professionals, and individuals in society in general.

- 26-28 September 2023: Statistical Methods for Scientists (PhD course). Two professors from UCPH will give a three-day intensive course at UHD for PhD students from the quantitative sciences who do not have a background in mathematics. As there are some prerequisites, a preparatory course at UCPH (August 2023) is also open to the participants.

Research in the Flagship 3

In the Flagship 3, research is most supported by stimulation of young scientists, by activities tailored for doctoral candidates, by focus on research-based education, but also by projects supported within the framework of CU or UW mini-grants, such as:

Regulatory Sandboxes: Mirage and Reality in Public Law

Participating: CU, UCPH, UniGe, UniMi

The proposed project aims to boost meaningful mobility through visits of Prague-based participants at the prestigious universities abroad. At the same time, the project also aims to increase inclusiveness and balance at a European level through the establishing of a robust network of researchers, being active in the field of the law of new technologies at the Charles University, University of Copenhagen, University of Geneva and at the University of Milano. Within this project, academicians and postgraduate students writing their dissertations on various aspects of the law of new technologies will address the feature of regulatory sandboxes.

Visiting Professorships affiliated to the Flagship 3

As part of its long-term commitment to nurture collaboration in teaching and research, the 4EU+ Alliance has launched the 4EU+ Visiting Professorship initiative, funded by the 4EU+ Association budget.

The call was open to all junior and senior academics who wish to become visiting academics to perform common educational and research activities in all scientific areas and disciplines that promote the 4EU+ Flagships' educational and research strategies.

A successful candidate affiliated to the Flagship 3, Krzysztof Wohlfeld from the University of Warsaw will become a visiting professor at the University of Geneva. His project targets two primary goals. The first aim of Dr. Krzysztof Wohlfeld's engagement with Prof. Louk Rademaker's group is to cooperatively decipher the exotic properties of transition metal dichalcogenides (TMD) on Moiré superlattices. The TMDs are innovative, highly adaptable materials that have recently instigated a "revolution" in materials science. The second aim is to engage Bachelor, Master, and PhD students in jointly led projects, creating a 4EU+ research team focused on these novel connected materials.

FLAGSHIP 4 ENVIRONMENTAL TRANSITIONS

Introduction of the Flagship

Thematic focus and social relevance

Flagship 4 *Environmental Transitions* (formerly *Biodiversity and Sustainable Development*) addresses pressing challenges such as resource scarcity and climate change through the integration of education and research. High-quality research underpins the training of future specialists, while excellent education ensures the sustainability of the research community.

The Flagship focuses on:

- Advancing multidisciplinary research across natural sciences, environmental studies, social sciences, and the humanities.
- Creating an inspiring learning environment with joint programmes, exchanges, summer schools, and intensive courses that promote teaching-through-research.
- Supporting environmental education for society by offering solutions to complex interactions between society, economy, and the environment, and by communicating these effectively to diverse audiences.

Flagship governance and organisational structure

Flagship 4 is jointly coordinated by two Flagship leaders (academic coordinators) from two different universities: Sorbonne University (Prof. David Siaussat) and University of Geneva (Prof. Geraldine Pfeiffer). One Flagship assistant from Sorbonne University (Lilia Brimaud) supports the work of the academic coordinators. The strategic issues are discussed within the Flagship 4 programme committee consisting of 12 members (including Flagship leaders), with two representatives from each 4EU+ university. A specificity of our Flagship is the inclusion of members of the administration, with an administrative representative from each university, bringing the total number of representatives to 18.

The two Flagship leaders and the assistant have regular exchange by emails and meet regularly, through online calls scheduled once a month, as well as in additional occasions when needed. They communicate by email and use shared documents. They participate in all 4EU+ meetings to represent the Flagship and transfer the information to the F4 committee. This includes meetings such as discussion with the Management Committee of the Alliance and meetings devoted to the 1CORE project (1CORE WP3 plenary, WP5 student portal, etc.).

They also actively transmit all information coming from the 4EU+ Alliance to the group. If the meetings are accessible to wider audience, the information is communicated within the committee so that F4 members can attend certain meetings.

The F4 committee meets on average once a month. Meetings take place online. Every year a physical meeting takes place during the Alliance's Annual Meeting. The agendas and subjects are based on the news within the 1CORE topics to be pursued or discussed.

It should be noted that there were several personnel changes within the composition of the F4 committee this year. Therefore, some meetings were necessary to introduce people and explain

the matters. Moreover, co-leadership is relatively recent thanks to the entry of Geneva into the Alliance. Géraldine Pfeiffer agreed to become a co-leader during the period.

General strategy

During the last year (November 2022 – October 2023), the focus of Flagship management was on two main issues.

Firstly, there was a general discussion regarding the articulation of Flagships' position within the 4EU+ Alliance and the mission statement, with an emphasis on the need to formulate long-term strategy, to ensure sustainability of existing and developing educational activities in 1CORE project and to improve the communication between the partners and the various bodies of the Alliance.

In addition, our meetings addressed questions related to the actions of the Flagship for 1CORE and expectations regarding the student portal or the new website.

Flagship community building

The Flagship 4 committee maintains contact with diverse communities working on environmental transitions, with each partner applying its own methods to share and gather information. Workshops have been organised to discuss emerging teaching projects ahead of Alliance calls, though further development is needed to better address the wide range of disciplines involved. At the university level, regular meetings between Flagships and local 4EU+ offices support coordination, exchange of experience, and identification of good practices and challenges.

Involving the students

The Flagship 4 committee has so far worked on the development of teaching and research activities in which students and doctoral candidates from 4EU+ universities can learn, meet and cooperate. The doctoral students were involved in the development of the educational project to tailor the course to their needs and interests.

Cooperating with external partners

To date, there is also no work developed with partners by the Flagship 4 committee directly. Collaborations or partner names sometimes emerge in discussions but are not yet formalized in the Alliance's collaborative programmes. The activities currently being worked on do not provide for the development of partnerships either, but nothing prevents us from studying the question in the next stages.

Budget for 2023

A budget of 25,000 euros for 2023 was provided in the spring by the 4EU+ association to each Flagship. This budget came in response to a request to fill the absence of financial support necessary for the sustainability of Flagship activities. A reflection was therefore carried out by the members of the committee to define the financial commitments for 2023. This work could not be fully completed because of the lack of definition of the mission statements of the Flagships desired by the Alliance. Moreover, the ongoing institutional reorganization and reconstruction have impeded the members' projection regarding future developments and activities.

Given the current situation and the announcements of meetings to address the problems of vague framing, the committee decided to carry out a half-day workshop before the Annual Meeting in November to discuss the strategy and activities in light of future developments.

The rest of the budget should be carried over to 2024 to finance actions that could not be decided in 2023.

Research

Research forms the basis of high-quality; it strengthens teaching by bringing advanced knowledge into the classroom, while also attracting PhD candidates and engaging young researchers in joint initiatives. In this way, research contributes directly to excellence in education and promotes closer academic integration across the Alliance.

CORE+: Chemical and biophysical investigation Of Ribosome Emergence:
CORE+ is a CU mini-grant led by Klára Hlouchová in partnership with Sorbonne University and the University of Milan. The goal of CORE+ is to explore the chemical and biophysical basis of the emergence of protein-RNA interaction to form the ancestral ribosome. By connecting interdisciplinary expertise in three 4EU+ universities, it may also seed the development of a joint teaching module about prebiotic studies, open to contribution from other nodes, which is now missing.

From Fungal Morphology to Genotype:
This CU mini-grant is in partnership with the University of Copenhagen (Jacob Heilmann-Clausen) and the University of Warsaw (Julia Pawłowska) and it is led by Ondřej Koukol. This mini-grant is focused both on research and education.

In 2023, Summer School took place in Góry Stolowe, National Park that has been long overlooked in fungal diversity research. Participating students were trained in the field sampling and phenotype-based identification of fungi coupled with analysis of DNA sequences.

Remote Sensing of the Cryosphere Dynamics under the influence of Climate Change
This CU mini-grant is in partnership with Heidelberg University (Marcus Nüsser) and the University of Milano (Prof. Irene Maria Bollati) and it is led by Ing. Lukáš Brodský, Ph.D. This mini-grant focuses on research and education. The project aims to deepen collaboration with partner universities in Heidelberg and Milan on multidisciplinary research linking remote sensing and artificial intelligence on the cryosphere, geomorphology, geohazards and climate change.
The main planned activities cover arranging joint workshops to elaborate the research topics (involving researchers, PhD, and master students). We have already identified suitable glacierized areas in the Alps to study the research topics.
Ruderalization and invasive species spread as a consequences of land abandonment in European landscapes after 1990: detection and assessment using remote sensing
This mini-grant led by doc. RNDr. Lucie Kupková, Ph.D., Department of Applied Geoinformatics and Cartography of Charles University, establishes a partnership with 4 other 4EU+ Universities: Heidelberg University (Dr Katharina Anders), the University of Copenhagen (Alexander Prishchepov, Ph.D), the University of Geneva (Dr. Gregory Giulian) and the University of Warsaw (Dr. hab. Bogdan Zagajewsk). This project encompasses both research and educational elements.
Tomorrow's research and science innovation in students' start-ups

This event, organised within a student mini-grant project, brings together students from the 4EU+ Alliance universities to let them share and exchange information and ideas about how to develop an original start-up idea. The 1st 4EU+ Tomorrow's Research and Science Innovation in student start-ups (4EU+Transition) took place in Prague on the 10-11th November 2022. The second edition of the event will take place at the University of Geneva on 9 and 10 October 2023. The following activities are planned during the session in Geneva:

- learn how to develop an original start-up idea,
- connect with an international community and engage with a diverse community of students, entrepreneurs, and innovators from the 4EU+ Alliance universities,
- build connections, exchange ideas, and enhance collaborations,
- explore innovation hubs and accelerators and learn how they support start-up ideas within different universities,
- hear from successful start-ups and get inspired by the stories, journeys and experiences of their founders.

Education

Extension of competences and knowledge-based education of natural hazards and environmental change:

This educational project brings together three Alliance universities. It is led by Charles University in partnership with the Heidelberg University and the University of Milan.
The main objective is to extend trilateral cooperation in the educational process at Master and PhD level focused on sharing competences in modern analytical methods and complementary technologies addressing key challenges in the research of impact of environmental change and associated natural hazards.

Collegio Futuro - A college for future leaders of a sustainable European future:
Collegio Futuro is a training for doctoral candidates that involves five Universities of the 4EU+ Alliance: Sorbonne University, Charles University, Heidelberg University, University of Milan and University of Warsaw.
The project aims to strengthen competencies in interdisciplinary communication and to promote the communication of scientific findings to society. It combines challenge-introducing impulse lectures with inquiry- and project-based learning in multidisciplinary groups. Young researchers receive professional and tailored training from senior researchers and have the opportunity to establish their network and generate novel concepts and research ideas.

Use of genomic editing through CRISPR / Case for the protection of species of agricultural interest – CRISPRes:
This educational project brings together three Alliance universities. It is led by Carlo Pozzi from the University of Milan in partnership with the University of Copenhagen and the Charles University.
The project is based on one lab workshop (LW), carried out at UniMi, and two active learning-based workshops (ALW), conducted by UCPH and CU personnel via eLearning. A blended approach can be envisioned also for the lab workshop, if required by social distancing measures.

ABC in biodiversity:
This educational project brings together three Alliance universities. The project is led by the University of Warsaw in partnership with Sorbonne-University and Charles University.

This modular transdisciplinary student-centered educational curriculum in biodiversity aims to support students in navigating through contemporary environmental crisis and foster their involvement and leadership in finding innovative solutions to problems they will face in their lives. Our vision is to achieve this by providing an opportunity to deepen understanding and broaden perspective

Biodiversity, sustainability in the agro-food system 4EU+ Microcredentials (MICROBS):
MICROBS is a project that involves five Universities of the 4EU+ Alliance: Sorbonne University, Charles University, the University of Copenhagen, the University of Warsaw and the University of Milan, which is the lead beneficiary of the project.
The project aims to set up a dynamic and multidisciplinary new curriculum that will offer specific micro-credentials to students in each partner university. The topics addressed will cover biodiversity and the sustainability of food systems, and their implication in society.

Manage and Organize Virtual Excursions (MOVE):
MOVE is an innovative project focused on designing online virtual excursions in Geoscience, involving master students in a two-year endeavour. The project includes various tasks such as defining scientific themes, organizing webinars, refining itineraries, creating films and outreach products, and running the excursion. Through MOVE, students develop critical thinking skills, active learning, and engagement in outreach activities.

A Gate Opener for a Master Joint Degree on Environment and Development:
This educational project brings together three Alliance universities. Carlo Pozzi from the University of Milan leads the project in partnership with the University of Copenhagen and the University of Warsaw.
EnviroGate is a project focused on establishing a Joint Master Degree (JMD) in Global Environment and Development (GED). The project involves teacher mobility to design and develop new joint courses, as well as student mobility to create an innovative JMD. Over a period of two years, this JMD delivers comprehensive 120 ECTS, with a focus on interdisciplinary problem-solving in environment and development management. EnviroGate aims to secure funding for teacher mobility and facilitate the participation of 30 students from three institutions.

The 1CORE project has provided essential support to establish and sustain a group of experts dedicated to developing joint study programmes. This task force prepares guidelines and supports the teams working towards joint programmes, some of which have already expressed readiness to participate in future Erasmus Mundus calls.

MERGED: Erasmus Mundus Joint Master in Global Environment and Development
The inaugural cohort of MERGED students has recently commenced their studies. The programme's description remains unaltered. MERGED's overarching objective is to produce globally competitive graduate's adept at identifying critical facets of renewable natural resource management for economic, environmental, institutional, and societal advancement, as well as devising apt and viable solutions. We aspire to offer the inaugural joint degree among our partner institutions and the 4EU+ European University Alliance. MERGED is jointly provided by the University of Copenhagen, Faculty of Science; the University of Warsaw, Centre for Environmental Studies and Sustainable Development; and the University of Milan, Department

of Agricultural and Environmental Sciences. All of these institutions are integral members of the 4EU+ Alliance, wholeheartedly committed to concurrently strengthening pedagogical collaboration, elevating teaching quality, and expanding cooperative initiatives. Our collaborative efforts extend to a robust global network of Associate Partners. MERGED operates on a global scale, advancing a European perspective on the environmental-development nexus, augmenting its allure through the programme's repute, pioneering pedagogical methodologies, comprehensive cross-national and cross-institutional synergy, and the career trajectories of its graduates.

Flagship 4 Learning Pathway

Biodiversity, Ecology and Evolution:
We have launched the Biodiversity, Ecology and Evolution learning pathway which starts now:
The Biodiversity, Ecology, and Evolution learning pathway is part of the educational offer of the 4EU+ Alliance, with the aim to mitigate current limitations. By promoting data literacy, critical thinking and entrepreneurship, we want to educate biodiversity researchers and policymakers for the future on common biodiversity monitoring standards that transcend national borders. Through innovative teaching and learning methods, we intend to benefit from a wide range of experts in specific taxonomic groups from different universities. This approach utilizes modern analytical tools that often require an interdisciplinary approach, within an international environment.
Upon completion of an educational pathway, students will receive a certification in the form of the Letter of Attendance with a supplement listing the skills and abilities they have acquired. The Letter of Attendance is issued on behalf of the 4EU+ European University Alliance.

Dual Degree on Ecology and Evolution:
We are currently developing a dual degree between the University of Warsaw and the University of Copenhagen in Ecology and Evolution.

Longer-term perspective

The joint and shared courses of Alliance's member universities, emerging either from educational projects or from regular courses within the existing programmes, are evolving into joint education modules, joint Master programmes and learning pathways.

M.Sc. level

Five of the 4EU+ members (CU, UCPH, UHD, UniMi and UW) are preparing an application for a joint M.Sc. program **"Master in European Environmental Economics & Management (M3EP)"**, to be submitted under the Erasmus Mundus Joint Master Programme (EMJM). The endeavour emerged from the 4EU+/F4 educational project (2020/F4/11) "*Towards a European School of Environmental Economics & Policy (EuSEEP)"* which conducted two Spring Schools, one in April/May 2021 and a second in April/May 2022, on the topic of "The Making of EU Environmental Regulation". The M3EP mission is to educate future environmental policy professionals about the conceptual foundations, analytical skills and methods, and integrated problem-solving techniques of economics and policy. This education will equip them to

effectively design, implement and analyse policy solutions to the complex environmental challenges facing European and international societies today. The M3EP Partners submitted an application to the European Commission in February 2023 for an Erasmus Mundus Design Measures. This application resulted in a positive funding decision at the end of July. The submission of a joint application for EMJM is planned for February 2025.

PhD level:

A college for doctoral candidates, Collegio Futuro, aims to promote interdisciplinary communication and research, encouraging young scientists to communicate science to the public. The goal is to provide a regular course for doctoral candidates on a yearly basis that will complement their research-discipline-specific competences with the ability to discuss research questions in an interdisciplinary setting.

CONCLUSION

This report provides a comprehensive overview of the progress achieved within the 4EU+ Flagships between November 2022 and October 2023. By mapping each Flagship's thematic focus, societal relevance, and objectives, it delivers not only a record of activities but also a deeper understanding of the Flagships' missions, their evolving governance structures, and their capacity to engage students and stakeholders. In this sense, the Annual Portfolio is more than a reporting exercise – it is a recurring product of the 1CORE project designed to capture, connect, and communicate the development of the Alliance's core pillars.

Looking ahead, several key considerations emerge from this year's portfolio. First, the Flagships need to strengthen their long-term vision by balancing the sustainability of existing activities with the effective implementation of new initiatives. Second, the relevance, focus, and impact of activities should be continuously assessed to ensure alignment with the Alliance's evolving priorities. The upcoming 4EU+ strategy for 2025–2035 will provide the framework for this reflection, and the Flagships will play a central role in shaping and delivering on its ambitions.

The evidence and experiences collected in this report will therefore inform further discussions with stakeholders and contribute to the Alliance's strategic consolidation. They highlight not only what has been accomplished so far but also the pathways for future growth.

In conclusion, the Annual Portfolio underlines the shared commitment of the 4EU+ universities to educational innovation grounded in research-based learning. It demonstrates the indispensable role of the Flagships in building a sustainable, integrated, and forward-looking European higher education landscape – and affirms the added value of the 1CORE project as the foundation enabling this progress.

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ANNEX

The list of shared courses affiliated to the Flagships.

Flagship 1

Course title	ECTS	Level of study	Semester	University
Allergology	4	BA, MA, PhD	summer	CU
Molecular imaging	2	MA, PhD	summer	
Radiological Anatomy	1	MA, PhD	summer	
Selected chapters of immunopathological conditions	2	BA, MA, PhD	summer	
Seminar: Longevity studies	0	PhD	summer	
Surgery case reports - SS	4	BA, MA, PhD	summer	
Applied Embryology	4	BA, MA, PhD	winter	
Applied Histology	4	BA, MA, PhD	winter	
Brain - mechanisms and pathophysiology of its higher functions	5	BA/MA/ PhD	winter	
Gynaecologic cytology	3	BA, MA, PhD	winter	
Seminar: Longevity studies	0	PhD	winter	
Technical equipment in radiology, nuclear medicine and radiotherapy	2	BA/MA/ PhD	winter	
North American City	2-5	BA/MA	winter	UHD
The situation of people with dementia in general hospitals. Current state of knowledge, opportunities and challenges	1	BA/MA	winter	
Schools and Theory	2-5	MA/PhD	winter	
Biodiritto	9	MA	summer	UM
Global Social Inequalities	9	MA	summer	
Molecular Biophysics	6	MA	summer	
Physical and Rehabilitation Medicine (part of Bone and Joint Diseases)	1	MA	summer	
Biotechnologies: experimental models in research	12	MA	winter	
Clinical practice 6th year - Exercise and sport medicine	1	MA	winter	
Rehabilitation Medicine in Europe to face disability growth due to aging and medicine improvement	1	MA	winter	
Structural and Mechanistic Enzymology	6	MA (2nd year)	winter	SU

Flagship 2

Authority in Education	2	BA/MA	winter	CU
Classic works of mathematics education	4	MA	winter	
Computing in Education	6	BA/MA	winter	
Czech Constitutional Law	6	BA/MA//PhD	winter	
Czech Culture through the Prism of Czech Humanists, Thinkers and Artists	3	BA/MA/PhD	winter	
Development of critical thinking in teaching French	15	BA/MA/PhD	winter	
Equity in Education	6	BA/MA	winter	
Financial Law	6	BA/MA/PhD	winter	
Francophone Literatures - Literature of Quebec	5	BA/MA/PhD	winter	
French Literary Criticism I	3	BA/MA/PhD	winter	
Fundamentals of Law and Professional Ethics I	5	BA/MA/PhD	winter	
Head-Hunting, Cannibalism and Colonialism in Oceania	5	BA/MA/PhD	winter	
History of mathematical thinking	5	MA	winter	
Human Rights: Justice, Reason, Intellect and Participation	5	BA/MA/PhD	winter	
Intellectual Property Law	3	BA/MA/PhD	winter	
Intermediate Latin I	3	BA/MA/PhD	winter	
Introduction into Central European Legal Culture	3	BA/MA/PhD	winter	
Introductory Latin Course I	3	BA/MA/PhD	winter	
Israeli Minorities: Ethnicity, Gender and Religion	5	BA/MA/PhD	winter	
Jewish history and literature through the prism of translation	3	BA/MA/PhD	winter	
Late Byzantine and Post-Byzantine Thought	5	BA/MA/PhD	winter	
Literature for Children and Youth	6	BA/MA/PhD	winter	
Moving pictures and the Balkans - Yugoslav Cinema	4	BA/MA/PhD	winter	
Multiculturality in Education	2	BA/MA	winter	
Natural Resources Law	6	BA/MA/PhD	winter	
Philosophy and Medicine	3	BA/MA/PhD	winter	
Pragmatics in Czech	5	BA/MA	winter	

Psycholinguistics	5	BA/MA	winter	
Quality in Education	6	BA/MA	winter	
Studies of the ICC Case-Law	3	BA/MA/PhD	winter	
The World of Documentary Film	5	BA/MA/PhD	winter	
Theology of Education	5	BA/MA/PhD	winter	
Business Law and International Business Transactions	6	BA, MA, PhD	summer	
Cities of Exile: Prague and Zürich, Literature, History and Politics	5	BA, MA, PhD	summer	
Comenius: Teacher of Nations	5	BA, MA, PhD	summer	
Computing in Education	6	BA, MA	summer	
Czech for heritage language learners	3	BA, MA, PhD	summer	
Equity in Education	6	BA, MA	summer	
Ethics for Social Work	5	BA, MA, PhD	summer	
European cultural heritage - music	5	BA, MA	summer	
Everyday Life Under Socialism: Strategies and Practices A	4	BA, MA, PhD	summer	
Everyday Life Under Socialism: Strategies and Practices B	6	BA, MA, PhD	summer	
French Literary Criticism II	5	BA, MA, PhD	summer	
French Literature and Cinema	5	BA, MA, PhD	summer	
History of the Spanish theatre - from its beginnings to the 20th century	5	BA, MA, PhD	summer	
Human Rights and Medicine	5	BA, MA, PhD	summer	
International Administrative Law	3	BA, MA, PhD	summer	
Literature of French-speaking world	4	MA	summer	
Media and migration	6	MA	summer	
Philosophy as a Way of Learning	5	BA, MA, PhD	summer	
Philosophy of Existence and Medicine	5	BA, MA, PhD	summer	
Pragmatics in Czech	5	BA, MA	summer	
Psycholinguistics	5	BA, MA	summer	
Theory and practice of the European convention on human rights	3	BA, MA, PhD	summer	

The Twentieth Century in European Memory: Themes and Approaches in Contemporary European Memory Studies	6	BA, MA, PhD	summer	
The World of Television	6	MA	summer	
Magical Challenges	3	MA/PhD	winter	UHD
Introduction to Psycholinguistics	6	BA	winter	
Introduction to German as a Second Language	4	MA	winter	
Heidelberger Moderne (1910–1933). Comparitive Perspectives on a „Weltdorf“	6	MA	winter	
Reading (German title: Lesen)	6	MA	winter	
Language Production in Comparative Linguistics	6	MA	winter	
Introduction to Comparative Literary Studies	4	MA	winter	
Buddhism and popular culture		MA	winter	
U.S. Economic Policy		BA/MA	winter	
Introduction to the Theories and Methods of Linguistics and Translation Studies	2	BA	winter	
Emotions in discourse	8	MA	winter	
Text linguistics and translation (Focus: Italian)	8	MA	winter	
Text linguistics and translation (Focus: French)	8	MA	winter	
Advanced topics in translation studies - Translation quality, critical evaluation and justification of translation decisions	5	BA	winter	
Technical foundations of professional translation I	2	BA	winter	
Translation and Culture - Ideology, evaluative language and intervention in translation	8	MA	winter	
European Linguistics Centre (EZS) Colloquium of the Faculty of Modern Languages: Multilingual perspectives in linguistics	2	MA/PhD	winter	
Montagskonferenz. Public Online Conference at the IÜD		BA/MA/PhD	winter	
Translation in research and professional practice	2	BA/MA	winter	
Current issues in Linguistics and Translation Studies	2	MA	winter	
Advanced Translation II (English to German)	3	BA	summer	
Annotation and Analysis of Speech Acts Patterns in Multilingual Text Corpora	10	MA	summer	
Cosmic Religion - The New Space Race	7	MA, PhD	summer	
Current issues in Linguistics and Translation Studies	2	MA, PhD	summer	

European Linguistics Centre (EZS) Colloquium of the Faculty of Modern Languages: Multilingual perspectives in linguistics	2	MA, PhD	summer	
Evaluation of Machine Translation systems in task-critical domains	10	MA	summer	
Introduction to German as a second language	4	BA, MA	summer	
Introduction to psycholinguistics	6	BA	summer	
Methods and approaches to corpus linguistics, corpus-based lexicography and terminology	8	MA	summer	
Minorities in Japan	10	MA	summer	
Monday's Conference		BA, MA, PhD	summer	
Post-editing	3	MA	summer	
Principles and applications of Machine Translation and corpus-based methods for translators	2	BA	summer	
Research colloquium: Machine Translation applications and evaluation for creative and literary texts	3	MA, PhD	summer	
Semantics, Pragmatics, Translation (French/Italian)	8	MA	summer	
The endocrine system	2	BA, MA	summer	
Wealth, freedom and "American values": Perspectives on philanthrocapitalism in the U.S. from the study of religion	6	BA	summer	
International Commercial and Investment Arbitration	6	BA/MA	winter	**UM**
Trade liberalisation and labour rights	6	BA/MA	winter	
Gender Justice	6	BA/MA	winter	
Women in tech: new frontiers of gender-related rights and artificial intelligence	3	BA/MA	winter	
English Culture I and II / Cultura Inglese I e II	6	MA	winter	
Diritto pubblico degli stati europei	9	BA	winter	
Società e diritti globali	6	MA	winter	
Policy Design Analysis & Evaluation	12	MA	winter	
World Society	9	MA	winter	
International Economic Law	6	MA	winter	
Tutela comparata dei diritti	6	MA	winter	
Lingua tedesca LM	6	MA	winter	
Lingua spagnola 3 LT	9	BA	winter	
Lingua spagnola LM1-LM2	9	MA	winter	

Letterature francofone	9	MA	winter	
German Linguistics / Linguistica tedesca	9	BA/MA	winter	
Teaching German as foreign language / Didattica della Lingua tedesca	6	MA	winter	
Human Development and Mobility in a Changing World	9	MA	winter	
Diritto internazionale degli scambi e della proprieta intellettuale	9	BA	summer	
English Business Communication	9	BA	summer	
Globalization and Cultural Diversity	6	MA	summer	
History and politics of North Africa and the Middle East	9	MA	summer	
Human Rights At Work in International and Comparative Law	9	MA	summer	
International Human Rights Law	9	BA	summer	
International Trade Law	9	BA	summer	
Political Science	6	MA	summer	
Social and Political Attitudes	9	MA, PhD	summer	
International human rights and humanitarian law advocacy clinic	6	MA	summer	
Anglophone Cultures I and II	9	MA	summer	
Anglophone Literatures	9	MA	summer	
EU Law on Business and Human Rights	6	BA, MA	summer	
European Company Law	6	BA, MA	summer	
European Labour Law	6	BA, MA	summer	
Lingua italiana e comunicazione	9	BA, MA	summer	
Teaching Spanish as A Foreign Language	6	MA	summer	
Diritto del commercio internazionale	9	BA	summer	
Economic and Social Regulation of Global Workforce		MA	summer	
Global Public Policy and Knowledge Society	6	MA	summer	
International Economic Law	6	MA	summer	
World Society	9	MA	summer	
Créations dépaysées Artistes, écrivains, cinéastes d'Europe centrale		BA, MA	summer	**SU**
English B1+ Online	3	BA	summer	
English B2+ Online	3	BA	summer	
English C1 Georgian Cities	3	BA	summer	

"La littérature dans lénseignment-apprentissage du FLE. Quelle (s) place (s)? Quel (s) usage (s)?"	3	MA	summer	
Le judaisme et le christianisme dans l'Antiquité: textes et histoire	3	BA	summer	
L'Europe centrale apres 1989 / East Central Europe since 1989	3	BA, MA	summer	
Thinking the samizdat, 3. season: Samizdat, what beyond?	3	MA, PhD	summer	
TOEIC Training program	3	BA	summer	
African cultural linguistics	3	MA	summer	UW
Business Communications	4	BA, MA	summer	
Contemporary Rhetoric Studies	3	BA, MA, PhD	summer	
Culture and Politics: Visual Politics (conducted together with the University of Vienna)	4	BA, MA, PhD	summer	
Culture, Democracy, International Affairs through the lens of Area Studies	3	BA, MA	summer	
Geopolitical Tuesday II	4	BA, MA, PhD	summer	
Glottodidactic Teacher's Competencies 2 - The Third Stage of Education	3	MA	summer	
Glottodidactic Teacher's Competencies 3 - The Third Stage of Education	3	MA	summer	
History of English Language and Lexicography	2	BA	summer	
Language and culture teaching in the era of globalisation	8	BA, MA	summer	
Motor control	2	MA	summer	
Other Religions and Beliefs of Asia and Africa 2	3	MA	summer	
Pedagogy (integrated workshops, optional teacher training)	2	BA	summer	
Psychology (integrated workshops, optional teacher training)	2	BA	summer	
Russian ethnicity phenomenon in the internet sources - between high and popular culture	3	BA, MA, PhD	summer	
Russian Foreign Policy Thinking in the post-Communist Era	4	BA, MA, PhD	summer	
Seminar of French social sciences and humanities	4	BA, MA, PhD	summer	
Textology, Orality and Performing Arts in Asia and Africa (lecture and seminar)	6	MA	summer	
The Intermarium states and challenges during the Russian-Ukrainian War	4	BA, MA, PhD	summer	
The sense of body ownership from a cognitive neuroscience perspective	3	MA	summer	
Urban Lab: investigating contemporary city	3	BA, MA, PhD	summer	

Vilnius/Wilno: One City and many Histories	4	BA, MA, PhD	summer	
Virtual exchange: project work	1	MA	winter	
Geopolitical Tuesdays	4	BA/MA/PhD	winter	
Economic data analysis in MS Excel with VBA	3	BA/MA/PhD	winter	
Computable simulation of markets or public policies	6	BA/MA/PhD	winter	
Smart city economics	3	BA/MA/PhD	winter	
Business communication	4	BA/MA	winter	
Theory of mass communication	3	BA/MA	winter	
Design thinking - step by step	3	BA/MA	winter	
Leadership Development Program	3	BA/MA	winter	
Characteristic classes of vector bundles and their applications	6	MA/PhD	winter	
Bilingualism and Multilingualism	8	BA	winter	
Subsidiary Seminar	3	MA/PhD	winter	
Language-and-Culture Teaching in the Era of Globalization	4	MA	winter	
Supportive assessment in the context of the language learning process	4	MA/PhD	winter	
Multilingualism and interculturalism	2	BA/MA/PhD	winter	
Textology, Orality and Performing Arts in Asia and Africa	4	BA/MA/PhD	winter	

Flagship 3

Covid-19 crisis as a model for data literacy	3	BA	summer	**CU**
Data Analytics for Students of Social Studies and Humanities	3	BA, MA, PhD	summer	
Fundamentals of Discontinuous Galerkin Method	3	BA, MA, PhD	summer	
Nonlinear Optical Spectroscopy	3	BA, MA, PhD	summer	
Numerical Linear Algebra for Data Science and Informatics	5	BA, MA, PhD	summer	
Simulation and Theory of Biological and Soft Matter Systems II - Interfaces, Self-Assembly and Networks	3	MA	summer	

Algorithms for matrix iterative methods	5	BA/MA/PhD	winter	
Approximation of functions 1	5	BA/MA/PhD	winter	
Basics of Molecular Modelling of Drugs	3	BA/MA/PhD	winter	
Continuum Mechanics	6	BA/MA/PhD	winter	
Finite Element Method 1	5	BA/MA/PhD	winter	
High-Performance Computing for Computational Science	5	BA/MA/PhD	winter	
Innovation in the Business Context	2	BA/MA/PhD	winter	
Mathematical Methods in Mechanics of Solids	3	BA/MA/PhD	winter	
Numerical Optimization Methods 1	6	BA/MA/PhD	winter	
Numerical Software 1	5	BA/MA/PhD	winter	
Project Management	2	BA/MA/PhD	winter	
Regularity of solutions of Navier-Stokes equations	3	BA/MA/PhD	winter	
Seminar in Continuum Mechanics	2	BA/MA/PhD	winter	
Simulation and Theory of Biological and Soft Matter Systems I - Biopolymers, Ions and Small Molecules	3	MA	winter	
Social Innovation	2	BA/MA/PhD	winter	
Soil mechanics I	7	BA/MA/PhD	winter	
Theory of Mixtures	4	BA/MA/PhD	winter	

Exercer son esprit critique à l'ère informationnelle (Critical thinking in the information age)	3	BA	summer	**UniGe**
Chemical biology	6	BA/ MA	winter	
Introduction to Programming	6	BA	winter	
Introduction to Quantum Science and Technology	4	BA/ MA	winter	**UHD**
Bioinformatics	6	MA	summer	**UniMi**
Covid-19 crisis as a model for data literacy	3	BA	summer	
Logic of Computation and Information	9	MA	summer	
Policy Design Analysis and Evaluation	12	MA	summer	
Protein Biochemistry	6	MA	summer	
3d video games	6	MA	winter	
Advanced bioinformatics for biotechnology	6	MA	winter	
Advanced Logic	9	MA	winter	
Advanced Multivariate Statistics	6	MA	winter	
Algorithms for massive datasets	6	MA	winter	
Architectures for big data	6	MA	winter	
Artificial Intelligence	6	MA	winter	
Audio Pattern Recognition	6	MA	winter	
Audio Pattern recognition	6	MA	winter	
Bioinformatics	6	MA	winter	
Business information systems	6	MA	winter	
Business process engineering	6	MA	winter	
Data Protection	6	MA	winter	
Environmental geochemistry	6	MA	winter	
Geological Evolution of a Habitable Planet	6	MA	winter	
Groundwater modelling	6	MA	winter	
Heuristic Algorithms	6	MA	winter	
Information Management	6	MA	winter	
Information retrieval	6	MA	winter	
Intelligent systems for industry, supply chain and environment	6	MA	winter	
Logic of Computation and Information	9	MA	winter	
Logistics	6	MA	winter	

Methods for image processing	6	MA	winter	
New generation data models and dbmss	6	MA	winter	
New generation Data Models and DBMSs	6	MA	winter	
Online game design	6	MA	winter	
Probabilistic Logic	9	MA	winter	
Quantitative chemical structure and activity relationship	10	MA	winter	
Real-time graphics programming	6	MA	winter	
Simulation modelling of biomolecules	6	MA	winter	
Simulation	6	MA	winter	
Social network analysis	6	MA	winter	
Statistical methods for machine learning	6	MA	winter	
Covid-19 crisis as a model for data literacy	3	BA	winter, summer	**SU**
Thinking AI: Bringing together ethical, legal and social aspects of AI	3	BA, MA, PhD	summer	
ROS and experimental robotics*	6	MA	summer	
Mathematical Epidemiology of Infectious Diseases	12	MA (2nd year), PhD	winter	
Reaction-diffusion equations and the evolution of dispersal	12	MA (2nd year), PhD	winter	
Geometric cobordism and formal groups	6	MA	winter	**UW**
Geopolitical Tuesdays II	4	BA/ MA	winter	
Internet marketing	2	BA/ MA	winter	
Modelling of complex biological systems	6	BA/ MA	winter	
The Basics of the K-theory of Graph Algebras	6	MA	winter	
Differential Geometry	6	MA	summer	
Internet Marketing	2	MA, PhD	summer	
Modelling of complex biological systems	6	MA	summer	

Flagship 4

Advanced image analysis with focus on - ImageJ, Arivis Vision 4D, SVI Huygens	2	BA/MA/PhD	winter	CU
Molecular Probes in Biomedical Imaging	3	BA/MA/PhD	winter	
Grand Challenges in Engineering Geology	5	BA, MA, PhD	summer	
Image analysis and data processing in superresolution microscopy: fairSIM and ThunderSTORM open source systems	2	BA, MA, PhD	summer	
Proteins of Signaling Cascades	3	BA, MA, PhD	summer	
Quantitative Microscopy	3	BA, MA, PhD	summer	
Soil mechanics II	7	BA, MA, PhD	summer	
Focus Bioscience 1: Molecular principles of cancer development	2	MA/PhD	winter	UHD
Focus Bioscience 2: Tumor immunology, virology and cancer	2	MA/PhD	winter	
Advanced Plant Cell Biotechnology	6	MA	winter	UM
Applied biocatalysis	6	MA	winter	
Bio-based innovation in food industry	6	MA	winter	
Biobanking	8	MA	winter	
Economic Botany and Zoology	6	MA	winter	
Environmental Geochemistry	6	MA	winter	
Functional genomics and the molecular basis of differentiation	8	MA	winter	
Isotope Geochemistry and Geochronology	6	MA	winter	
Methods in Biotechnology	9	MA	winter	
Microbial Food Cultures	4	MA	winter	
Molecular Bases of Taste	4	MA	winter	
Molecular pathology and parasitology	8	MA	winter	
Molecular virology	8	MA	winter	
Morphological and molecular basis of the central nervous system and its pathologies	8	MA	winter	
Plants as biofactories	6	MA	winter	
Protein engineering and Proteomics	6	MA	winter	
Applied biocatalysis	6	MA	summer	
Applied entomology	6	MA	summer	

Biobanking	8	MA	summer	
Biotechnologies: experimental models in research	12	MA	summer	
Cultural Diversity and Human Rights Law	6	BA, MA	summer	
Microbial Food Cultures	4	MA	summer	
Molecular Genetics	6	MA	summer	
Molecular pathology and parasitology	8	MA	summer	
Plants as biofactories	6	MA	summer	
Plant Signal Transduction	6	MA	summer	
Protected Cultivation Systems	6	MA	summer	
Protein Engineering and proteomics	6	MA	summer	
Signal Transduction	6	MA	summer	
Green Label	1	BA	summer	**SU**
Green Label I	1	BA (2nd year)	winter	
Green Label II	2	BA (3rd year)	winter	
Strategic Management and Intrapreneurship	2	BA (3rd year)	winter	
Astrogeobiology	2	BA, MA	summer	**UW**
Specialisation seminar (proseminar) - legal determinants of energy, climate, and environment	5	MA	summer	
Underwater Archaeology	3	BA, MA	summer	
Climate Change	3	MSc	winter	
Environmetal Analysis	1,5	MA	winter	
Marine Microplastics: from the anthropogenic litter to the plastisphere	1,5	BA/MA/PhD	winter	
Medicinal Herbs	2	BA/MA	winter	
Seminar of French social sciences and humanities / Séminaire français de Sciences Humaines et Sociales	4	BA/MA	winter	
Spatial Planning and Sustainable Regional and Local Development	3	MA	winter	
Spring School "The Making of EU Environmental Regulation - Processes, Actors, and Tools of Implementing the Climate Action strategy of the European Green Deal"	6	BA/MA	winter	
Use of i-Tree tools in urban greenery management	3	BA/MA	winter	