



**INGENIUM**  
European University

**D9.2**

## **INGENIUM for a Better Integrated and Inclusive Educational System**

*WP9 – INGENIUM for a Non-Discriminatory and Socially Engaged Higher Education*

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LEADER  
University of Oviedo (UNIOVI), Spain

PARTNERS  
Medical University of Sofia (MUS), Bulgaria  
Panepistimio Kritis (UoC), Greece  
Hochschule Karlsruhe (HKA), Germany  
Kaakkois-Suomen Ammattikorkeakoulu Oy (XAMK), Finland  
Università degli Studi Gabriele d'Annunzio di Chieti-Pescara (Ud'A), Italy  
Hogskolan i Skovde (HS), Sweden  
Munster Technological University (MTU), Ireland  
Université de Rouen Normandie (URN), France  
Universitatea Tehnica Gheorghe Asachi din Iasi (TUIASI), Romania

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## Document information

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Description of the deliverable (3-5 lines)	The Alliance will produce a policy document proposing enhanced cooperation with secondary and vocational education, including mentoring programmes for secondary education, support to students with fewer opportunities in their transition towards higher education, open labs and digital tools in INGENIUM research labs, in order to improve inquiring minds, logical reasoning, creative thinking, and innovative problems solving, as well as operative gateways for vocational – higher education connection.
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## Document history

Date	Version	Prepared by	Description
31/01/2025	1	<p>Vice-President (VP) in charge of Education and Guidance, URN</p> <p>Leader Zukunftsagentur Nachhaltigkeit (ZuNa) and H.ErT.Z Open University Electrical Engineering Centre, HKA</p> <p>Assistant Professor at the Department of Primary Education, University of Crete, specializing in Teaching of STEM Subjects in Primary Education, UoC</p> <p>Directora de Área de Participación y Apoyo al Estudiantado, UNIOVI</p> <p>Vice Head iED Hub, MTU</p> <p>Communications Officer, HIS</p> <p>Profesor Ayudante Doctor de Filología Italiana, UNIOVI</p> <p>Access Officer, MTU</p> <p>Development Coordinator, XAMK</p> <p>Assoc. Professor of Health law, MUS</p> <p>Lecturer and Head of Department Transportation Infrastructure and Foundations, TUIASI</p> <p>Officer for School Contacts, HKA</p> <p>Science for Life Officer, MTU</p> <p>Junior Assistant Professor, UdA</p>	First draft
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## Definitions & Acronyms

Definition/Acronym	
<b>UNIOVI</b>	University of Oviedo
<b>MUS</b>	Medical University – Sofia
<b>UoC</b>	University of Crete
<b>HKA</b>	Karlsruhe University of Applied Sciences
<b>XAMK</b>	South-Eastern Finland University of Applied Sciences
<b>UdA</b>	University ‘G. d’Annunzio’, Chieti-Pescara
<b>HIS</b>	University of Skövde
<b>MTU</b>	Munster Technological University
<b>URN</b>	University of Rouen, Normandy
<b>TUIASI</b>	Gheorghe Asachi Technical University of Iasi
<b>HEI</b>	Higher Education Institution
<b>EEA</b>	European Education Area
<b>STEM</b>	Science, Technology, Engineering, Math
<b>SES</b>	Socio-economic Status
<b>EYF</b>	Engineering Your Future
<b>TY</b>	Transition Year
<b>COIE</b>	Centro de Orientacion e Informacion
<b>MIO</b>	Mission Information Orientation
<b>ZSB</b>	Zentrale Studienberatung

## EXECUTIVE SUMMARY

The INGENIUM Alliance, comprising 10 European Higher Education Institutions (HEIs), has developed a strategy to strengthen cooperation between universities and other educational levels, particularly secondary and vocational education. The goal is to promote equitable access to higher education, strengthen early STEM engagement (especially among girls), and support disadvantaged groups through inclusive, sustainable, and collaborative actions.

The initiative aligns with the European Education Area (EEA) vision for inclusive, interconnected higher education and lifelong learning. The working group engaged in monthly meetings, workshops, and study visits — including activities in Finland — to collect data, share best practices, and develop policy recommendations. Continued monitoring will occur through recurring INGENIUM events and institutional reporting.

Across the Alliance, four main challenges emerged:

1. **Communication:** Fragmented or inconsistent communication channels between HEIs and secondary schools; outdated contact lists; limited promotion and brand visibility.
2. **Personnel:** Insufficient staff, reliance on short-term contracts, limited substitution planning, and lack of multidisciplinary teams.
3. **Location:** Geographical barriers, with rural students facing transport and mobility limitations to attend on-campus events.
4. **Resources:** Limited funding for promotional activities, outreach events, accessibility accommodations, and travel support for schools.

In addition, each university reported unique contextual barriers related to regional infrastructure, popularity of technical fields, availability of career counselling, competition among institutions, and lack of structured evaluation tools.

A broad set of effective initiatives are already in place, grouped into five key action areas:

- **Orientation & Open Days:** Campus visits, hybrid open-house formats, taster lectures, summer schools, and thematic fairs help demystify university life.
- **Workshops & Competitions:** Targeted STEM and research-based activities foster early career motivation and skill development.
- **Teacher Education & Training:** Joint training, collaborative research, and updated pedagogical methods enhance guidance quality.
- **Scholarships & Social Inclusion:** Financial supports, targeted programmes for girls and underrepresented groups, mentoring and dual-learning pathways increase enrolment.



- **Dedicated Offices & Structures:** Guidance centres, advisory services, and ambassador programmes strengthen institutional support and continuity.

To reinforce and scale cooperation, the Alliance proposes:

1. **Enhanced Communication & Coordination**, through dedicated liaison officers, long-term cooperation agreements, shared data systems, and early, targeted event promotion
2. **Collaborative and Accessible Events**, through curriculum-aligned workshops and thematic weeks, hybrid and webinar-based engagement for remote students; structured teacher-university exchanges
3. **Teacher and Student Training Initiatives**, through ambassadors and peer-mentoring programmes, joint practical courses and exposure to real-world applications
4. **Stable Resource Allocation**, through institutionalised staffing models, sustainable funding mechanisms, and prioritisation of vulnerable learners through tailored support
5. **Industry and Community Partnerships**, through work-integrated learning, local socio-economic development initiatives and long-term collaboration beyond project cycles

Each partner university will develop its own action plan and progress will be reported through INGENIUM's annual and final reporting cycles. Activities will continue through follow-up meetings to ensure learning transfer and accountability.

This policy document presents a strategic roadmap designed to build stronger, more inclusive education ecosystems across Europe. Through coordinated planning, evidence-based actions, and long-term collaboration, the INGENIUM Alliance aims to improve educational pathways for all students, particularly those from disadvantaged backgrounds, while enhancing the relevance and attractiveness of higher education. The initiative marks an important step toward achieving the EU objective of an inclusive, future-ready European Education Area.

## DESCRIPTION, METHODOLOGY AND DISCUSSION OF THE FINAL OUTCOME

The development of this policy framework was grounded in a rigorous and participatory methodology designed to ensure institutional representativeness, cross-sector relevance and alignment with the INGENIUM vision for a more integrated and inclusive educational system. The process began with the establishment of a dedicated expert working group composed of academic, administrative and strategic professionals from all ten INGENIUM partner universities. Members were selected based on their professional responsibilities and expertise in areas such as educational guidance, pedagogical development, cooperation with secondary and vocational education, and student support, thereby ensuring that the group collectively possessed comprehensive knowledge and practical experience relevant to the topic.

To gather robust evidence from across the Alliance, a structured anonymous survey was distributed to all experts, who were encouraged to complete it in consultation with relevant colleagues within their institutions. The anonymity of the survey ensured confidentiality and encouraged candid contributions, while the collaborative completion process allowed for institutional validation of the data collected. This approach provided a rich pool of qualitative and quantitative insights reflecting institutional practices, perceived challenges, operational needs and existing forms of collaboration with other educational sectors.

Monthly virtual meetings enabled continuous reflection and iterative interpretation of findings, fostering constructive dialogue among representatives and supporting the emergence of shared themes. These discussions created a space for collaborative work, enabling the identification of common challenges across different institutional and national contexts, while simultaneously highlighting promising practices that could be considered for transferability and scalability across the Alliance.

In addition to online collaboration, an in-person working session was organised in Mikkeli, Finland, during the 10 Days of INGENIUM in February 2025. This event provided participants with valuable opportunities for direct peer learning and field observation through study visits to vocational and comprehensive schools, as well as a dedicated workshop hosted by a regional vocational college. The insights gained through these first-hand experiences contributed significantly to validating survey findings and consolidating best-practice recommendations.

The combined outcomes of these consultations, analyses and exchanges informed the drafting of the final policy document promoting enhanced cooperation between higher education and secondary and vocational institutions, including measures to foster early engagement in STEM for girls and to improve access to higher education for disadvantaged learners. Moreover, these outputs have been approved at the institutional level, by the INGENIUM Steering Committee and by the governance of each partner university. Finally, the methodology incorporated a forward-looking mechanism, as the expert working group agreed to continue meeting regularly to monitor implementation, assess impact and refine recommendations in light of future evidence and evolving institutional needs.

## PILLAR 1: INTRODUCTION AND CONTEXT

### 1.1 A Strategy In Line with the European Education Area

The European Education Area (EEA) represents a bold initiative by the European Union to create a unified, inclusive, and interconnected framework for education across Europe.

A cornerstone of the EEA is its focus on inclusive and connected higher education systems. Aligned with the EEA's ambition to create a unified, inclusive, and interconnected academic space across Europe, INGENIUM aims to remove national, social, and structural barriers that hinder access to higher learning, mobility, and research, ensuring that all individuals, regardless of socio-economic status, gender, ethnicity, or disability, have equitable opportunities to pursue higher education. The EEA's inclusive approach followed by INGENIUM addresses disparities in educational access and outcomes, promoting policies that support underrepresented groups, such as students from disadvantaged backgrounds or those with disabilities. Initiatives like increased funding for mobility programs and support for multilingual education are integral to this goal.

*“Higher education must play its part in tackling Europe’s social and democratic challenges. This means ensuring that higher education is inclusive and that its institutions are well connected to their communities.”<sup>1</sup>*

*“Social groups least represented in higher education are more likely to lack basic skills (literacy, numeracy and digital competence), experience of independent learning, and a clear idea of what higher education entails. Furthermore, citizens from disadvantaged socio-economic backgrounds and those with migrant backgrounds remain far less likely to enter and complete higher education. Gender segregation by field of study also remains pervasive.”<sup>2</sup>*

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<sup>1</sup> “Inclusive and connected higher education”, European Education Area, last accessed on Nov. 18<sup>th</sup>, 2025, <https://education.ec.europa.eu/education-levels/higher-education/inclusive-and-connected-higher-education>

<sup>2</sup> Ibid.

## **Key Pillars of Inclusivity and Connectivity in Higher Education**

Here are the key pillars of Inclusivity and Connectivity in Higher Education as inspired by the European Education Area<sup>3</sup> and upon which the INGENIUM strategy for a better integrated and inclusive Educational system is based.

### **1. Access for All**

The EEA promotes universal access to quality education through initiatives such as the Erasmus+ program, which provides financial and logistical support for students to study abroad. Additionally, it supports the development of flexible learning pathways, including online and hybrid learning models, to accommodate diverse learner needs.

### **2. Digital and Technological Connectivity**

Recognising the transformative role of digitalisation, the EEA invests heavily in digital infrastructure and resources to connect higher education institutions. Projects like the European Universities Initiative foster cooperation among universities to create transnational Alliances, enabling students and researchers to work seamlessly across borders.

### **3. Promoting Equity and Diversity**

The EEA actively encourages member states to adopt national frameworks that address inequality in education. By championing gender equality, cultural diversity, and the inclusion of marginalised communities, the EEA ensures that higher education systems reflect and respect the diversity of European society.

### **4. Strengthening Lifelong Learning Opportunities**

Higher education under the EEA is not limited to traditional academic pathways. Emphasis on reskilling and upskilling, particularly in response to labour market changes, ensures that citizens of all ages can access higher education to enhance their career prospects and personal development.

### **5. Fostering Research Collaboration**

The EEA aims to strengthen Europe's global leadership in research by building a more interconnected network of universities. Programs like Horizon Europe facilitate cross-border research collaborations, enabling institutions to tackle global challenges collectively.

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<sup>3</sup> European Education Area, last accessed on Nov 18<sup>th</sup>, 2025, <https://education.ec.europa.eu/>

## 1.2 Reinforced Cooperation between HEIs and other levels of the educational system

The INGENIUM Experts Group established that collaboration between universities and primary and secondary schools is a crucial pillar in fostering a well-rounded and forward-thinking educational ecosystem. Such partnerships create a continuum of learning, ensuring students receive consistent support and access to resources that inspire lifelong learning and achievement.

INGENIUM Universities are committed to reinforcing cooperation between all levels of education in order to improve the access of disadvantaged groups to higher education, promote scientific vocations (in particular girls' education in STEM), provide appropriate mentoring to secondary school teachers, students and families and facilitate transition and career pathways. Here are five key topics the Experts Group covered in their task group meetings:

### **Bridging Knowledge Gaps**

By working together, INGENIUM universities can provide primary and secondary schools with access to cutting-edge research, innovative teaching methodologies, and subject-matter expertise. This helps bridge knowledge gaps and ensures that young learners benefit from the latest advancements in education and other fields. For instance, university researchers can introduce updated curriculum content or technologies, making education more relevant to contemporary societal needs.

### **Enhancing Teacher Training and Development**

Cooperation between INGENIUM universities and schools often includes professional development opportunities for teachers. University education departments can provide workshops, training sessions, and mentoring programs for primary and secondary school educators. This empowers teachers with advanced skills, innovative teaching techniques, and a deeper understanding of their subject areas.

### **Promoting STEM and Other Key Areas**

INGENIUM Universities can play a significant role in encouraging interest in fields such as science, technology, engineering, and mathematics (STEM). By organising events like science fairs, coding workshops, or environmental studies projects, universities can ignite curiosity and passion for these subjects at an early age, helping to address skill shortages in critical areas.

## **Facilitating Transition and Career Pathways**

Collaboration helps to prepare students for the transition from school to higher education. INGENIUM universities can demystify the college experience by offering mentorship programs, campus tours, and dual-enrolment opportunities. Furthermore, such initiatives provide students with a clearer understanding of potential career paths, sparking their aspirations and guiding them towards achievable goals.

## **Community Engagement and Social Responsibility**

When universities and schools collaborate, they foster a sense of community responsibility. Joint projects, such as sustainability initiatives or cultural exchanges, can involve students from all levels of education, encouraging a spirit of cooperation and civic engagement. Such programs also allow universities to give back to their local communities by leveraging their resources to support educational development.

## **1.3 INGENIUM Context**

From the universities that contributed, several common themes of challenges were identified by the experts through a survey disseminated within the Experts Group and answered by these same experts, with the ad-hoc support from their university colleagues (please refer to the Methodology section page 11 and to the Annex 1). Communication, resources, location and personnel were the top four common challenges. However, each university had unique contexts.

### **1.3.1 Common Challenges of the Alliance**

#### **Communication**

Communication appears to be the biggest issue for all universities involved, although 80% of universities have their own staffed marketing unit. Investigation on how each university streams their advertising to secondary schools and to the public will be examined to identify areas that need re-evaluation.

Each university hosts open days for secondary school students; however, only 80% of universities host talks/lectures for prospective students.

Included in the lines of communication that need to be examined are school contact lists shared between departments within a university. This raises the question: is internal communication the issue, or is it a broader problem, such as ensuring that the information

reaches the appropriate person in the secondary school who can relay it to teachers and prospective students?

## Personnel

Lack of personnel is an issue for all universities, in terms of outreach or having various personnel doing outreach projects in the same areas across a university. Inter collaboration within a university is needed to ensure that not a few schools are getting a large number of workshops, events, initiatives or supports, that they are being spread among schools across the region of the university.

Several Alliance universities have stated that they have limited funding towards outreach events; the majority of personnel are hosting initiatives of their own volition. Which, in turn, places a burden on the staff and the project life cycle.

In terms of personnel, a primary concern is the common practice of short-term contracts for projects, typically 1 to 2 years in duration but can be as long as 5 years. Which poses a series of issues, in terms of staffing and project viability, in terms of “One hit Wonders”, which equates to great initiatives/schemes but don’t survive beyond the project. Job security is vital for acquiring highly qualified and professional personnel. Otherwise, these types of personnel are being lost to more secure roles, which is a challenge highlighted by several of the Alliance universities. There is a clear need for secure, permanent positions to ensure staff stability, which, in turn, fosters long-term growth.

In terms of personnel, an additional aspect is having substitutions when staff are on extended leave, such as sick leave or maternity leave as two examples. Need to replace these staff during their leave, ensures that contacts, projects and research are being continued in their absence.

Other personnel challenges include the limited sizes of outreach teams. Projects are being led by an individual or in small groups. Which, in turn, puts severe pressure on these personnel and results in projects being run for a limited period, or for a small number of schools. Whereas creating a multidisciplinary team would encourage the growth of projects, and widen the impact of the project to those that need it, to ensure that projects, events and programmes are inclusive.

## Location

Surprisingly, location was raised as an issue for most universities. However, it appears that it is focused on rural students accessing the university for open days, talks, workshops, etc.



As a preliminary enquiry, a few questions were posed to the university in terms of transport access, 90% of universities are connected via train, 40% are connected via a tram/metro, 80% are connected by local buses and 90% have designated cycle lanes to the universities, yet only 10% of universities have direct access to a motorway.

However, only 40% of universities have adequate parking for staff and students. Further analysis will have to be completed to get a better understanding of location, and of the impact location has on the universities as in what is around the university, where it is situated and where the jobs are for students after university.

## Resources

Among each university within this Alliance, a lack of resources is a common theme; resources do tie in communication, location and personnel.

Most universities host subject-specific workshops for secondary students, aside from one university. Hosting workshops for students on site is a key strategy, as firstly it gets students on campus, which breaks down any invisible barriers that they may have thought about accessing university. It is an opportunity to showcase the college, the standard of education, the quality of equipment and buildings, the types of class machinery, tools, computers and other resources available, such as the library, gyms and catering. It's a multiply functional advertising tool, getting secondary school students on campus.

The resources required to host events on campus or in schools, not only at university but also in secondary school, could be a problem. The rise in expenses, for example bus hire for a school for a day, can be extremely costly on the school's finances.

In terms of resources, another challenge is to ensure funding and access to support secondary school students with disabilities or illnesses, and students that need to be catered for during their visit to the university.

## 1.3.2 Unique Challenges and Needs of the Alliance:

### Medical University Sofia (MUS)

In MUS there is no specific department for dealing with communications between secondary schools and the university. There is a lack of established repeatable algorithms in communication with secondary schools; for example, staff changes in a school and no alternative contact details being provided means, unfortunately, that schools can miss out on opportunities.

At MUS, the university has no financial resources to promote the courses offered, and to implement the link between the university and secondary schools. Which is one of the common themes mentioned in the resources section.

Within MUS there is good awareness among prospective students of the specialities of medicine, dentistry and pharmacy, but other medical and management specialities are not well presented to prospective students and teachers, which has left a low uptake in those courses. Compared to the other universities, there is no common practice for secondary schools in the country to provide career guidance to their students and direct the students to specific universities according to their interests and abilities. In MUS there aren't regular university visits to secondary schools. It is only on the initiatives of specific university departments and with the permission of the school management that such meetings take place. It ends up being a long process that a lot of opportunities get missed for students in the MUS region.

### South-Eastern Finland University of Applied Sciences (XAMK)

At South-Eastern Finland University of Applied Sciences, resources are a common problem, which was discussed previously. In terms of the relationship between secondary schools and the third level in this region, the challenge is due to a number of practical reasons, such as the different schedules of the second and third levels, the difference of curriculum, and finally the different lengths of the study year.

The majority of the secondary schools can be located in remote areas, which makes it difficult to get them to visit the campus, in terms of the time needed to visit and the cost of transportation, as discussed previously.

As XAMK university is focused on applied sciences, it is not a school that is often promoted by teachers and guidance counsellors (technical fields are not always very popular, as it is the case for TUIASI, in Romania). However, there are resources for coordinating the collaboration; there are some collaboration agreements; the national funding system encourages cooperation and the creation of smooth paths between secondary education and higher education.

### University of Rouen Normandy, France (URN)

At the University of Rouen Normandy, communication between the university, the National Education Authorities, and the Secondary School Board can be challenging due to multiple layers, numerous interlocutors, and indirect communication.

The high number of contacts and frequent turnover in relevant positions, both in secondary and higher education, make it difficult to ensure a smooth flow of information. Similarly, secondary school guidance counsellors face an increasing workload, making it challenging for them to fully grasp the university's entire range of training programs. While training programs are available for them, attending these sessions is not always feasible due to understaffing and the large number of students they must guide and support.

New initiatives at the university require additional human resources, which are not always easy to secure. In Rouen, a variety of activities are offered to prospective students, but there is a strong preference for immersive and entertaining experiences. However, resource limitations often make organising such activities difficult.

The number of participants—such as parents, teachers, and secondary school students—at workshops fluctuates constantly. Additionally, as previously mentioned, prospective students living in remote areas face difficulties in attending in-person events or immersive activities at the university.

### Karlsruhe University of Applied Sciences (HKA)

In Germany, there is a significant low birth rate, which is putting pressure on the labour market and, in turn, is creating a demand from universities in the region, as they are looking for new young talent and they are in a competition. Especially universities in the technical field.

In HKA, there is a considerable difference between the ratio of male to female learners, and a very small number of female learners. Investigation on how to make this university field more appealing to the female learner is vital to try to bridge the gap between male and female learners.

There is a declining interest in the technical professions, the majority of upper secondary school students choose to apply to universities to study the likes of law and medicine and not universities of applied sciences.

There are limited personnel and resources to promote and advertise HKA to secondary schools. Comparable issue to other institutions in this Alliance.

Although there are events, workshops and initiatives to promote the university, there is no standardised measurement system to measure the impact. This is a vital need that needs to

be examined so that the forms of advertising and promotion that attract students are pursued.

Another challenge is that students are overloaded with information not just from HKA but all universities in the region when they are researching courses and careers. There is a need for universities to streamline their advertising so that students can make a more informed decision about their courses and career pathways.

### Munster Technological University (MTU)

MTU is competing with two other universities in the region, with one being less than 4 km away. In terms of challenges, they range from staffing contracts, communication issues and measurement of initiatives/events.

Personnel funding and short-term contracts are an issue, long-term stability for staff supporting initiatives and projects. Projects here are in cycles such as 2-5 years. Which, in turn, gives highly qualified and experienced staff no job security once the cycle is completed. Which, in turn, means this type of personnel is being abandoned after the project cycle.

In terms of communication, individual departments typically would contact schools themselves. However, in schools, teachers move schools/roles, and often don't update the new contact details: as a result, schools lose out opportunities to attend workshops, initiatives, etc. In February 2022, MTU had a cyber-attack, and it resulted in school contact lists being lost. It took time to build it back for a lot of departments.

Another challenge identified in MTU is striving to record data from outreach events, and measure their impact on students taking up courses within MTU due to their attendance at open days, workshops, etc. Similar to HKA. This poses a question: "Could a questionnaire be made part of a student's registering process to evaluate if they had attended events at the university prior to accepting their course"?

### University 'G. d'Annunzio', Chieti-Pescara (UdA)

In Ud'A, there are several logistical barriers, such as resource availability, which was discussed previously. Another challenge is the geographical distances between secondary schools and universities in the region. There is difficulty in getting prospective students to visit the campus. Visiting the campus is whereby students get a feel if the university is for them.

In terms of communication and coordination, there is a serious lack of good communication between universities, schools and students' families. Especially in terms of promotion of the

university. However, a very positive aspect: the Italian government supports orientation programs – direct funding: path for transversal skills and orientation; regulation of orientation programs with laws and agreements for fair study events and open days. In Ud'A there is a specific department dedicated to prospective students.

### Gheorghe Asachi Technical University of Iasi (TUIASI)

Unlike UdA, TUIASI does not have a dedicated office or department for prospective secondary school students.

Between TUIASI and many secondary schools, there are collaboration agreements and periodical visits are organised by TUIASI staff in order to present the University offer, but there still remain a lot of prospective secondary institutions where it is more difficult to maintain a relation due to the frequent changes in high school leadership staff. This led to disruptions in the relation with TUIASI, a concern also noted at MTU. This breakdown in communication directly impacts prospective students.

An additional challenge is that in this region there are very few schools with guidance counsellors and even when present these counsellors are often overburdened, limiting their ability to provide students with the necessary support in selecting courses suited to their skills and interests. Even more, technical studies and fields are less popular compared to disciplines like medicine or law. This may stem from a lack of awareness among students and their families, as well as broader societal influences.

Although TUIASI organises various activities for secondary school students, visiting the TUIASI campus is not feasible for some schools. To engage directly with these students, visits to their campuses are necessary. However, a lack of personnel, time, or financial resources may pose significant challenges to these visits.

### University of Skövde (HIS)

The University of Skövde (HIS) faces challenges in systematically coordinating outreach activities directed towards secondary schools. There are limited capacity and insufficient resources—both administratively and academically—to develop structured, long-term strategies for these initiatives. Consequently, outreach efforts aimed at different schools often become ad hoc, leading to inconsistent effectiveness. As noted by other Alliances, limited resources also impact the university's ability to conduct visits to secondary schools across the region, especially given the rising transportation costs faced by these schools. Communication challenges have also been identified, specifically regarding difficulties in determining the appropriate contacts within secondary schools to ensure that information

reaches students effectively. Frequent staff turnover within secondary schools further complicates communication, an issue shared by other Alliances as well.

Additionally, schools' responsiveness and engagement vary significantly depending on individual contacts. While some teachers and study counsellors proactively advocate for their students' participation in events, workshops, and programs, this approach is not consistently applied across all schools. Although this variation is largely outside the university's control, it unfortunately leads to unequal opportunities for secondary school students.

Furthermore, aligning schedules for meetings, events, or collaborative activities is complicated due to differences in academic calendars and time constraints. Organising campus visits that accommodate secondary school students' academic commitments—such as examination periods and mid-term schedules—adds further logistical challenges.

### University of Oviedo (UNIOVI)

The University Orientation Days at the University of Oviedo serve as a platform to introduce high school students to the institution's academic offerings, helping them explore potential degree programs. However, many students lack clarity about their academic choices and have limited knowledge of the programs available at the public university in Asturias.

As a result, the University of Oviedo experiences a high dropout rate in the early years of undergraduate programs, primarily due to students' uncertainty about their academic and career paths. Many enrol without fully understanding the demands of their chosen field, leading to dissatisfaction and disengagement. Additionally, difficulties in adapting to university-level coursework, inadequate academic preparation, and a lack of effective guidance further contribute to student attrition.

Finally, university graduates often face significant challenges in securing employment that aligns with their academic training. Many struggle to find positions that match their qualifications, and when they do, salaries are often low or unattractive. In many cases, financial compensation does not reflect their level of education, resulting in dissatisfaction and obstacles to professional development.

### University of Crete (UoC)

Although the University of Crete has a very active Public Relations Office, it lacks a specialised department dedicated to engaging with secondary schools. As a result, school outreach efforts remain fragmented, and visits to the university are not always structured in a way that maximises their impact. Moreover, there are no designated staff members responsible for

guiding students through different departments and schools, leaving much of the visit experience uncoordinated. Without a clear framework for these interactions, the university cannot ensure that students receive the most relevant and inspiring introduction to academic life. Additionally, there is no systematic way to assess the effectiveness of outreach activities. Without clear evaluation mechanisms, it is difficult to determine whether these efforts successfully spark students' interest in higher education or provide them with meaningful insights into potential academic paths. This lack of structured assessment prevents the university from refining and improving its initiatives, limiting their long-term impact.

Beyond these challenges, students often navigate the decision-making process for higher education without sufficient guidance. Many secondary schools lack structured career counselling, and the university does not currently provide targeted support to bridge this gap. As a result, students may struggle to explore their options and make informed choices about their future studies.

Geographical distance adds another layer of difficulty. The University of Crete is located on an island, meaning that in-person visits are naturally limited to students from Crete, rather than a wider national audience. Many schools are situated far from the university's campuses, making visits logistically challenging even within the island itself. Even when opportunities arise, communication between the university, schools, and educational authorities is often inconsistent, leading to missed opportunities for collaboration. Schools, preoccupied with their own priorities, may not always place university-led initiatives high on their agenda. At the same time, the university faces staffing constraints, limiting its ability to develop and sustain new outreach programs. Without dedicated resources, structured planning, and stronger connections between institutions, bridging the gap between secondary and higher education remains a persistent challenge.

## PILLAR 2: BEST PRACTICES

The identification and selection of best practices within the INGENIUM Alliance followed a structured methodology designed to ensure the relevance and transferability of the initiatives retained. This process aimed to establish a robust foundation for developing a common operational model consistent with the objectives of the European Education Area and the INGENIUM Alliance's commitment to fostering a more integrated and inclusive educational system.

The methodological process began with a collection of initiatives from all ten INGENIUM partner universities. To ensure comparability across contexts, the task group identified initiatives that had proven successful in terms of student registration and engagement.

Crucially, the selection process also integrated an innovation criterion. An initiative was considered innovative when it was implemented in a manner that demonstrated adaptability and potential to serve as a model practice for other institutions within the Alliance, in order to effectively address persistent challenges, such as gender disparities in STEM or barriers faced by disadvantaged learners, through methods that could be replicated, scaled or adapted across diverse educational settings.

Following the initial screening, a comprehensive comparative analysis was conducted to identify common denominators across the practices. This analytical phase enabled the identification of recurring approaches and modalities that consistently contributed to successful outcomes. These shared characteristics formed the basis for developing a unified and transferable model that is aligned with the experts group's priorities.

The emerging model responds directly to the task group's two strategic objectives. The first objective is to strengthen cooperation with primary and secondary schools to cultivate early scientific vocations, with a particular focus on supporting girls' engagement in STEM fields, consistent with EU policy goals on gender equality in science and research. The second objective is to enhance access to higher education for disadvantaged and underrepresented groups, thereby supporting overarching European priorities on inclusion, equity and social mobility.

By grounding the selection of best practices in effectiveness, demonstrated innovation and comparative analysis, the experts group has produced a policy-relevant, transferable and future-oriented framework. This approach ensures that the operational model derived from these practices is not only robust, but also capable of contributing meaningfully to a more inclusive and integrated European higher education landscape.

## 2.1 Orientation and Open Days

These actions aim to familiarise secondary school students with university life, provide guidance on study programs, and engage prospective students in campus activities.

### 2.1.1 Open Days/Open Campus

University of Rouen Normandy annually organises the Open Days event (*Journée Portes Ouvertes*), allowing students to discover the full range of courses and study programs, student life services and university campuses. Students can also attend a wide range of lectures on a variety of subjects.

More info: <https://www.univ-rouen.fr/jpo/>

URN also hosts the 'Open Campus' program (*Campus Ouvert*) where secondary school students have the opportunity to attend classes at the university and meet their future



teachers and professors. Currently, classes are held in person, but to improve accessibility for students across different regions, a hybrid format is being considered.

Moreover, the University of Rouen-Normandy offers students the opportunity to explore the university environment through a virtual orienteering course called *Exploring the Campus*.

More info: <https://www.univ-rouen.fr/agenda/campus-ouvert/>

**Fig. 1** Open Days URN 2025



At University of Skövde (HIS), the Open house is organised every year. The Open House provides prospective students with insights into academic programs, student life, and campus facilities. During the event, visitors have the opportunity to meet students, teachers, and study counsellors who can answer questions about study options, career prospects, and university life. The event includes presentations on various programs, guided campus tours, and interactive sessions where attendees can engage with current students and faculty members.

More info: [his.se/oppethus](https://his.se/oppethus)

**Fig. 2** Open House in Skövde



Karlsruhe University of Applied Sciences (HKA) hosts 'Taster Days', where prospective students can attend real academic lectures and participate in workshops.

More info: <https://www.h-ka.de/probestudium>

University G. d'Annunzio Chieti – Pescara (UdA) organises an annual event held at the campuses of Chieti and Pescara, where all high schools in Abruzzo and neighbouring regions are invited. Didactic activities, laboratories and campus explorations are prepared for the students who have the opportunity to gain experience in disciplinary, participatory, and laboratory didactics.

More info: <https://www.unich.it/didattica/iscrizioni/open-day>

**Fig. 3** Open Days at UdA



University of Crete (UoC) organises Open Days, allowing students to visit UoC schools and departments, familiarise with the university environment, get information about academic curricula, discover the studying opportunities in each department, attend lectures or interact with professors/researchers/ students.

More info: <https://www.uoc.gr/visit-2/episkepseis-sxoleivn/>

**Fig. 4** Open Days at University of Crete



At Gheorghe Asachi Technical University of Iasi (TUIASI), the Open Days events, which are usually organised once a year in April or May, are great opportunities for high school students to participate in different faculty presentations, campus tours, Q&A sessions, workshops and interactive social activities. These events are usually organised in person, in the Academic and Student Campus areas. In order to ensure access of students with low incomes, transportation and free lunch are provided. Online Open Day sessions are organised if needed, allowing the participation of the students that live far from the Campus or from rural areas.

More info: <https://opendays.tuiasi.ro/>

**Fig. 5** TUIASI Open Days -in person and online activities







Medical University – Sofia (MUS), from Bulgaria, organises every year University Open Day, when prospective students are invited to a meeting with the heads of each faculty to hear about areas of specialisation, duration, regulations and post-graduation opportunities. On this day, students are introduced to the training facilities, the specifics of the medical fields and the organisation of their future education.

At Karlsruhe University of Applied Sciences (HKA), Germany, the event is called 'Campus Day' and is organised twice a year in spring and fall. On these occasions, high school students can hear about HKA and the university degree programs and opportunities. The Campus Day program may consist in: live presentations of the degree programs, a look into the most interesting student projects, get a taste of lectures, talk directly to students and professors, listen to speakers on forward-looking topics or clarify all the questions about studying with the advisor teams of the service institutions.

More info: <https://www.h-ka.de/campustag>

**Fig. 6** Campus Day at HKA



At University of Oviedo (UNIOVI) ‘Open Days’ are part of the Pre-university Orientation Program, developed by the Vice-chancellor of Students and Employability together with CRUE Spanish Universities and the Education Council of the Principality of Asturias. The Open Day at the University of Oviedo is held every year in May (for all Faculties and Schools). The “days” program consists of an informative talk on general issues and qualifications of each Faculty or School, which is given by those responsible for it, followed by a guided tour of university facilities. All Secondary Schools in Asturias receive an invitation from the Vice-chancellor of Students and Employability to participate in the “Open Days” and it is the direction board of the different Schools who decide the faculties to visit. If a student is interested in a particular faculty and their school has not scheduled a visit, they may visit on their own.

**Fig. 7** Students from Secondary School on a guided visit to the lab facilities at EPI (Polytechnic School of Engineering of Gijón). (Picture by J.C. Román)



### 2.1.2 Orientation programs

At HKA different orientation programs are organised for interested students. This type of program helps students familiarise with the technical programs the university offers, for example:

- Demo lectures - Students can attend regular lectures from the 1st or 2nd semester and, in this way, get familiar with professors and curricula;
- Try out studies - During the fall breaks, students can visit the HKA for a week and put together their own schedule of regular lectures and extra student activities; <https://www.h-ka.de/probestudium>
- Information and advice for interested students and parents (online and/or on site); for example, orientation event “Which university suits me?”: <https://www.h-ka.de/welche-hochschule-passt-zu-mir>
- Orientation semester OSKAR – Graduated high school students can explore different courses for a semester, receive coaching, and take exams. If an OSKAR participant chooses to pursue a course of study afterward, the exam credits may be applied.

- Orientation semester TWIN! – For one semester graduated high school students may try out whether a degree course or vocational training is right for them, with accompanying coaching. The program is held in cooperation with industry. TWIN participants spend 3 months at the HKA studying electrical engineering, for example, and 3 months in a company, learning about vocational training as an electrical engineer.

For more info: <https://www.h-ka.de/orientierungssemester>

At TUIASI University, groups of students from primary or secondary schools come to visit the faculties during the National program for schools – “Săptămâna Școala Altfel” (A week of “Different/Diverse School”). Students visit the laboratories, talk to teachers and students so that they can understand what that faculty means and what our students are preparing for, and also the diversity of jobs and the opportunities that exist.

Another type of program that took place at TUIASI university and had huge success was the Summer School, financed through World Bank and ROSE programmes. This program was dedicated to college students, especially those with low SES, or living in isolated/rural areas. As part of this program, participants spent two weeks experiencing university life by attending specific courses, engaging in practical activities, and taking part in cultural and social events. More info: <https://www.rose-edu.ro/romania-secondary-education-project/>

**Fig. 8** Summer Schools for high school students



The University of Crete (UoC) organises school visits to its premises, including laboratories, the library, and museums, such as the Museum of Education, the Museum of Medicine, and the Natural History Museum. It also hosts science-related events like *Science in the City*, *Researchers' Night*, and the *Science Fair* in collaboration with the Department of Culture of the Municipality of Rethymno and the Directorate of Secondary Education. These events include visits by undergraduate and postgraduate students to secondary schools, demonstrations of experiments, and hands-on, inquiry-based activities, following invitations from schools.

**Fig. 9** Researchers' Night & Science fairs



University of Rouen-Normandy (URN) organises monthly workshops for high school students. Wednesday afternoons are dedicated to high school students and their parents. The MIO department (*Mission Information Orientation*) organises information sessions to help students find their path to university.

More info: <https://www.univ-rouen.fr/formation/sorienter/>

A nationally implemented program at URN is the *Rope Team to Success (Les Cordées de la Réussite)*, which supports upper secondary school students in developing their career orientation projects. Supported by the Ministry of National Education and Youth, the *Cordées de la Réussite* program provides guidance and support for students in their educational and career orientation. The goal is to promote greater social equity in access to higher education. It aims to combat students' self-censorship through continuous support from the 8th grade (*classe de 4e*) up to the baccalaureate. At the University of Rouen-Normandy, thirteen *Cordées* are organised by six departments.

More info: <https://www.univ-rouen.fr/actualites/connaissiez-vous-les-cordees-de-la-reussite/>

**Fig. 10** Cordées de la réussite URN (URN website)





At University G. d'Annunzio Chieti – Pescara (UdA) during the Student Fairs and Events, the attendees can directly engage with faculty members from various departments and study programs to deepen their understanding of the university and grasp the opportunities it offers. The Student Fairs are held in person throughout the national territory and also digitally on the current platform [www.salonedellostudente.it](http://www.salonedellostudente.it).

The event is entirely dedicated to academic and professional orientation after high school. Within the Student Fair, topics such as soft skills and decision-making orientation, environment and inclusion are addressed to accompany young people towards their future and guide them towards a thoughtful choice.

UdA also offers the possibility of individual orientation on the page <https://www.unich.it/colloqui> where students can schedule orientation consultations with professors and tutors. By choosing a study program, the student can view the calendar of available dates and the consultations are conducted remotely via a computerised platform (Microsoft Teams).

More Info: <https://www.unich.it/colloqui>

The UdA ORIENTA PROJECT is a program for Transversal Skills and Guidance designed to help students consolidate their knowledge, assess their aptitudes, and navigate their study paths. It is intended for students in the 3rd, 4th, and 5th years of high school and includes three days of training and information.

**Table 1.** UdA Orientation Project

Day 1	Day 2	Day 3
Understanding of the university environment (1 hour)	Socio-Humanistic Area presentation (2 hours)	Open Day Simultaneously at the Campus of Chieti and Pescara.
Presentation of selection tests for numerous classes degree courses (1 hour)	Tools for choosing a university path (3 Hours)	
Healthcare Area presentation (2 hours)	Evaluation media	
Scientific Area presentation (2 hours)	Percentage (%)	

Medical University of Sofia (MUS) participates in national and international higher education exhibitions each year, showcasing the University and the study programmes.

University of Skövde (HIS) organises study visits for secondary school classes where students can learn about the various academic programs and facilities available at the University. Also, they provide career guidance and counselling services to prospective students, which can

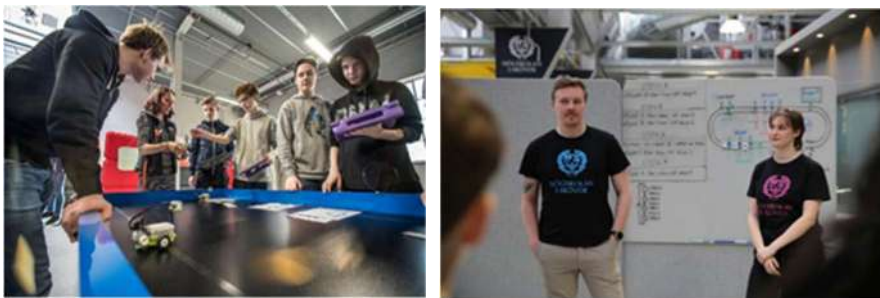


help them make informed decisions about their future studies and careers. University of Skövde (HIS) has a strong collaboration with the study counsellors in the surrounding municipalities. As a part of this collaboration, all local study counsellors are invited to an annual meeting at the University.

At the University of Skövde (HIS) the event “The World of Opportunities” is organised by Teknikcollege Skaraborg, Balthazar and the University. The event invites all eighth graders in the region of Skaraborg with the aim of showing the opportunities of getting a technical education. This event serves as a platform where industry and education come together to strengthen future competencies in industry and technology. The event aims to inspire and inform young students about career opportunities in these fields.

More info: <https://www.balthazar.nu/skola/mojligheternas-varld/>

**Fig. 11** « The World of Opportunities » in Skövde



The MTU Cork Campus Linked Schools Programme offers students who attend linked schools in Cork City and County a pre-entry programme of events including workshops, information sessions for students and parents, information on additional entry routes, study skills workshops, revision courses, drama and art programmes, campus and school visits.

Additionally, at the post-entry level, registered MTU Cork Campus students are offered additional college support, through the Higher Education Access Route (HEAR) system, to help them navigate the third level successfully. This support has financial, academic, personal and social components. Because of the pandemic, many events were made online for the first and second semesters, on both pre- and post-entry levels.

More info: <https://accesscollege.ie/hear> [https://www.mycit.ie/access\\_disability/linked-schools/collaborations-with-uccplus](https://www.mycit.ie/access_disability/linked-schools/collaborations-with-uccplus)

The University of Oviedo, as part of its Orientation Programme, participates in University Fairs in the north of Spain (Santander, Bilbao, Burgos and León) but also has its own *Jornadas de Orientación Universitaria-JOU* (University Orientation Days), usually during one week in February. Once again from the Vice-chancellor of Students and Employability (in

collaboration with the Department of Education of the Principality of Asturias and the City Council of Oviedo), Asturian Schools are invited to join this event that is primarily aimed at students of Baccalaureate, 4th year of Compulsory Secondary Education (ESO) and Higher-Grade Training Cycles (CFGS), with the main objective of informing them about the offer of university studies and access to the University.

**Fig. 12** More than 8200 students and 92 schools were present at 2024 JOU.



As part of the pre-university orientation program, the Vice-Rector's Office for Students and Employability of the University of Oviedo organises Conferences aimed exclusively at the orientation teams of Asturian educational centres (Baccalaureate, Secondary and CFGS): 'UNIOVI Coaching'. The topic deals with general aspects of the EBAU (the university entrance test), as well as other issues related to the access and admission procedure to the University of Oviedo.

## 2.2 Workshops and Competitions

The University of Skövde (HIS) participates in *ForskarFredag* (Researchers' Friday). European Researchers' Night in Sweden is organised by universities, science centres, museums, archives, research centres, municipalities, science parks and regional development councils across the whole of Sweden. The University of Skövde (HIS) in cooperation with ASSAR industrial innovation arena, Balthazar Science Centre och Näringslivsforum Skövde, organises both in person and online activities, including experiments and demonstrations, shows and exhibitions, science cafes and small group workshops. Invitations go out to local schools and pupils aged 6-19 are able to 'borrow a researcher' for school, virtually or in person.

In order to promote the technical fields, Gheorghe Asachi University of Iasi (TUIASI) organises competitions for high school students in collaboration with the secondary education

inspectorates. The awarded high school students get bonus points or free admission to the University programs.

- Mechanics – “Dumitru Mangeron” – (26th edition in 2024) – (for 11 to 12 grades – for technological and technic high schools) <https://cmmi.tuiasi.ro/studenti/concursuri/concursul-dumitru-mangeron/>
- Math „Adolf Haimovici” (26th edition in 2024) - <https://cmmi.tuiasi.ro/studenti/concursuri/concursul-adolf-haimovici/>
- Physics + Chemistry + Biology “Zircon” - (4th edition in 2024) – on online competition - for 7 to 12 grades; <https://www.ascchemis.ro/zircon/index.html>
- Chemistry – “Cristofor Simionescu” (13th edition in 2024) – online competition [https://www.ascchemis.ro/concurs\\_ficpm/](https://www.ascchemis.ro/concurs_ficpm/)
- Chemistry, physics, applied informatics, ecology, environmental protection - “High School Science Project” (12th edition in 2024) – (for 11 to 12 grades, online and live competition), <https://ascchemis.ro/hssp/>

The University of Oviedo holds different Scientific Olympics (regional modality) along the academic year in collaboration with the Spanish Ministry of Education, Vocational Training and Sports. Every year, high school students from all over the country compete in the regional phases of the Scientific Olympiads that give access to the national competition in the categories Physics, Mathematics, Chemistry, Biology, Geology, Economics and Computer Science. The winners of the National competition participate in the Ibero-American and International editions.

You can see an example here: <https://olimpiadadebiologia.edu.es/asturias/index.html>

**Fig. 13** Winners of the last edition of Biology Olympiads (UNIOVI)



In the summertime, the University of Oviedo offers secondary and high school students various activities, including scientific and technological sports camps. The latter aims to enhance the interest of ESO and Baccalaureate students in computing in different fields, such as programming, robotics, 3D modelling and printing, augmented reality, cybersecurity and

Artificial Intelligence, combining them with sports activities. led by sports instructors. Some examples of other summer camps are:

- Geological Paradise
- Scientific bases of Criminalistics
- Create and programme smart objects to transform your world
- Imagine an electronic device and build it!

## 2.3 Teacher Education and Training

At Karlsruhe University of Applied Sciences (HKA), in a specially designed course, 'Students as teachers', students receive technical and didactic training to manage the teaching duties and guide high school students in carrying out the experiments independently. The smaller age difference breaks down the communication barrier and allows casual conversations about the experiments and studies.

More Info: <https://www.h-ka.de/en/collaborate/schools/schools-meet-hka/inspiring>

HKA is project leader of the group COSH. COSH is a cooperation team between schools and universities in the federal state of Baden-Württemberg to improve collaboration and prepare upper secondary students for university studies. It focuses on the difficulties that students have at the beginning of a STEM degree course in mathematics and physics. The objectives include analysing the causes, building networks between teachers, regional cooperation, offers to support school leavers and developing recommendations for political institutions to improve the transition from school to university.

More Info: <https://www.h-ka.de/netzwerken/schulen-lehrende/arbeitsgruppe-cosh>

The University of Crete (UoC) organises frequent small-scale teacher training periods on teaching methods & teaching contemporary scientific topics and also teachers and students take part in the implementation of current research projects (national or ERASMUS+).

**Fig. 14** Teacher training at UoC



There is a strong relationship between UNIOVI and the CPR (Teachers and resources centres in Asturias). During the academic course, members of different research groups of UNIOVI offer conferences, courses and workshops about the state of the art in different knowledge areas as well as actualisation on some topics. Here are some titles from past editions: 'A co-educational approach to social and civic competence', 'A co-educational approach to the teaching of History: Prehistory, Archaeology and the Ancient World', 'Violence against women throughout History: didactic proposals and methodologies' and 'Education for peace and coexistence. A historical journey through cinema, TV and literature', 'Thinking Classrooms for maths'.

## 2.4 Scholarships, Financial Aid, and Support for Underrepresented Students

At Karlsruhe University of Applied Sciences (HKA), there is a special dual study model 'StudiumPLUS Apprenticeship', which combines a Bachelor's degree with vocational training in a company. Students have two professional qualifications in the short span of 4½ years. Instead of 3 or 3½ years of vocational training and 3½ years of Bachelor's studies, they can obtain both degrees in only 4½ years, which is a great advantage. Throughout the entire period of study and training, participants in StudiumPLUS also receive a continuous monthly payment. In the company, students can develop and apply the knowledge acquired during their studies.

More info: <https://www.h-ka.de/en/study/cooperative-programs/studiumplus-apprenticeship/structure-and-information>

The Street Games Academy, organised by the University of Skövde (HIS), uses sports as an arena and catalyst for improved study results. Students from HIS assist with homework before practice once a week.

The University of Skövde (HIS) organises, in connection with Sweden Game Conference, the event 'DONNA Day'. This event was created six years ago with the aim of inspiring and supporting women, transgender and non-binary people studying game development in higher education. Founded with the aim of recruiting more women to the institution's game education programs. When DONNA started, the proportion of women in game education programs was 10%. By 2020, the proportion had increased to 30%.

More info: <https://swedengameconference.se/en/donna-day/>

Karlsruhe University of Applied Sciences (HKA) organises Girls' Day, which is a Nationwide day of action with workshops for girls (from 10 to 16 years). With the same purpose 'Roberta' course-programming courses for girls (from 10 to 16 years) - and also the Female Pioneer

Program - which is a cooperation between schools, universities and companies in Karlsruhe, stimulating the interest in technology among girls and young women. This program organises about 33 events during a year-round program and the schoolgirls (from 9th grade) can register for individual program offers.

More info: <https://www.girls-day.de> and <https://next-entrepreneurs.org/femalepioneernetwork/>

Munster Technological University (MTU) works in partnership with school staff, local communities, MTU Cork Campus staff and students from primary and secondary schools to support greater participation of those who are underrepresented in higher education. The MTU Cork Campus Access Service works with 23 post-primary schools across Cork city and county, the majority of which are included in the Delivering Equality of Opportunity in Schools (DEIS) structure, the Irish government's main strategy addressing educational disadvantage in Ireland.

Munster Technological University (MTU) offers Access Service for Studyclix, Ireland's leading teaching and learning website, to provide students from across the Cork region with free access to its services. Almost 2,000 students from 15 schools across Cork were able to access Studyclix.ie for free, courtesy of MTU Access Service, to get expert exam tips and access to past papers for both Junior and Leaving Certificate. The online resource simplifies the study process by breaking each subject down into topics. In a recent survey of Leaving Cert points attained, Studyclix users scored an average of 127 points more than the national average.

Munster Technological University (MTU) has a very strong link with STEMSW <https://stemsouthwest.ie/> where they organised an expo for secondary school students – circa 1,500 registered, including parents and it was organised in conjunction with career talks and a TY (Transition Year) challenge.

TUIASI provides free math classes for low SES high school students, in order to help them finish high school and have the possibility to apply for university.

Through the 'Espacio Solidario' (Solidarity Space), UNIOVI carries out various awareness-raising and support activities for disadvantaged people and groups, both inside and outside the different university campuses. Collaboration with different social organisations and institutions is constant to carry out this type of initiative. From the Solidarity Space, actions are developed to promote gender equality, participation in social responsibility and volunteering programs or environmental awareness.

## 2.5 Outreach and School Collaboration

At the South-Eastern Finland University of Applied Sciences (XAMK), collaboration with other educational levels is very important. The main focus in collaboration with secondary education is vocational education and training.

There is a strong collaboration with upper secondary education: Upper secondary education project weeks in Savonlinna, working group of HEIs and upper secondary education in South Savo region or with school education, such as Mini Mikkeli, the annual entrepreneurial education project for 5th grade pupils in Mikkeli.

At XAMK there are collaboration agreements with all four VET providers in each Xamk campus town (Mikkeli, Savonlinna, Kotka, Kouvola) and there are steering groups of these agreements, 2-3 times per year.

University of Rouen-Normandy (URN) organises conferences in high schools, targeting senior students, on topics like study programs and fields, diplomas, campus life, etc. URN is also present every year at the Student and Education Fair, promoting a large study offer and answering students' questions. <https://www.univ-rouen.fr/agenda/salon-de-letudiant-rouen/>

The Medical University Sofia (MUS) works in joint programmes with Sofia Municipality and in cooperation with secondary school principals. Together they organise and conduct educational lectures on health issues so students improve their knowledge of healthy lifestyles and habits and are guided towards medical specialities.

Karlsruhe University of Applied Sciences (HKA) cooperates with schools and industry to teach students about the engineering profession – Student-Engineering-Academie (SIA). SIA students (11<sup>th</sup> grade) take part in a module every Friday afternoon for one school year (excursions, workshops in STEM subjects and key qualifications). Students write a seminar paper, which is graded and can count towards the Abitur/Baccalaureate.

HKA is equally providing:

- events for high school students in the Future Workshop: Computer Science.
- Education fairs at regional and school level.
- internships. German students in the 9<sup>th</sup> or 10<sup>th</sup> grade have to complete a one-week work placement in a company of their choice.



- the voluntary competence program. Service learning is a didactic concept that enables students to apply their knowledge to social problems. Both society and students benefit from voluntary work.

Munster Technological University (MTU) provides pre-entry, entry and post entry levels in different types of programs

At the pre-entry level, the linked schools programme delivers a comprehensive suite of activities to promote onward progression to further or higher education. The programme, which has developed and evolved over a significant number of years, promotes access to higher education among 23 linked schools in Cork city and county, 22 of which are included in the Delivering Equality of Opportunity in Schools (DEIS) programme. The overall aim of the pre-entry work is to provide greater opportunities for communities at risk of social exclusion and educational disadvantage to progress in their education.

In addition, the linked schools' coordinators are trained HEAR practitioners and regularly answer queries and offer advice to applicants during the HEAR application process and the review and appeals process. The coordinators also provide information sessions for Guidance Counsellors, Home School Community Liaison Coordinators, webinars to the Institute of Guidance Counsellors and at MTU open days, Higher Options and CAO information sessions. Additionally, the coordinators provide information on the HEAR arrangement, CAO, fees and financial information to both parents and students.

At the entry level, the coordinators are directly involved in the HEAR admission process and oversee the HEAR offers process in conjunction with the Access Officer and the admissions office. The HEAR team also links with the DARE team at the time of the offers to ensure priority candidates, who are both HEAR and DARE eligible, are prioritised as per the scheme guidelines.

More info: [www.mtu.ie/access/hear](http://www.mtu.ie/access/hear)

At the post-entry level, the coordinators are responsible for developing, designing and delivering an orientation programme for those students who accept their HEAR merit and HEAR reduced points offers. A parents'/guardians' informational evening is also delivered prior to the academic year for parents or guardians of HEAR eligible students. Both of those events provide information on the post entry supports available, including financial, academic, personal and social. The post entry supports provided include a HEAR orientation programme at the time of registration, one-to-one support meetings (face to face or online) throughout the academic year, a HEAR bursary payment (two payments over two semesters) and information dissemination through the use of an online Canvas module. The post entry



programme may also involve advocating on behalf of students with academic departments and in some cases external bodies.

MTU has a long-standing tradition of STEM education outreach since the inception of the college. MTU places high value on the importance of outreach, building relationships in schools, communities, families, the public, and industry partners with regard to our courses. The majority of STEM outreach work in MTU is delivered between The Science for Life Programme and the Faculty of Engineering and Science, along with Blackrock Castle Observatory (BCO), a MTU subsidiary, and the National Maritime College of Ireland (NMCI), a MTU constituent college of MTU. The Faculty of Engineering and Science courses in MTU are designed in collaboration with enterprise within the wider region so that almost all undergraduates and postgraduates of the faculty progress to employment on completion of degrees. This fact MTU strives to deliver to the general public as part of our STEM message and student recruitment initiatives and engagement activities are a feature of our outreach activities.

Examples of STEM education; public engagement and community engagement include:

- Blackrock Castle Observatory: A collaboration between Cork City Council, MTU's and a private benefactor, Blackrock Castle, the "space" place for hands on interactive Science and much more. BCO has had more 2 million visitors in the past 13 years
- SciFest: is Ireland's largest second-level STEM fair programme. It takes place locally, regionally and nationally and has been held in MTU for the last 13 years. Approximately 1,500 secondary school projects submitted to date with 3,000 students participating in the annual event in MTU.
- Engineering Your Future TY Programme: STEPS Engineering Your Future (STEPS EYF) is designed to inspire Transition Year students to study engineering and offers hands-on, fun and practical insights into engineering at the third level and as a career. In MTU 700 transition year students have participated in this programme, which is run in collaboration with Engineers Ireland.
- IWish is a community committed to showcasing the power of Science, Technology, Engineering, and Maths to teenage girls. The Faculty of Engineering and Science has been involved with this initiative by running an interactive campus programme with 1000 female transition year students participating since its launch in MTU over 8 years ago. In 2025 the faculty will collaborate with the MTU WiSTEM student society to run this event.

- **Engineers Week:** Faculty of Engineering and Science delivers an annual Science Show for primary school students where the faculty engages with 360 students from various schools across the city and county, attending in the Rory Gallagher Theatre. Engineers Ireland supply the performer; the faculty provides the venue and organise the schools that attend. Attended by 1,440 students in total over the last four years.
- **Physical Sciences outreach:** Department of Physical Sciences MTU engages with approximately 1000 senior cycle students on an annual basis delivering information sessions.
- **Biological Sciences:** The Department of Biological Sciences accommodates 34 transition year students annually. These students get to experience first-hand laboratory work during the week they spend with the lab technicians on campus at MTU.
- **Pilot School Visit Programme to promote Engineering:** In March 2025, MTU launched the Engineering pilot outreach programme to secondary schools. The faculty will collaborate with the engineering student societies to visit local secondary schools to promote Engineering disciplines available at MTU. The hope is for this initiative to be rolled out to all secondary schools in the region.

MTU are members of STEM South-west. STEM South-West (STEM SW) Home - STEM South-West is a not-for-profit industry-led cluster which focuses on the enhancement of the South-West (Cork and Kerry) region's Science, Technology, Engineering and Maths (STEM) talent capacity, capability, and agility. Together with our members, STEM SW aims to grow the region's brand and investment attractiveness to position the South West as a region of choice where STEM talent and industries can thrive. A key event is the STEMSW expo, featured above, which attracts upwards of 2500 secondary school children and their parents. This industry and career show case runs in parallel with the secondary school Transition Year (TY) challenge.

**Fig. 15** Activities at MTU



TUIASI collaborates with local high schools, and for the students who are not able to access the Open-day online presentations or visit the Campus, especially for those from remote areas, groups of professors and students go to high schools to present the study programs and fields, diplomas, campus life, etc.

There are several activities that the University of Oviedo organises to engage with schools. Some examples are:

- European Night of Researchers, a European scientific dissemination project, promoted and coordinated by the Vice-Rector for Research through the Scientific Culture and Innovation Unit (UCC+I) to bring the more human side of researchers closer and researchers from our university to citizens, but especially to school children.
- 'On tour with Science', professors from the University of Oviedo give talks and informative scientific demonstrations on different areas of knowledge to schools that request it. An example is 'The Travelling Microscope'.
- 'The Saturdays of Mathematics and Physics' organised by the Faculty of Sciences in collaboration with the Scientific Culture and Innovation Unit (UCC+i) of the University of Oviedo are an initiative that aims to show the presence of these disciplines in today's world and promote STEM vocations among high school students.
- INSPIRE STEAM! Inspira STEAM is a pioneering project to promote the scientific-technological vocation among girls, based on awareness-raising and guidance actions taught by professionals from the world of research, science and technology.
- The University of Skövde (HIS) participates in two of the biggest education fairs in Sweden, aimed towards high school students, college students, parents, teachers and study counsellors.
  - Kunskap & framtid in Gothenburg is the largest job and education fair in western Sweden, attracting thousands of visitors to the Swedish Exhibition and Congress Centre every year.
  - Saco Student Fair in Stockholm is one of Sweden's largest venues for the choice of post-secondary education. Almost 25 000 graduating high school students visited the fair last year. At the fairs the university participates with student representatives (from our Heroes concept) and Study Counsellors.

**Fig. 16** • The University of Skövde participates in an education fair



The University of Skövde (HIS) hosts an Annual Nobel Prize Event for High School Students. Each year in December students from Västerhöjd High School (Skövde) have the opportunity to learn about the year's Nobel Prize laureates and gain deeper insights into the awards. Classes from three-year groups in the Natural Science program are invited to the University of Skövde (HIS) to attend lectures on the Nobel Prizes and to familiarise themselves with the campus. The event is organised by Balthazar Science Centre in collaboration with the University of Skövde (HIS) and Västerhöjd High School.

## 2.6 Dedicated offices in universities

At the University of Rouen-Normandy (URN), there is a dedicated office called 'Mission Information-Orientation' (MIO). The MIO team provides guidance to students from high school to university, supporting them throughout their academic journey to develop a training plan tailored to their profile and objectives. The team helps students explore different training courses and opportunities. Guidance officers also offer individual consultations by appointment. The service also provides students with a documentation room and computer stations on the Mont-Saint-Aignan campus. More info: <https://www.univ-rouen.fr/formation/sorienter/>

The University of Oviedo (UNIOVI) has the COIE, The Student Guidance and Information Centre that aims to facilitate access to information for all students, with equal opportunities, allowing each one to design their own training plan according to their preferences. The COIE, in addition to providing information, guides users towards the organisations that produce the requested information, providing addresses, telephone numbers, publications, etc. that

satisfy the expectations of each particular case. The COIE is also in charge of the organisation of the “Open Days” and the “Jornadas de Orientación Universitaria”.

At Karlsruhe University of Applied Sciences (HKA), the Central Student Advisory Service (ZSB) is the first point of contact for questions about studying. The ZSB informs and advises prospective students in their search for the right degree course and advises students in all phases of their studies. It offers individual and group consultations as well as information and orientation events. Topics include study orientation, courses on offer, study organisation and learning planning, personal or study-related problems, changing subject or university, reorientation, interrupting/dropping out of studies, studying with a disability or chronic illness and studying with a family.

At Munster Technological University (MTU) the Access Service is committed to widening participation, increasing access, and supporting positive educational outcomes for underrepresented groups in Higher Education. The Access Service provides a range of supports for student groups who are under-represented at the third level.

University of Skövde (HIS) has since 2015 worked with the Hero Concept, a strategic initiative aimed at enhancing prospective student engagement. Under this framework, each undergraduate program designates a student representative, known as a "hero," who serves as a point of contact for prospective students. This representative provides insights into academic programs, student life, and the university experience, facilitating informed decision-making for future applicants. The student heroes participate in student fairs, visit schools and answer questions via e-mail and phone.

More info: <https://www.his.se/hjalte/>

## 2.7 Conclusion

The best practices identified across the INGENIUM Alliance demonstrate a firm commitment to widening enrolment, fostering early STEM engagement, and promoting equitable access to higher education. Several partner universities deploy large-scale outreach through Open Days, orientation programmes, and school visits—often in hybrid or mobile formats—thereby lowering psychological and logistical barriers for prospective students, especially those in remote or under-resourced areas.

A core strength lies in STEM-oriented initiatives: universities organise science fairs, lab experiences, and research encounters that not only serve as recruitment tools but also nurture scientific curiosity and gender balance. Notably, practices like UoC's science events, TUIASI's national competitions, and Skövde's participation in ForskarFredag are designed to

engage girls and underrepresented students. In parallel, innovative models such as HKA's orientation semesters, MTU's multi-level access system, and Skövde's ambassador "Hero" concept provide scalable, transferable frameworks across institutions.

Equally important are the initiatives targeting disadvantaged and underrepresented groups: these include financial support, preparatory classes, mentoring schemes, and institutional-teacher partnerships. Such interventions form a coherent ecosystem from pre-entry outreach to post-entry retention, aligning strongly with European goals of social mobility and inclusion.

Finally, many practices emphasize cross-sector collaboration, including cooperation with municipalities, vocational schools, science centres, and industry (e.g. in XAMK, HKA, MTU). This multi-stakeholder governance enhances relevance, scalability, and alignment with local needs, while facilitating smoother educational transitions.

Overall, the best practices offer a robust, innovation-driven, and policy-aligned foundation for INGENIUM. They showcase integrated models for early STEM engagement and inclusion, provide evidence-based frameworks for broadening participation, and demonstrate effective institutional coordination across varied European contexts, by paving the way for model initiatives across the Alliance.

## PILLAR 3: RECOMMENDATIONS AND NEXT STEPS

### Recommendations for Reinforced Cooperation between Higher Education Institutions (HEIs) and Secondary Schools

Strengthening partnerships between higher education institutions (HEIs) and secondary schools is crucial for following up and providing the appropriate mentoring to teachers, students and families, thus preparing students for higher education and equipping them with the skills and knowledge required in an ever-evolving workforce. The following recommendations focus on improving communication, organising targeted events, optimising resources, fostering partnerships, and providing specialised training to build sustainable and impactful cooperation. Following the process identified in the Methodology section (page 11), these recommendations were set up during the experts group sessions online and the 10 Days of INGENIUM in XAMK, and approved at the institutional level by the governance of each partner university and ultimately by the Steering Committee of INGENIUM.

#### 3.1 Enhanced Communication and Coordination

A key element of successful cooperation is the establishment of clear, ongoing communication channels between secondary schools and HEIs. To facilitate this, it is important to:

- **Nominate dedicated coordinators** in both HEIs and secondary schools to oversee and steer collaborative efforts. These coordinators should ensure a continuous flow of information and set up regular meetings to align objectives and strategies.
- **Define clear objectives** for the cooperation, working closely with secondary school partners to identify shared goals. Understanding what both institutions aim to achieve will enable better targeting of efforts and resources.
- **Set measurable indicators** to assess progress. These could include tracking the number of students participating in university-led events, the impact of career guidance workshops, or the number of students transitioning from secondary schools to HEIs.
- **Open specialised offices** within universities to serve as a dedicated point of contact for cooperation with secondary schools. These offices should provide ongoing support and ensure the seamless organisation of collaborative activities.



- **Promote STEM fields** by encouraging female student ambassadors to engage with secondary school students and raise awareness about opportunities in science, technology, engineering, and mathematics.
- **Enhance Event Advertising:** Improve how university events, such as Open Days, workshops, and immersive experiences, are marketed to secondary schools. Use both digital and in-person strategies to reach the right audience effectively.
- **Collaborate with School Inspectorates:** Work closely with local inspectorates to ensure that information about university offerings and events is disseminated to school directors early in the academic year. This will give secondary schools ample time to integrate university-related events into their schedules.
- **Coordinate with Career Advisors:** Strengthen ties with career advisors at public job centres. Organise information sessions where these advisors can meet with university representatives to better guide students on career and academic choices.

### 3.2 Collaborative and Impactful Events

Organising events that bring together secondary school teachers, students, and university representatives can help deepen the relationship between the two educational levels. Some suggested events include:

- **Career guidance events for secondary school teachers:** Organise special sessions that introduce secondary school teachers to HEI courses, programs, and career pathways. This enables teachers to provide better guidance to their students.
- **Develop Tailored Workshops:** Offer workshops that are designed to complement the secondary school curriculum. Create technical topics and workshops suited for specific year groups, which can be integrated into the existing school curriculum.
- **Open Days and Immersive Experiences:** Actively advertise university events such as Open Days, workshops, and immersive experiences. These events can be tailored to provide a comprehensive understanding of university life and courses, including interactive activities for students.
- **Thematic workshops and competitions:** Organise university-wide scientific events, such as theme weeks focusing on artificial intelligence, robotics, medical technology, or programming competitions. These events could be expanded to include workshops for students and teachers, enabling them to actively engage with the university.
- **Visits to and from schools:** Foster exchanges by arranging for university students and faculty staff to visit secondary schools, particularly those in the same geographical



region. Similarly, invite students and teachers to visit the university and experience campus life first-hand.

- **Webinars for remote schools:** Organise online thematic webinars that allow teachers and students from distant or underserved schools to engage with university programs and career guidance, ensuring equitable access to information.
- **Create Cross-Educator Meetings:** Foster regular interactions between secondary school and university faculty to align curricula, share best practices, and discuss mutual challenges.
- **Overcome Mobility Barriers:** Help students in remote or disadvantaged areas by addressing logistical barriers such as transportation and housing. Offering assistance in these areas will ensure that more students have the opportunity to participate in university events.
- **Host Thematic Webinars:** Organise lunchtime webinars on specific topics (e.g., university admissions, scholarship opportunities) to give students and teachers in distant schools access to university information.
- **Partner with Regional Organisations:** Work with science teachers and local community organisations to host regional STEM or innovation-focused events. This collaboration can bring higher education directly to the communities that need it most.

### 3.3 Teacher and Student Training

Both secondary school teachers and university staff will need specific training to effectively support student pathways and collaboration efforts. To that effect, microcredentials could be created in order to ensure personalised and flexible learning and to offer professional competences within an international frame. Some key recommendations are:

- **Teacher training:** Offer professional development opportunities for secondary school teachers so they can better guide their students towards higher education options. This includes understanding the university admission process, scholarships, and available programs.
- **University ambassador programs:** Train university students, faculty, and researchers to serve as ambassadors, helping bridge the gap between the university and secondary schools. These INGENIUM ambassadors could offer peer-to-peer mentorship and guidance to students.

- **Joint Courses and Classes:** Develop combined courses where both university and secondary school teachers can collaborate to deliver content. These shared classes will allow both sides to learn from each other and strengthen connections.

### 3.4 Resource Allocation and Support

#### 3.4.1 Resources

For cooperation to be sustainable, both institutions must allocate sufficient resources to ensure its success. To do this effectively:

- **Allocate Time for Collaboration:** Establish clear guidelines on how much time will be dedicated to cooperation activities. Ensure that teachers and faculty members have the necessary time in their schedules to participate in initiatives.
- **Create sustainable structures:** Create robust structures for cooperation that will endure despite changes in leadership or governance. Institutionalising the collaboration will ensure its long-term success.
- **Secure stable funding:** Senior management should commit to providing ongoing financial, human, and logistical resources for these initiatives, even during times of organisational change.

#### 3.4.2 Support for vulnerable high-school students

Opening up university opportunities to vulnerable students is essential for fostering an inclusive educational system that reflects the diverse needs of society. Implementing the following recommendations can help create a supportive environment where all students, regardless of their background, feel welcome and equipped to succeed:

##### **Financial Support**

For many vulnerable students, the cost of university can be a major barrier. Providing comprehensive financial aid packages, including scholarships, grants, and emergency funds, can alleviate the financial burden. Universities should also consider offering payment plans to ensure that financial difficulties do not prevent any student from pursuing higher education.

##### **Flexible Learning**

Flexible learning options, such as part-time study, evening classes, and online courses, can make university more accessible to students who face challenges balancing education with other commitments. For vulnerable students, including those with jobs, caregiving

responsibilities, or health issues, these flexible structures provide the necessary accommodations for them to succeed without overwhelming them.

### **Mentoring and Counselling**

Having a reliable support system is crucial for students from vulnerable backgrounds. Universities should implement strong mentoring and counselling programs that provide emotional support, guidance, and practical advice. Peer mentorship programs can also be particularly helpful, as students can learn from others who have faced similar challenges. Professional counsellors should be available to support mental health and wellbeing, ensuring students feel understood and supported throughout their academic journey.

### **Pathways for People With Disabilities/Long-Term Illnesses**

Students with disabilities or long-term illnesses often face additional barriers to accessing higher education. Universities should offer clear pathways to support these students by holding informational events and providing resources on the accommodations available, such as accessible campus facilities, assistive technologies, and exam adjustments. These students should have a clear understanding of the services offered to ensure they are fully equipped to participate in university life.

### **Initiatives for Underrepresented and Disadvantaged Groups**

Underrepresented and disadvantaged groups, including migrants, refugees, students in foster care, and Roma students, often face significant challenges in accessing higher education. Universities should develop outreach programs to raise awareness about opportunities for these groups, offering tailored guidance and support. This could include specialised workshops, recruitment drives, and dedicated scholarships to help ease the transition into university. By creating a welcoming and inclusive atmosphere, universities can foster diversity and ensure that all students have the chance to succeed.

### **Initiatives Involving Younger Students**

Engaging younger students, particularly those aged 5 to 12, can help instil a sense of possibility and ambition for higher education early on. Universities should collaborate with schools to offer programs that expose children to university life, such as campus visits, mentorship programs, and hands-on learning activities. By introducing students to university concepts early, they are more likely to see higher education as an attainable goal and will feel more confident about pursuing it later in life.

By implementing these recommendations, universities can create a more inclusive and supportive environment that ensures vulnerable students have the opportunities and resources they need to succeed. These efforts will help not only individual students but society as a whole, by allowing a diverse range of voices and perspectives to thrive in the academic world.

### 3.5 Partnerships and Agreements with Industry and Communities

Incorporating external partners into this collaboration can increase its impact and relevance. Key steps include:

- **Industry involvement:** HEIs should partner with local industries to secure resources, internships, and mentorships for students. Collaboration agreements with industries can offer mutual benefits, such as providing students with real-world exposure and meeting local workforce demands.
- **Geographical outreach:** Overcome the challenges posed by geographical distance by ensuring universities actively reach out to schools, particularly those in underserved or remote areas. If schools are unable to visit the university, universities should make efforts to bring the university to the school.
- **Long-term engagement:** Universities should engage in long-term, consistent cooperation with secondary schools. For example, they could support a specific class or grade level for several years with workshops and resources, fostering a sustained relationship that nurtures student success.
- **Community-driven initiatives:** Involve local industries and communities as anchor tenants in this cooperation. For schools located in disadvantaged areas, this engagement will ensure a local, sustainable network of support.

### 3.6 Suggested Actions

Based on the best practices and the recommendations that have been identified by the Experts group, a list of suggested actions has been drawn up. Their implementation will be supervised and monitored during each monthly online meeting of this specific Work Package, to ensure coordination and reporting.

**Table 2.** Suggested Actions within INGENIUM

Area	Suggested Actions in INGENIUM Partner Universities and across the Alliance	Timeline	Monitoring
Events	Virtual career workshops	2025-2026	Monthly follow-up & reporting meetings
	STEM Breakfast organised across INGENIUM campuses, modelling the Stem Breakfast International Event	First Quarter 2026	
	INGENIUM Diversity Week/Inclusion Month to promote gender diversity in technical/scientific fields and STEM education	May 2025 March 2026	
	Joint Open House events	2026	
Communication	Virtual Tours	2025-2026	
	AI Chat bots	2025-2026	
Training	Practical exposure to career fields	2026	
	Training sessions for secondary school teachers – to promote study opportunities within INGENIUM	2026	
	Develop a microcredential on interculturality for secondary school teachers, in collaboration with the experts from WP9.3 (Multiculturalism and Multilingualism)	First semester 2026	
Mentors/Projects	INGENIUM Student Ambassadors to promote STEM fields, especially among girls, in high schools	First semester 2026	
	INGENIUM Student Project: <i>Speaking from the heart: Fostering Intercultural Learning in Secondary Education</i>	Second Semester 2025	
	Mentoring program between INGENIUM University Students and Local High School Students from the same region and/or across the INGENIUM Alliance.	First Semester of 2026	

Partnerships and agreements	Create an INGENIUM Network of Guidance and Information Departments so as to ensure mutual learning and practice/experience sharing.	First semester of 2026	
	Extend partnerships between INGENIUM universities and international companies/industries to other universities within the Alliance.	By Sept. 2026	

### 3.7 Implementation plan

These recommendations will guide the creation of coordinated and joint actions by the INGENIUM partner institutions, which will establish their own institutional action plans using the matrix included at the end of this deliverable. The matrixes will define measurable targets in the selected areas related to the recommendations

The institutional action plans related to the D9.2 will be compiled by the WP leader within one month of submission. The implementation by the partner institutions will be supported by the WP teams.

The implementation of the institutional commitments and the suggested actions included in the Table 2. of the document will be monitored by the WP leader and reported to the European Commission using the INGENIUM Annual report of M37 and the INGENIUM final report.

### 3.8 Conclusion

The Pillar 3 recommendations will serve as a practical roadmap for moving from individual actions to coordinated, measurable, and sustainable cooperation across the INGENIUM Alliance. They will now be used to develop shared implementation plans and tools that can be adapted locally while supporting a common strategy. In doing so, the Alliance will ensure that collaboration with secondary schools becomes systematic, scalable, and embedded in long-term institutional practice beyond the project period.

## CONCLUSION

The INGENIUM strategy for a better integrated education system confirms the INGENIUM Alliance's collective commitment to strengthening cooperation between higher education institutions and secondary and vocational education providers through a systematic and inclusive approach. The mapping of institutional practices, the identification of shared challenges, and the formulation of common recommendations have enabled the Alliance to establish a coherent framework that will guide future collaboration measures across all partner institutions. This work demonstrates that successful transition pathways are achievable when cooperation is not treated as an optional or ad-hoc activity, but as a core institutional responsibility supported by policy, structure, and resource allocation.

Through this deliverable, INGENIUM positions itself as a reference model for European-level cooperation by demonstrating that diverse national systems can collectively develop harmonised approaches without compromising autonomy or contextual relevance. The Alliance has shown that progress in widening enrolment and strengthening transition mechanisms requires sustained communication channels, clearly defined governance and accountability mechanisms, inclusive outreach strategies and shared training opportunities. These principles constitute a reproducible model that other Alliances and higher education institutions may adopt or adapt according to their institutional and national frameworks.

The results obtained through this strategy will be exploited at multiple levels. At institutional level, partners will translate the agreed recommendations into concrete implementation plans supported by shared evaluation tools. At Alliance level, INGENIUM will operationalise selected actions through pilot activities, common events, co-developed training offers, and mechanisms for monitoring outcomes and impact. At system level, the Alliance will continue to engage in dialogue with relevant authorities and stakeholders to ensure alignment with national and European priorities for equitable access, lifelong learning, and inclusive excellence.

By providing a structured and transferable approach, INGENIUM actively contributes to the objectives of the European Education Area and exemplifies how European University Alliances can serve as policy laboratories for innovation in the field of education, inclusion, and transition support. Going forward, the Alliance will capitalise on this to reinforce its long-term strategy, scale practices, and disseminate outputs, thereby supporting broader European efforts to build a fair, accessible, and socially responsive higher education ecosystem.

The partners remain committed to advancing this agenda in the next phases of the project, ensuring that the work undertaken will continue to generate long-term benefit.



## Annex 1. Survey about the challenges

...

### Challenges encountered in the collaboration between higher education and secondary schools.

This questionnaire was designed to get a better understanding of the challenges of each University Alliance.

Lorsque vous soumettez ce formulaire, il ne collecte pas automatiquement vos détails, tels que le nom et l'adresse e-mail, sauf si vous le fournissez vous-même.

\* Obligatoire

1. In terms of Communication- does your university have a full time marketing unit? \*

☒ Yes

☐ No

2. Does your University host open days? \*

☐ Yes

☐ No

3. Does your university run workshops for secondary school students? \*

☐ Yes

☐ No

5. Does your university have assisted routes to third level for second level students from socio-economic backgrounds? For example in Ireland we have the "HEAR" Scheme -<https://accesscollege.ie/hear/> \*

☐ Yes

☐ No

6. If Yes to question 5, please include names and links of assisted routes.

Entrez votre réponse

7. Does your university have assisted routes to third level for second level students with illnesses or disabilities? For example in Ireland we have the "DARE" Scheme -<https://accesscollege.ie/dare/> \*

☐ Yes

☐ No

8. If Yes to question 7, please include names and links to routes.

Entrez votre réponse

9. Does your university have outreach teams to increase promotions to STEM (Science, Technology, Engineering and Math's) Education? \*

☐ Yes

☐ No

10. If Yes to question 9, please give examples.

Entrez votre réponse

11. Does your university host annual talks for Secondary school teachers and/or Guidance Councilors? To showcase the courses available at the university? \*

☐ Yes

☐ No

12. Has your university have pathways for disadvantaged students? Please share the types of programs: \*

Entrez votre réponse

13. Does your university have supports for students with disabilities or illnesses? For example, extra time for exams, separate exam center, sign language interpreters, personal assistants, etc. \*

☐ Yes

☐ No

14. If your university doesn't offer supports for students with disabilities and illnesses, do you think it would help the links between secondary and third level?

Entrez votre réponse

15. Does your country offer grants to second level students to cover the cost of third level fee's? For example in Ireland we have the SUSI grant- <https://www.susi.ie/> Please share Names and Link's explaining your grants. \*

Entrez votre réponse

16. Does your university run specific demographic events/workshops/talks for under-represented groups? For example for Refugee's, Gypsies/Traveller Students/Roma Students? If yes, please give examples: \*

Entrez votre réponse

17. Is your university well connected in terms of transport? Please tick all that apply: \*

☐ Train

☐ Tram/Metro

☐ Bus

☐ Designated Cycle Lanes

☐ Direct access to a motorway

18. Does your university have adequate parking facilities available? \*

☐ Yes

☐ No

19. Please state your University name & your country: \*

Entrez votre réponse

Envoyer

Ne communiquez jamais votre mot de passe. [Signaler un abus](#)

Annex 2. Matrix to be used by partners to list and to monitor the progress of their key institutional priorities related to the deliverable.

Institutional transformation objectives	<p><i>Please list the institutional transformation objectives that you seek to attain.</i></p> <p><i>Select between 3/5 institutional objectives</i></p>
Barriers faced to achieve those objectives at the institutional level	<i>Please list and explain the barriers that you currently face to achieve your institutional objectives.</i>
Potential Actions to be taken at the institutional level	<i>List the actions that you plan to take within your institution.</i>
Actions to be taken at other levels	<i>List potential actions concerning other actors, such as regional or national governments.</i>
Responsible(s) within the institution	<i>Explain who from the institution will be involved in the actions. Include the main responsible and other involved actors.</i>
Expected timeline and key milestones	<i>Please define an expected timeline and establish milestones if possible</i>