EUROPEAN UNIVERSITY OF TECHNOLOGY

EUT+ EXTRAS

EXPERIMENTATION TO TRANSFORM RESEARCH ACTIVITIES AND STEERING

Deliverable D 4

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WP: 2

DISSEMINATION LEVEL PUBLIC

DESCRIPTION: Methodology and demonstrator (videos, social media posts, community management, etc.) of a communicational approach for the promotion of European science and technology

COMMENTS: The term 'science' refers broadly reflects all areas of research. Considering the broader scope of research fields covered by various European universities, including the EUt+ Alliance members, and academic institutions it is recommended to use the term research in European context, as the terms science and technology exclude some important research disciplines.

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EUt+ Initiative

WORK PACKAGE X: 2
of EXTRAS Project

Deliverable D.2.2
Methodology and demonstrator of a communicational approach for the promotion of European science and technology

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FOREWORD TO DELIVERABLE D 2.2

This deliverable presents the *Methodology of a communicational approach*. It aims at providing a working solution that will facilitate the process of promotion of European research to wider society: raise awareness among young people and broad society, achieving in practice the ultimate goal of science communication, towards more informed and knowledgeable society, as well as position the EUt+ Alliance as a reliable, socially responsible university alliance.

The methodology presented in this deliverable is in line with our definition of an efficient science communication (based on scanning the literature, benchmarking our existing science communication practices and in-depth discussions within the working group), which allows target audiences to understand the 'what' of research in a clear and understandable manner, and to identify a 'who' behind the research. The research being made much more accessible, the research is "human", and thus, much more appealing and meaningful.

This awareness about research is important, because science to the benefit of people and society is, undoubtedly, a crucial factor to European Union growth and well-being. Over the last decades, the economic and social impact of science and research in our modern societies has been growingly acknowledged, and thus the crucial role that Science communication has to play. However, there remains a gap to be breached in terms of public awareness.

Breaching this gap is the contribution that this Methodology deliverable is aiming at, adopting a participatory and iterative approach, i.e. involving target audience in the co-design process of the demonstrators (messages and videos). These demonstrators will be evaluated in line with a retained definition (Burns et al., 2003) of science communication as being about the use of appropriate skills, media, activities and dialogue to produce one or more of the following personal responses to science: Awareness; Enjoyment; Interest; Opinions; Understanding of science.

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Table of Content

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Introduction

Over the last decades, it has been widely acknowledged that science, research and technologies have made significant economic and social impact in our modern societies. Science to the benefit of people and society is, undoubtedly, a crucial factor to European Union growth and well-being. Nevertheless, there is a lack of public awareness about the achievements of prominent European scientists, engineers, designers, researchers and the many other discipline experts.

"*Great science does not speak for itself*" (Science Europe). Their slogan proclaims their position statement *Science Communication for Greater Research Impact*, where they focus attention on the fact that it is critical that scientific evidence is readily available and easy to understand. Governments, businesses, and citizens are demanding more of such evidence to make informed decisions and act (Science Europe, 2022). Thus, the crucial role that Science communication has to play, both in terms of scientific impact and societal impact has increased over the last decades.

Deliverable context and objectives

The overarching aim of the present *Methodology of a communication approach* is to provide a working solution that will facilitate the process of promotion of European research to wider society. This process will include involving local communities and wider society, through participation at different levels. The goal is to raise awareness among young people (as emerging scholars to sustain research for future generations) and broad society. The idea is to communicate and discuss not only the results of research, but also the way research is carried out and its implementation in various technologies and application in our daily life.

> *"The general idea is to increase the status and attraction of scientific work and to recognize scientific results. Even though there are plenty of meeting-places and efforts to increase the dialogue between science and society, the principal idea is not to criticize or scrutinize the science itself, or to present alternative findings in other respects than as a counter-weight to the scientific results."*
>
> *(EUSCEA White Book, 2005)*

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As a narrower and more specific goal, we need also to position the EUt+ Alliance as a reliable, socially responsible university alliance, where research is based on core European values and culture; where innovation and new technologies are developed with the clear vision that people, society and their needs, well-being and future are of utmost importance.

New technologies should be developed acknowledging such important issues as ethics, sustainability, human health and well-being. The leading slogan will be: "Develop new technologies and innovation, but always *'Think HUMAN first – Think about HUMANITY'*". However, this also implies considering sustainability issues, as thinking about humanity also involves thinking about the health of the wider eco-system that supports human endeavours.

Linking EUt+ motto to science communication, following Laura Helmuth, Health, Science and Environment Editor at The Washington Post, we believe that "Storytelling humanises scientists". Therefore, efficient science communication, which allows target audience to understand the 'what' of research in a clear and understandable manner, and to identify a 'who' behind the research, makes the research much more accessible: the research is "human", and thus, much more appealing and meaningful.

Part 1 – Methodology

Communicational approach

The methodology of communicational approach starts with scanning the existing knowledge in Science Communication and case studies of existing good practices among EUt+ partners. This exploratory study of the science communication practices and experience in place in the eight EUt+ Alliance partner universities aims to define current processes of identifying and promoting research related information. These existing practices are coherent with the very nature of our universities of technology. It is our belief that the EUt+ Alliance science communication work will be more efficient by sharing these existing good practices and scaling them up. The collected communicational approaches have been benchmarked, analysed and discussed during a number of working meetings by the Task 2.2 team members, most of whom have former experience in science communication and promotion of research. The results from the exploratory study and the analysis of best practices in science communication are summarized and presented below (cf. Annex 2 for complete analysis). The main task of the methodology will be to define the scope of communication and its processes – from its collection to its promotion – including the distinction of target audiences and their specificities, key questions that the communication strategy has to answer, various communication media, research content to be communicated and other relevant issues.

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Communication plans according to defined target audiences are to be developed. This includes specific outlining vision and communication strategy about EUt+ research, research institutes and researchers.

Demonstrators

The efficiency and effectiveness of the suggested communicational approach will be pilot studied through the development of various kinds of demonstrators, such as videos, promoted through YouTube channel broadcasts; EUt+ Alliance web page posts and videos, social media (Facebook, LinkedIn, Twitter, Instagram) posts, etc. The effect and impact of these various kinds of demonstrators will be evaluated through a questionnaire and focus groups (see Annex 3). They will include representative members of the different target audiences. The pilot studies will be organised and performed by the four EUt+ alliance members, who are participants in this task, and partners in the observer role who wish to participate.

The pilot study will be based on a participatory and iterative approach, in order to continuously improve the demonstrators in a co-construction mode with representative panels of target audiences.

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Part 2 – Mapping science communication approaches and practices

Illington and Allen (2020) view science communication from the perspective of scientific impact and from the perspective of social impact. Following that approach, they consider it comprises two aspects: one which is aimed at engaging scientists (inward-facing), through peer-reviewed publications, grant proposals, and conference presentations, etc. and one which is aimed at engaging non-scientists (outward-facing), which involves working with non-scientists, to both communicate research output more widely and to help diversify and broaden scientific discourse.

Gibbons et al. (1994), in a similar way, distinguish two different approaches of research: focusing on scientific impact, characterised by the academic interest and needs ("Mode 1"), or on social impact ("Mode 2"). The studies dedicated to the second approach use various names, such as: *third stream activities*, *societal benefits*, *societal quality*, *usefulness*, *public values*, *knowledge transfer*, and *societal relevance*.

In line with its *raison d'être* as stated in its Mission Statement, EUt+ and more specifically EUt EXTRAS is focused not only on sound scientific impact, but pays special attention to the social and economic impact of research to the broader society. Therefore, it is of critical importance to raise awareness among various social groups and make them see and understand the role and impact that science and research have on the well-being of people and humanity.

Following the clear definitions of the *European Research Executive Agency* (EREA), we consider science communication as a separate activity to research output dissemination. While the latter is aimed at making knowledge and results publicly available to the those who can learn and benefit from them, the science communication role is dedicated to informing, promoting and communicating activities and results to citizens, stakeholders and the media (EREA, 2023).

The importance of science communication has established itself as a research field in its own right, with distinguished place and role in the research domain. As Burns and al. (2003) rightfully acknowledge, science communication is not just about encouraging scientists to talk more about their work, nor is it offshoot of the discipline of communication. In their in-depth investigation of the nature and understanding of science communication, they come to a clearer definition of this broad and quite often misunderstood and/or misinterpreted concept.

Considering the *Office of Science and Technology and Welcome Trust* year 2000 report, we see a clear stature and understanding of communication flows between various groups. In their

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report entitled “Science communication and public attitudes to science in Britain”, authors rightly outline the main communicating groups:

- Groups within the scientific community, including those in academia and industry;
- The scientific community and the media;
- The scientific community and the public;
- The scientific community and government, or other in position of power and/or authority;
- The scientific community and government, or others who influence policy;
- Industry and the public;
- The media (including museums and science centres) and the public;
- The government and the public.

Building on that report and on Bryant’s (2003) short, comprehensive and at the same time highly informative definition of science communications as *“the process by which the culture and knowledge of science are absorbed into the culture of the wider community”,* Burns et al. (2003) offer, what they have called *AEIOU definition* of science communication. In their definition, which in practice looks more like a science communication model, they try to unite all participants, features, channels, actions and results of the process. The main strength of this, a little bit longish, definition is that it tries to clarify the goal and the nature of science communication, thus providing basis for evaluation of its effectiveness. The authors consider science communication as being about the use of appropriate skills, media, activities and dialogue to produce one or more of the following personal responses to science:

- ***A****wareness*, including familiarity with new aspects of science;
- ***E****njoyment* or other affective responses, e.g. appreciating science as entertainment or art;
- ***I****nterest*, as evidenced by voluntary involvement with science or its communication;
- ***O****pinions,* the forming, reforming, or confirming of science-related attitudes;
- ***U****nderstanding* of science, its content, processes, and social factors.

Finally, they summarise that science communication may involve science practitioners, mediators, and other members of the general public, either peer-to-peer or between groups (Burns et al., 2003).

We consider this framework useful as a basis to follow and build around a science communication approach. However, further exploration of the science communication literature reveals more recent debate on science communication considering topics, such as what science communication scholars think about training scientists to communication (Besley and Tanner, 2011); exploring the societal factors which have led to an increased need for scientists to communicate, investigating the various cultural influences, key motivations and types of science communication; advantages and disadvantages of the three main media

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formats – traditional journalism; life or face-to-face events; and online interactions (Bultitude, 2011); the interaction between science and society (Jucan and Jucan, 2014); science communication aims and its actual impact (Kappel and Holmen, 2019); science communication as instrument in the fight against misinformation (Goldstein et al. 2020); science communication and public trust in science (Intemann, 2023); as well as more recent topical issues such as science communication in the age of artificial intelligence and the impact of GTP (2023).

However out of these numerous, topical and informative studies, as most relevant to the present assignment is the investigation of various models of science communication described by Lewenstein (2003):

- *The knowledge deficit model* – public scepticism about science is caused by a lack of relevant knowledge.
- *The contextual model* – effective science communication requires an understanding of the needs, attitudes and existing knowledge of different audiences (Lewenstein, 2003).
- *The lay expertise model* – based on local expertise and knowledge regarding scientific subjects under consideration, building on tacit knowledge possessed by communities through, elders and other opinion leaders.
- *The public engagement model* – the scientists, the public and policymakers participate equally in discussion and debates about issues in science and technology.

Indisputably, there is a wide body of knowledge, experience and practices related to science communication. What we consider worth investigating further is defining the 'right' or more specifically the working approach to science communication that will help us achieve in practice the ultimate goal of science communication. It is our belief that this goal is related to making our society more informed, knowledgeable, i.e. aware of the impact of research findings, technologies and innovation. Further, we aim at lighting the fire of interest and enjoyment among younger audience; as well as benefit from the experience, opinion and wisdom of older adults. Overall, understanding science and research will benefit the science and society dialogue and will enable us to further develop the science culture in Europe.

Addressing the challenging task of proposing a working Methodology of a communicational approach on a European level, we propose the EUt+ Alliance universities as a working example, since it is representative of the various types of member-states and academic institutions. We have four widening countries – Bulgaria, Cyprus, Latvia, Romania and four older EU member states – France, Germany, Ireland, and Spain. Among partner academic intuitions there are old classical type of universities – Riga Technical University; Technical University of Sofia; Technical University of Cluj-Napoca, young and modern universities –

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Cyprus University of Technology; Technological University of Dublin, University of Technology of Troyes; Technical University of Cartagena; as well as Darmstadt University of Applied Sciences. Last but not least, being universities of technology, with a strong focus on research impact, through applied research and technology transfer, together with holding a Think Tank (EUt+ Ideas Institute Think Tank) within the Alliance, the question of science communication for EUt+ is in line with *Science Europe's* focus on the requirement for scientific evidence to be readily available and easy to understand, and to inform society's (Governments, businesses and citizens) decisions.

2.1. Brief introduction of EUt+ partner universities

Following the overarching aim of EUt+ to present Europe in its diversity and in a way that is as balanced as possible in terms of people, cultures, and languages, together with EUt+ specificity in terms of research impact, we present briefly each one of the partner universities. All of them are united by the vision that research and education are tight together. They firmly believe that through the excellent, mostly applied research done, EUt+ Alliance provides high quality education and trains students, who can apply their knowledge and skills everywhere in Europe. EUt+ will produce the European Engineers of a new generation, "emerging leaders" of technological change, who are able to "drive" the ethical and responsible innovation process in order to co-create value (EUt Accelerate WP4).

2.1.1. Riga Technical University

Riga Technical University (RTU) is a modern internationally recognized university. It is the only polytechnic university in Latvia and the largest university in the country, educating almost 15,000 students annually. It was established in 1862 and it is the oldest technical university in the Baltic states.

RTU not only provides high quality education, but also conducts advanced research and ensures innovation and technology transfer, practically implementing scientific discoveries. RTU is an important contributor to economic growth in Latvia.

Main directions of the RTU research: advanced materials, processes and technologies, information and communication systems, nanophotonics, fiber optical transmission systems and components, integrated photonics, robotics in cyber physical systems, climate and energy technologies, cities and development.

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RTU is constantly modernizing its infrastructure on Ķipsala Island, the greenest campus in Latvia. On completion, the campus will be the most advanced engineering study centre in the Baltic Region.

2.1.2. Technical University of Cluj-Napoca

Technical University of Cluj-Napoca (UTCN) is the largest technical university in Transylvania. It comprises 12 faculties in its two academic centres, Cluj-Napoca and Baia Mare, and 4 subsidiaries. UTCN educational offering includes 15,537 bachelors, 4,385 masters and 865 doctoral students. There are 908 academic staff and 891 administrative staff and 88 research structures. The thematic fields cover most of the engineering domains, but also social and human sciences and arts.

UTCN fully integrates components of the strategic European, national and regional priorities for ensuring the convergence with the directions of intelligent economic regional development.
UTCN is the result of a successful merger of two universities – Cluj-Napoca and Baia Mare in 2012. University of Baia Mare, the first of its kind at the national level, the Technical University of Cluj-Napoca extended the fields of competence to fundamental sciences, social and human sciences, and arts.

UTCN has a regional coverage of the north-west part of Romania through its academic centres. The UTCN's staff, its governing board, students, stakeholders are aware of the importance of aligning and merging the education and research activities. More than 150 institutions (public institutions, companies and associations) support UTCN in the EUt+.

2.1.3 Technical University of Sofia

The Technical University of Sofia (TUS), established in 1945, is the largest and nationally recognized as the leading technical university in the Republic of Bulgaria. It provides professional engineering education based on constantly expanding research activities, in line with the latest technological advancements. The university has 17 Faculties, two colleges, and two vocational schools based in the cities of Sofia, Plovdiv, Sliven, Kazanluk, Botrvgrad. Alongside its traditional training in the Bachelor's, Master's, and Doctoral degree programs taught in Bulgarian, the university offers degree programs in English, German and French. The degrees obtained at these Faculties are accredited by EU partner universities.

The Technical University of Sofia is home to a diverse international community. There are currently over 11,000 students studying at the University with 1,000 international students

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from over 45 different countries. More than 160,000 engineers have graduated from the largest technical higher education institution over its nearly 80 years of history.

The Technical University of Sofia is deeply engaged in innovative and diverse research activities. Fundamental and applied research is conducted in close association with the industry, which creates opportunities for the employment of university graduates and fosters their professional development as engineers or researchers.

The university has been given the highest accreditation grade to a Bulgarian higher school of 9.56, evaluated by the National Evaluation and Accreditation Agency. It introduces a number of innovative approaches to education and research. These are the newly created broad-based specialties: Smart Systems and Artificial Intelligence, Data analysis, and Cybersecurity, alongside the existing ones such as Mechatronics and Logistics Engineering.

2.1.4. Technical University of Cartagena

Technical University of Cartagena (UPCT) is one of the four public technical universities existing in Spain. It was founded in 1998 and it is organized in five Engineering Schools, a School of Architecture and a Business Faculty. UPCT counts with around 5,400 students (4,500 undergraduate / 600 master / 300 PhD students). UPCT also receives an increasing number of international students, more than 600 in the last academic course, from Europe, Africa, Asia and South America. Staff at UPCT comprise 580 academic staff, 365 administrative staff and 110 supporting staff for research. Moreover, the *University Defense Center* is a publicly-owned Higher Education Center, attached to the UPCT and one of the four centers that in the Military Academies make up the Network of Defense University Centers in Spain. The Center is dependent on the Ministry of Defense.

UPCT promotes comprehensive education, quality teaching and research and technology transfer according to the guiding principles of equity, transparency, good governance and the UN SDGs. The UPCT Strategic Plan for the period 2021-2025 identifies internationalization and participation in international networks of Higher Education as one of its key strategic lines. The implementation of strategic lines such as institutional promotion, excellence in teaching and research, entrepreneurship and employability or sustainable development will greatly benefit from being part of a European network of technical universities with complementary characteristics. UPCT's innovative model of University-Enterprise cooperation has been recognized and awarded by the Spanish Network of University-Enterprise Foundations. The fact of being a small university allows us to give personalized attention to students.

Research in UPCT covers a broad scope of areas and interests. Research facilities include automation, robotics, industry 4.0, agricultural and food technologies, economy and business,

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energy, water and environment, soil sciences and mining, industrial and chemical engineering, naval and oceanic technology, marine sciences, electronic and mechanical engineering, building technologies, construction, civil engineering and architecture, urbanism and territorial planning, smart cities, information and communication technologies (ICTs) and technologies for health and wellness.

2.1.5. Technological University Dublin

Technological University Dublin (TU Dublin) is an exciting new milestone in Irish Higher Education. With campuses in Dublin City, Tallaght and Blanchardstown, it spans the largest population centres of Ireland's capital city. Building on the rich heritage of its founding organisations – DIT, IT Blanchardstown and IT Tallaght.

TU Dublin is Ireland's largest university with 13% of the total HE student population. It is inclusive and adaptable, creating educational opportunities for students at all stages. TU Dublin students are socially responsible, open-minded global thinkers who are ambitious to change the world for the better. As graduates, they will be enterprising and daring in all their endeavours, ready to play their part in transforming the future.

The Number of students trained at the university is 28,507. The university has a total staff of 3,500 of which 1,200 are tenured academics. The university has a strong commitment to providing pathways from apprenticeship to PhD: More than 1 in 5 of new entrants are in nationally-targeted socio-economic groups and 15% of new entrants are mature students. TU Dublin wishes to be recognised internationally as a top performing technological university.
TU Dublin, Ireland's first Technological University, is where career-focused students, dedicated staff and academic excellence in science, the arts, business, engineering and technology converge to create the leaders of tomorrow.

2.1.6. Hochschule Darmstadt

Hochschule Darmstadt (h_da) is one of the leading Universities of Applied Sciences in Germany, founded in 1971. The key areas of applied study, research, and transfer are Engineering, Mathematics and Natural Sciences, Electrical Engineering and Information Technology, Social and Cultural Sciences and Social Work, Architecture, Media, and Design. h_da is aware of its social responsibility and makes an active contribution to solve real problems and sees itself as a catalyst and driver of innovation, that wants to significantly co-shape the future of the Rhine-Main region.
The university offers over 70 degree programs as well as the opportunity to pursue a doctorate degree. More than 340 professors and about 800 employees work on the three h_da campuses in Darmstadt, Dieburg and on the famous World Cultural Heritage Site

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"Mathildenhöhe". Over the past 15 years the number of students has grown from around 10,000 to approximately 16,000.

h_da is a university with regional roots and worldwide connections: There are close ties with 162 partner universities in 53 countries, almost 20 percent of the students are from abroad. In 2020 h_da became part of the initiative European University of Technology (EUt+): Together with its European partner universities Hochschule Darmstadt sees the need for a human-centred technology. It is intensely working on the vision of a new type of university and institutional integration to create one European University.

Research at h_da is application-oriented across all disciplines. Due to its location in the economically booming Rhein-Main metropolitan area h_da is able to collaborate with renowned science and business partners like various Fraunhofer Institutes, Software AG, Merck, Opel, Lufthansa and TU Darmstadt. It also participates in the largest European research centre for cybersecurity, ATHENE. In 2019 the university founded the unique doctoral centre for sustainability sciences. Doctoral centres also exist in the fields of Applied Computer Science and Social Work.

2.1.7. University of Technology of Troyes

The University of Technology of Troyes (UTT) was founded in 1994. It is a public Higher Education Institution focused mainly on engineering and applied science studies and. UTT hosts about 3,200 students and employs 170 academic and 230 non-academic staff. UTT is mainly focused on engineering Masters of Science (2,600 students) and research training (200 PhD students). It is very active in international cooperation: more than 85% of UTT students have experienced mobility and 24% are foreign students.

UTT holds the EUR-ACE label for all its engineering programmes. Its main achievements include: strong and effective student empowerment through student-centred learning (with entirely à la carte pedagogical curricula with professional placements).

10 years after its establishment UTT is a leading institution in the development of education and technological research in France. Initially the institution developed two cutting-edge laboratories – the laboratory of nanotechnologies and optical instrumentation (L2n) and the laboratory of mechanical systems and simultaneous engineering (LASMIS), both labelled by the CNRS. From 1998 onwards, research activities flourished and a research unit on Interdisciplinary studies on sustainable development was created, which constituted a very promising opening on themes that are essential for the future of the planet.
Nowadays, research activities are carried out by more than 360 people, including researchers, doctoral students, technical and administrative staff distributed in 5 research units working in

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the fields of automatic mesh Generation & advanced methods (GAMMA3), light, nanomaterials, nanotechnologies (L2N-CNRS-EMR 704), mechanical and material Engineering (LASMIS), computer science and digital society (LIST3N), interdisciplinary research on Society-Technology-Environment interactions (InSyTE).

2.1.8. Cyprus University of Technology

The Cyprus University of Technology (CUT) is a public research university located in Limassol, Cyprus. It was founded in 2004 and opened its doors to students in 2007. CUT is the youngest of the three public universities in Cyprus, and is known for its research excellence and partnerships with industry.

As a public and independent University, CUT has developed into a modern, pioneering university that offers education and research excellence with a high impact on economy and society. Research activities cover fundamental and applied research in academic fields related to the University's seven faculties and fifteen departments.

CUT has 3,000 students attending academic programmes. The majority of the students, 2,100, are undergraduate, followed by 650 post graduate students and 250 doctoral students. CTU employs 330 teaching and research staff and 220 administrative staff.

Even though CUT initiated its research activity very recently, it implements a significant number of research projects funded by the Cyprus Research Promotion Foundation and European research projects under the European Research Framework Programmes, the LIFE Programme, the European Territorial Cooperation Programmes and others.

The university has a strong focus on computer science and engineering, and has over 250 funded research projects totalling more than 44 million euros. CUT is also home to a number of research centres, including ones focused on multimedia and graphic arts, mechanical engineering, materials science, electrical engineering, and computer engineering and informatics.

CUT has a strong track record of successful graduates, with over 80% finding employment in their fields of study within a year of graduation. The university is also home to 24 academics who have been recognized as among the world's leading researchers by the University of Stanford. In recent years, CUT has received several awards for its research, including the "Best innovation award" and "Best booth" prizes at the European Commission's "Fair of European Innovators in Cultural Heritage."

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2.2. Current Science Communication Practices

In order to get an overall picture of the current science communication practices, a survey among all EUt+ partner universities has been made (Annex 1). The results from the survey have been summarised, benchmarked and analysed. The benchmarking report made (Annex 2) provides information and comparative analysis of general and specific approaches, and have led to the formulation of relevant suggestions for further joint development of the EUt+ Alliance research communications processes.

Research outputs across the EUt+ Alliance are generally disseminated in peer reviewed journal articles and texts, which can be accessed via open access as determined by the publisher for the most part. The audiences for such outputs are normally academics, external specialists/interest groups and others who often have some knowledge of the area. A small number of the partner universities disseminate their research outputs via art works, performance materials, compositions, performances, films, documentaries, reports, and white papers etc., which by their nature are publicly available for the most part. This is more common for outputs across the arts, humanities, social sciences, and business areas. Communication of research by other means to external potential users of the research, i.e. non-specialist stakeholders, citizens, and the media as it progresses, is another matter and is precisely the focus of this task and benchmarking study.

Content that is communicated

There is general agreement among the partner universities as to what content is communicated externally regarding research activities and outputs. These include cutting edge research results; details of the main research fields / applied research outputs/ research findings implemented in companies; information about notable / distinguished researchers; details of specialist or interesting laboratories and their equipment, along with profiles of research teams and their achievements. Some also communicate details of student and PhD research activities; and give details of company collaborations employed in co-created projects, along with associated spin outs and start-ups emanating from research. One of the partners communicates on research through Artistic Activities.

Communication procedures and practices

While there is no centralized approach used overall, and little of prioritization with respect to when and how content is screened, all partners who responded, have two common pathways, i.e., the researchers (Principal Investigators) send content to the centralized Communications Team *or* the Comms. team seeks out/searches for content related to research from staff. Additional approaches such as those listed below are also employed by one or two partners:

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- Researchers place content on their LinkedIn or ResearchGate platforms directly;
- Service Centre for Research and Transfer Office communicates content;
- More famous researchers are directly contacted by TV and radio and they are provided with assistance from the Comms. Team.;
- Some research labs, research groups or individual researchers occasionally communicate topical information in news or TV platforms.

Other practices

Some general insights with respect to the breadth of activities across the Alliance and analysis is provided below. One partner cites that their Comms. team does prioritize the release of content for social media, web or press releases. A similar approach is followed by another partner – however, the accent in this case is on time of publicity and "packaging" (only press release + photo, or there is enough visual material to make video etc.). Only one partner reports that the director of research and the director of communication decide whether certain research information is worth communicating to broader audience. For the most part, there is no real prioritization and content is shared often as it comes into the team via daily news sections of the university website in question, or at times that are set by the Comms. team or Research Service function who have research news for magazines. On the extremes of this, one partner cites they have no regular research news feed to the external environment while another publishes 3 articles per month in their online research magazine; press releases – 2 per month; topics to journalists directly – several times a year; press talks around 1 per year. Most other partner activities regarding frequency and sharing of content lie somewhere in between. For the most part the Comms. teams in all partner sites facilitate sharing of content as they receive it in a flexible manner.

Comms. teams do seek information in advance of certain events from the research community and do publicize any research events scheduled to take place in their university once they are aware of them. In some partner universities there is a dedicated marketing resource within a Research Service, and they seek information for sharing also. This is not common practice, however.

Research content is shared and made visible on all the individual university websites, while the most used social media platforms are Facebook, LinkedIn, Twitter, and Instagram. Content is also shared with printed media, e.g. newspapers, and with TV, radio and at fairs, festivals, conferences and other events organised in their region by having stands, public talks/demonstrations; and on rolling screens in one case. Very few partners use Tik Tok. Other less commonly used media include the Open access digital repository ARROW that has global reach and citations and downloads can be tracked. Blogs are less well used, but they are used

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by researchers in a few partner universities. Almost half of the partners have their own University YouTube channel.
All partner sites reach out and share research content with the broader society in other ways as well. In the majority of cases, this takes place at pre-organized events and exhibitions. These events are organized by groups external to the university and are often chosen due to their relevance, often dictated by local and/or national focus, e.g. by theme or those focused on business and entrepreneurship. The full listing is provided in the Appendix at the end of this short report. The most common events are Researchers' Nights; Museum Nights; and FameLab. A Summer School and Citizen Science are also mentioned. One university has a permanent exhibition space, while another host's research performances and artistic, literary and historic exhibitions.

In summary, the EUt+ partners have mechanisms for sharing research results, activities and news, and a variety of ways of communicating research content with good commonality already. This is a good starting point for establishing a common pool of resources to inspire or drag from, common practices to scale up, and potentially a unitary EUt+ approach and practices going forward.

2.3. EUt+ Alliance Partners New Ideas to Enhance Communication Processes

At the end of the Benchmarking survey, all EUt+ partners were consulted about what should be done in the future in order to achieve the goal set – position the EUt+ Alliance as reliable, socially responsible university alliance visible, known and appreciated among broader EU society.
Some ideas that EUt+ partners think may be worthy of exploring:

- Set up a permanent exhibition.
- Have an EUt+ comms. strategy and common procedures.
- Establish EUt+ joint research communication office and form science communication joint teams.
- An engagement and impact EUt+ website.
- Greater EUt+ connectivity for events and reach to non-EUt+ community.
- More open events to showcase research to public, chambers of commerce and industry, local government offices and civic offices and regularly, TED talks, roadshow.
- Set up an EUt+ science media centre.
- Have more multimedia content with greater frequency and high quality film formats, short videos targeting younger audience via Instagram/Tik Tok with a young host of those videos who has been trained.

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- Video documentation of events and production of audio-visual material of professional quality; production of social media friendly video promos.
- Podcast series with one per month.
- Have a yearly international research day with EUt+ partners.
- Organise regular science and research communication events, such as Café Scientifique, Science debates, round tables.
- Organise annual international competition of best innovation project.
- Develop science and research communication policies and procedure.
- Create community – critical mass of non-academic 'followers'/ EUt+ research fans.
- Encourage researchers to be more actively involved in science communication and promotion.
- Organise events targeted to civil society.
- Try to engage EU media to promote topical EUt+ research.

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Part 3 – Methodology of a communication approach

The communication approach for the promotion of European research (science and technology) needs to meet the following coherent actions:

3.1. Define the type of the research related content to be promoted

The research can be promoted in a number of ways, starting from the most obvious cutting edge research results, through topical social and economic issues to less obvious, but equally important and illuminating day to day experiences of researchers; life in research labs; students' first steps in research and many other less spoken or known facts from related to what constitutes modern research life. In order to specify the content to be promoted we need to address the question – *What type of information to communicate?*

3.2. Specify the target audience

In pursuit of the goal set, to raise awareness in the broad society, it is still needed to specify the particular target groups to focus the research communication, as each one of them demands different communication channels and approach. For the various target groups, the format and the messages might be quite different. Therefore, in answering the question – *Who are the target audiences* – the following groups have been identified:

- Second level students;
- Third level students;
- Business managerial staff;
- Academics (researchers and lecturers);
- Teachers;
- Parents;
- Older adults with non-professional interest in research (60 +);
- Non-field experts;
- Field experts – researchers.

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3.3. Communication approach

In order to be able to unite efforts of all EUt+ Alliance members and to establish a community, engaged and really committed to European science communication, first and foremost, we need to create teams of professionals in each of the partner universities. The experience of the first three years of collaboration shows that overall the information flow is fragmented and not coherent enough. Though all of the partners make dedicated efforts to promote their research achievements, still the impact on broader society is rather limited. Therefore, in this deliverable, we present the basis that has been co-constructed within TX 2.2 and that will develop over the years. We need to bear in mind that this is a long term process and will take time. The ultimate goal is to ***develop a feeling of common EUt+ identity***. This corresponds to the idea of creating a common European identity. The proposed methodology consists of several operational steps, described below.

First step: Science Communication Teams in each partner university

Each partner university would need to allocate at least 2 to 3 people engaged full time in communication of the life and research of their university. Ideally the team would include PR specialist, journalist, professional photographer and camera man. From EUt+ communication perspective, their main task will be to share all news and important events that take place within his/her university with the rest of the EUt+ alliance members. Gradually these eight science communication teams should start working together jointly as members of one organisation. This work should be guided through common science communication strategic vision and plans.

Second step: Create Regular Communication Flow / Information Sharing

The idea is to create suitable science communication environment, i.e. develop the ecosystem. This will require **two parallel streams of information flows that supplement each other** – overall *academic life* and *research related information*. Communication teams should feed notable information about their university. This can include day-to-day / ordinarily academic events, such as beginning of academic year; students' contests; daily life of young researchers at the university; research conferences and workshops. The idea is to create regular information flow and critical mass. We need to start from somewhere. The creation of EUt+ joint research output will take time. Further, the reality is that there are not so much outstanding, notable and attractive inventions to supply a regular research information flow. However, regular information sharing is needed for community management. This will keep the interest alive and provoke interest. Further, it can provide interesting facts that raise awareness and understanding among broader society.

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Third step: Science communication sharing platform

The goal is that each one of the member universities is better informed about the academic life of its partners. Gradually this will shorten the distance and eventually we will establish the environment needed to become one whole entity. Knowing more about the other will help the trust building and collaboration, till we build the community of EUt+. Similar approach can potentially be applied at European level on a broader scale.

Fourth step: Regular Meetings

Communication representatives should meet on-line on regular basis at least once a month. Physical meetings are highly recommended and should be held at least twice a year. There should be a joint communication strategy and plan.

Fifth step: Determine the appropriate communication channel

As mentioned above, identifying the most appropriate media or communication channel for each one of the broad society target audiences is of critical importance. The most widely media nowadays include, but are not limited to:

- Press – Popular journals; Newspaper columns; Popular books; paper and on-line editions;
- Digital platforms – Social media platforms (such as Facebook, LinkedIn, Twitter, Snapchat; Instagram, TikTok);
- Media sharing platforms (such as YouTube, Spotify, Vimeo);
- Knowledge platforms (such as Quora, Yahoo, etc.);
- Broadcasts – TV; Radio; On-line – science dedicated programmes;
- University and other academic related websites;
- Podcasts;
- Social events on regular bases (monthly, yearly) – Science Fairs; Researchers' Night; Café Scientifique (monthly or bi-monthly); Round Tables (several times per year); Public debates;
- Performances and exhibitions; Science museums.

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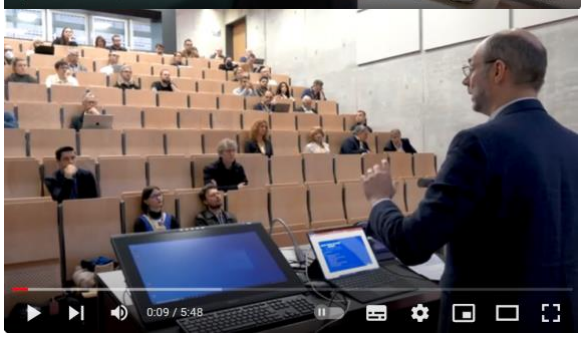
Part 4 – Pilot testing communicational approach and demonstrators

The participatory approach to design the relevant demonstrators will be organised around the following actions:

4.1. Sample demonstrators

At mid-term of the EXTRAS project, we have several video demonstrators, that are available on a dedicated Youtube channel "EUt+ powered by TU-Sofia", that document the EUt+ working weeks, conferences of European Research Institutes, or multiplier events of satellite projects like ECT Lab's EthiCo (https://www.youtube.com/@EUTpoweredbyTU-Sofia).



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4.2 Pilot Study the impact of suggested communicational approach demonstrators

Based on the current available demonstrators, insights, and research questions, by mid-November 2023, testing and co-design actions will be organised with representative panels of target audience. The research design of the pilot study will involve developing dedicated questionnaire and forming focus groups (see Annex 3). The participation of target audience members in the evaluation and co-design actions, will strictly follow the ethical principles defined at EUt+, in terms of data minimisation and informed consent, that compliant with GDPR (respectively Articles 13 and 14, and Article 5(1)(c) and Article 4(1)(c) of the GDPR.

The **Questionnaire** will enable us to evaluate current demonstrators in terms of expected impact on and responses of target audience (as defined by Burns et al., 2003): Awareness; Enjoyment; Interest; Opinions; Understanding of science. These criteria are studied through questions like: learning something the listener did not know before; raising interest in the topic; forming desire for further information and interaction; better understanding of the issue discussed/presented; change of former opinion. Further to these questions evaluation issues such as relevance to audience, relevance of platform, comprehensiveness of content, clarity of message, appealingness to target group, engagement; change of attitude and other will be tested. The evaluation will be made using a 1-5 Linkert scale and qualitative input.
In order evaluated the overall impact of the various demonstrators used, each participant to the questionnaire will be given a full package of the various types of demonstrators, including:

- YouTube channel;
- Websites;
- Facebook;
- Twitter;
- LinkedIn of EUt+ and alliance partners

This questionnaire is in process of development, piloting, verification and revision in order to give reliable feedback. There are 2 sections in this questionnaire. A first one with a series of the same questions for each type of message or video alternately, to evaluate the main

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features and impact of the various types of demonstrators. Then, more general questions about the global communication approach, to evaluate the extent to which our communicational approach is achieving the intended impact / the objectives set.
Before implementation addressing target audience, the questionnaire will be pilot tested towards improvement.

Focus Groups will be formed by each partner with a "participant" role in EUt+ EXTRAS project (TUS, UTT, RTU, TU Dublin), as well as "observer" role on a voluntary basis. They will follow a common sequence and representative panel of target audience participants. The focus group sequence is a precise scenario that guides facilitation and ensures harmonisation of insights gained across the focus groups. Aiming at representability, each panel has to be composed of:

- 4 students: 1 high school, 1 Bachelor, 1 Master, 1 PhD
- 2 academic staff: 1 Assistant Professor (early stage academic), 1 Assoc. Prof/ Professor (habilitation)
- 1 Tech transfer / R&D unit staff
- 3 external stakeholders: 1 from Industry, 1 senior citizen, 1 from local authorities, such as municipality

The focus groups will be hosted physically, and may be replicated online if needed.

Following the analysis of the collected data, the communicational approach and demonstrators will be further improved and fine-tuned. (See Annex 3 for a description of the pilot study and co-design approach, and content of Questionnaire and Focus Group).

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Conclusion

In order to be able to **position the EUt+** in European Union as an important socially responsible University of a new generation, where each of the partners becomes more attractive research and educational centre due to the synergy effect of multinational knowledge and experience, multicultural collaboration, internationalisation and the greater research and learning opportunities this Alliance offers, we need to act as players of one team.

Gaining critial mass of public awarenes and successful comunity management demands supporting two parallel streams of information – *General Information about academic life of EUt+ partners* and *Research related information, science communication*. Both of them are to be provided and managed through science comm. teams, coordinated by representatives of the Secretariat General united by common Research Communication vision, and coherent communication strategy and plan.

The organisation and implementation of the Methodology of the Communicational Approach presented above needs dedicated human, financial and infrastructural resources, clear Science Communication Vision, Strategy and Strategic Plan approved by all EUt+ Alliance partners and fully committed to the EUt+ vision Comm. Teams. This is the reason why this present deliverable aims at covering all the relevant aspects of planning efficient science communication: spirit and approach, co-design process, sustainability plan with planning of possible supplementary funding sources, and finally relevant profiles for the profesionnal science communication team, in line with EUt+ communication strategy.

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Annexes

Annex 1 – EUT+ ALLIANCE PARTNER UNIVERSITIES SCIENCE COMMUNICATION PRACTICES IN PLACE QUESTIONNAIRE

Annex 2 – BENCHMARKING COMMUNICATION APPROACHES OF THE EUT+ ALLIANCE PARTNER UNIVERSITIES

Annex 2a – BENCHMARKING COMMUNICATION APPROACHES: EXHAUSTIVE LIST OF PRACTICES

Annex 3 – PILOT STUDY OF DEMONSTRATORS – QUESTIONNAIRE AND FOCUS GROUP

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Annex 1

EUT+ ALLIANCE PARTNER UNIVERSITIES SCIENCE COMMUNICATION PRACTICES IN PLACE QUESTIONNAIRE

EXPLANATORY NOTE

The goal of the TX.2.2 is suggest a ***Methodology of a communicational approach for the promotion of European science and technology***. The overarching aim behind this is to provide a working solution that will facilitate the process of promotion of European science and technology among broader society, involving local communities by interconnecting its regions on a European scale and involving stakeholders in the research and innovation processes. Europe is lagging behind USA and UK in terms of promoting and communicating more boldly its science, technology and research achievements.

As a narrower and more specific goal we need also to position the EUt+ Alliance as reliable, socially responsible university alliance, where research is based on core European values and culture, where innovation and new technologies are developed with the clear vision that people, society and their needs, well-being and future are of utmost importance.
In order to be able to suggest and test a working methodological approach we first need to study and analyse the existing EUt+ Alliance members' science communication practices in place.
Below are series of question concerning science communication information, practices, media and channels used at your university.

University full name:

1. **Content (WHAT?) – Type of Research / Science / Technology information shared with broader society**

   1.1 What type of research information / output do you communicate among board society?

   - *Cutting edge research results*
   - *Present main research fields / Applied research / Research findings implemented in companies*
   - *Notable / Distinguished researchers*
   - *Interesting research labs / Research labs equipment /*
   - *Research teams and their achievements – patents, papers, implementation in practice, completions, etc.*
   - *Students' research*
   - *Others, please specify*

University comment:

1.2. **HOW do you obtain scientific / research information?** Does the researchers / research team approach the communication/PR department or does the Communication/ PR department deliberately search such information?

University comment:

1.3. **WHO decides what** information (science, research, technology, scientific event, etc.) **to be communicated?** Do you have any strict procedures in place? Is it the R&D unit that decides about the content or does Communication office makes suggestions subject to approval? Do researchers contact PR or R&D unit with interesting research findings / results, etc.? Who is the first to contact R&D office or university PRs.

2. **Format (HOW) – How do you communicate research findings?**
   Please answer, excluding the generally accepted in scientific circles dissemination approach – papers, conferences, workshops and seminars?
   Do you promote the research done at your university through articles in newspapers, non-scientific or more popular journals, round tables, posts in social media, TV or Radio programmes, News, Videos, Films, publications on University website, etc.

University comment:

3. **Media (WHERE) – What medias do you use?**

Please provide information about all type of media – websites; online platforms; publications in press – papers; journals; on-line editions; blogs; social media (Facebook; LinkedIn; Twitter; Snapchat; TikTok, etc).; films and television streaming services (when appropriate); podcasts etc.; social events and science communication fairs/ festivals/ weeks/ days and nights?

3.1 Please list all social and digital media channels you use

3.2 Please list all science communication events (SEC) in which scientist from your university communicate their research to broader society – such as Researchers' Night; Science Weeks; Fame Lab and others.

3.3 Science communication exhibitions – permanent or temporary

4. Time, frequency/regularity and topicality (WHEN? AND HOW OFTEN?)

When and how regular do you promote and communicate the research done at your university? How often would you like to do it? What time and what periodicity you consider

appropriate?

5. What would like to do in future in terms of science communication?

Please share your ideas, views, dreams…

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Annex 2

EUT+

EUROPEAN UNIVERSITY OF TECHNOLOGY

EUT+ EXTRAS
TASK 2.2

BENCHMARKING COMMUNICATION APPROACHES OF THE EUT+ ALLIANCE PARTNER UNIVERSITIES

JUNE, 2023

1. Explanatory Note

The goal of the TX.2.2 is to suggest a ***Methodology of a communicational approach for the promotion of European science and technology***. The overarching aim behind this is to provide a working solution that will facilitate the process of promotion of European science and technology among broader society, involving local communities by interconnecting its regions on a European scale and involving stakeholders in the research and innovation processes. Europe is lagging behind USA and the UK in terms of promoting and communicating more boldly its science, technology and research achievements.

As a narrower and more specific goal we need also to position the EUt+ Alliance as reliable, socially responsible university alliance, where research is based on core European values and culture, where innovation and new technologies are developed with the clear vision that people, society and their needs, well-being and future are of utmost importance.

All partners took part in a survey to assess the current communication practices with respect to research and its outputs across the Alliance. This benchmarking report provides a commentary of general and specific approaches, along with suggestions for EUt+ research communications processes going forward.

2. Current Science Communication Practices

Research outputs across the EUt+ Alliance are generally disseminated in peer reviewed journal articles and texts, which can be accessed via open access as determined by the publisher for the most part. The audiences for such outputs are normally academics, external specialists/interest groups and others who often have some knowledge of the area. A small number of the partner universities disseminate their results via art works, performance materials, compositions, performances, films, documentaries, reports, and white papers etc. which, by their nature, are publicly available for the most part. This is more common for outputs across the arts, social sciences, and business areas.

Communication of research by other means to external potential users of the research, i.e. non-specialist stakeholders, citizens, and the media as it progresses is another matter and is the focus of this task and benchmarking study.

There is general agreement among the partner universities as to what content is communicated externally regarding research activities and outputs. These include cutting edge research results; details of the main research fields / applied research outputs/ research findings implemented in companies; information about notable / distinguished researchers; details of specialist or interesting laboratories and their equipment, along with profiles of research teams and their achievements. Some also communicate details of student and PhD research activities; and give details of company collaborations employed in co-created projects, along with associated spin outs and start-ups emanating from research. One of the partners communicates on research through Artistic Activities.

While there is no centralized approach used overall, and little prioritization with respect to when and how content is screened, all partners who responded, have two common pathways, i.e., the researchers (Principal Investigators) send content to the centralized Communications Team *or* the Comms. team seeks out / searches for content related to research from staff.

Additional approaches such as those listed below are also employed by one or two partners:

- Researchers place content on their LinkedIn or ResearchGate platforms directly;
- Service Centre for Research and Transfer Office communicates content;
- More famous researchers are directly contacted by TV and radio and they are provided with assistance from the Comms. Team;
- Some research labs, research groups or individual researchers occasionally communicate topical information in news or TV platforms.

Some general insights with respect to the breadth of activities across the Alliance and analysis is provided below. One partner cites that their Comms. team does prioritize the release of content for social media, web or press releases. Similar approach is followed by another partner – however, the accent in this case is on time of publicity and “packaging” (only press release + photo, or there is enough visual material to make video etc.). Only one partner reports that the director of

research and the director of communication decide whether certain research information is worth communicating to broader audience. For the most part, there is no real prioritization and content is shared often as it comes into the

team via daily news sections of the university website in question, or at times that are set by the Comms. team or Research Service function who have research news for magazines. On the extremes of this, one partner cites they have no regular research news feed to the external environment while another publishes 3 articles per month in their online research magazine; press releases – 2 per month; topics to journalists directly – several times a year; press talks around 1 per year. Most other partner activities regarding frequency and sharing of content lie somewhere in between. For the most part, the Comms. teams in all partner sites facilitate sharing of content as they receive it in a flexible manner. Comms. teams do seek information in advance of certain events from the research community and do publicize any research events scheduled to take place in their university once they are aware of them. In some partner universities there is a dedicated marketing resource within a Research Service, and they seek information for sharing also. This is not common practice, however.

Research content is shared and made visible on all the individual university websites, while the most used social media platforms are Facebook, LinkedIn, Twitter, and Instagram. Content is also shared with printed media, e.g. newspapers, and with TV, radio and at fairs, festivals, conferences and other events organised in their region by having stands, public talks/demonstrations; and on rolling screens in one case. Very few partners use Tik Tok. Other less commonly used media include the Open access digital repository ARROW that has global reach and citations and downloads can be tracked. Blogs are less well used, but they are used by researchers in a few partner universities. Almost half of the partners have their own University YouTube channel.

All partner sites reach out and share research content with the broader society in other ways as well. In the majority of cases this takes place at pre-organized events and exhibitions. These events are organized by groups external to the university and are often chosen due to their relevance, often dictated by local and/or national focus, e.g. by theme or those focused on business and entrepreneurship. The full listing is provided at the end of this short report. The

most common events are Researchers' Nights; Museum Nights; and Fame Lab. A Summer School and Citizen Science are also mentioned. One university has a permanent exhibition space, while another hosts research performances and artistic, literary and historic exhibitions.

In summary, the EUt+ partners have mechanisms for sharing research results, activities and news, and a variety of ways of communicating research content with good commonality already. This is a good starting point for establishing a unitary EUT+ approach and practices going forward.

3. EUt+ Alliance Partners New Ideas to Enhance Communication Processes

At the end of the Benchmarking survey we asked all EUt+ partners about what should be done in future in order to achieve the goal set – position the EUt+ Alliance as reliable, socially responsible university alliance visible, known and appreciated among broader EU society.

Some ideas that EUT+ partners think may be worthy of exploring:

- Set up a permanent exhibition.
- Have an EUT+ Comms. strategy and common procedures.
- Establish EUT+ joint research communication office and form science communication joint teams.
- An engagement and impact EUT+ website.
- Greater EUT+ connectivity for events and reach to non- EUT+ community.
- More open events to showcase research to public, chambers of commerce and industry, local government offices and civic offices and regularly, TED talks, roadshow.
- Set up an EUT+ science media centre.
- Have more multimedia content with greater frequency and high quality film formats, short videos targeting younger audience via Instagram/Tik Tok with a young host of those videos who has been trained.
- Video documentation of events and production of audio-visual material of professional quality; production of social media friendly video promos.
- Podcast series with one per month.
- Have a yearly international science day with EUT+ partners.

- Organise regular science communication events, such as Café Scientifique, Science debates, round tables.
- Organize annual international competition of best innovation project.
- Develop science communication policies and procedure.
- Create community – critical mass of non-academic 'followers'/ EUT+ research fans.
- Encourage researchers to be more actively involved in science communication and promotion.
- Organise events targeted to civil society.
- Try to engage EU media to promote topical EUT+ research.

The ideas and report overall will be used to chart the way forward and bring Task 2.2 to a successful conclusion.

Full listing of relevant events

Tag der Forschung
Darmstadt Days of Transformation
RASUM Symposium
Dialog-Forum
Transfer-Workshops
Hessentag
Schauraum: on-campus exhibition space
Local and National Scifest competitions
National Young Scientist Exhibition
https://www.innovateireland.ie/
The National Sustainability Summit
The Lean, Productivity & Continuous Improvement Summit
The Supply Chain & Logistics Expo
The National Pharmaceutical & Life Sciences Expo
The National Procurement Summit
The Automation & Robotics Event
The National Medtech & Biotech Summit
The IOT & Industry 4.0 Expo
3D Printing Expo
The Future of Work Conference
Days of Science of TU – Sofia (Over 30 research conferences) https://www.tu-sofia.bg/conferences/ScienceDays
Bulgarian science podcast https://nauka.bg/podkast-naukata-vazobnovyaemite-iztochnici-energiya-prof-georgi/
Researchers' Night - Find Research Everywhere, SHare and Experience (FRESHER) https://www.tu-sofia.bg/euprograms/32
Researchers' Night - REFRESH – (Relate, Experience, Find Research Everywhere and SHare) https://www.tu-sofia.bg/euprograms/33
FameLab https://www.tu-sofia.bg/studentInnovations/7?title=Bozhidar-St%D0%B5fanov-%D0%B5-m%D0%B5zhdunarod%D0%B5n-finalist-na-FameLab
Formula Student https://www.tu-sofia.bg/studentInnovations/1?title=Formula-Student-%28FS%29
PhD Students Research Awards https://www.tu-sofia.bg/newsEvents/17878
Notable research findings / Perspective young researchers https://www.tu-sofia.bg/studentInnovations/5?title=Automated-reactor-for-determining-the-activity-of-photocatalytic-coatings%2C-based-on-3D-printed-components-and-Arduino
Mediterranean Researchers Night Goes To School (MEDNIGHT GTS) https://mednightgts.eu/
Science and Technology Week in the Region of Murcia (SeCyT) https://www.upct.es/unidad-cultura-cientifica/es/semana-de-la-ciencia-y-la-tecnologia

UPCT Engineering Campus https://campusdelaingenieria.upct.es/
Biotechnological Routes https://i93973.wixsite.com/rutasbiotecnologicas
La UPCT con Cartagena Piensa https://www.upct.es/unidad-cultura-cientifica/es/actividades/upct-cartagena-piensa
Quiero ser Ingeniera ('I want to be a female engineer') https://www.upct.es/unidad-cultura-cientifica/es/actividades/quiero-ser-ingeniera
Three Minutes Thesis https://www.upct.es/unidad-cultura-cientifica/es/actividades/tesis-en-3-minutos
UPCT Ingeniosanos https://ingeniosanos.upct.es/
Congresses for young research baccalaureate students (SIMIP and IDIES) https://www.upct.es/simip/es/inicio/ | https://www.upct.es/unidad-cultura-cientifica/es/0bachillerato-de-investigacion/idies
Citizen science https://www.upct.es/unidad-cultura-cientifica/es/ciencia-ciudadana
The International Exhibition of Research, Innovations, and Inventions.

University Name	WHAT Content Communicated	HOW is the information obtained for communication	WHO decides what is communicated	Format or HOW content is communicated	WHERE – What media is used	Social and digital media channels used	Events to broader society	Exhibitions	WHEN and HOW OFTEN content is shared	What would be the Ideal Communications Process
	1	*1,2*	*1,3*	2	3	*3,1*	*3,2*	*3,3*	4	5
UTCN	Cutting edge research results; Main research fields / Applied research Outputs/ Research findings implemented in companies; Notable / Distinguished researchers; Interesting research labs / equipment; Research teams and their achievements; Students' research	Researchers contact Communications team; PR Department searches for information	It's a decentralized system and relevance decided by GB, research group or PR Departments but no verification system in place with PR Department	Website new page; blog; social media post; TV interviews; articles in local & national newspapers	Websites; online platforms CeS-UTCN; publications in press and printed online; blog; social media facebook, LinedkIn, twitter, Instagram; TV - local and national news; social events and science communications fairs/festivals/weeks/days and nights	Facebook, LinkedIn, Twitter, Instagram	Researchers' Night; Museums' Night; International Summer Schools; Entrepreneurial Events; Fame Lab.	Researcher's Night, Pro Invent – The International Exhibition of Research, Innovations and Inventions, Museums' Night	The UTCN Blog has weekly updates; The news section of the UTCN' website is updated regularly	A permanent exhibition
UPCN	Cutting edge research results; Main research fields / Applied research Outputs/ Research findings implemented in companies; Notable / Distinguished researchers; Interesting research labs / equipment; Research teams and their achievements; Students' research	Researchers, professors, Departments and Schools send the information via a web application to the Comm Department. In case of specific promotional campaigns then Comm. department gets in contact with departments and schools to collect relevant information.	Comms. Department prioritizes them for social media, web or press releases. News generated by the vice-rectors and concerning Rector's agenda are directly published.	Yes, and the format/channel are determined by the researcher/professor if it is for indivual results; Comms Department does the sharing for web, official social media accounts or press releases and edits the text and puts in graphic resources	Official UPCT Website, Facebook, Twitter, Instagram, TikTok, LinkedIn, YouTube Channel	Official UPCT Website, Facebook, Twitter, Instagram, TikTok, LinkedIn, YouTube Channel	Researchers Night; Science, Engineering and Technology Events; Young Researcher Congresses; Citizen Science	Exhibition for Engineering, Technology and Industry; Exhibition for Water and Energy	Managed by Comms Department annually, no specifics provided on time, frequency or topics	none stated
TU Dublin	Cutting edge research results; Main research fields / Applied research Outputs/ Research findings implemented in companies; Notable / Distinguished researchers; Interesting research labs / equipment; Research teams and their achievements; Students' research; Start Ups and Spin Outs and in AHSS art works, performance materials, compositions, performances, films, documentaries etc. reports, whitepapers	Researchers contact Communications team; Comms. asks for information from researchers/Schools etc.; researchers place content on their LinkedIn sites, or researchgate.	Decisions rest with research principal investigators, centre/institute managers and then material is sent to Comms team for offical channels. Comms team suggest edits and recommend on where and formatting etc.	Open access digital repository ARROW; TU Dublin website, National TV/media, social media postings	Official TU Dublin Website, Facebook, Twitter, Instagram, LinkedIn; fairs/festivals/weeks/days and nights	Facebook, LinkedIn, Twitter, Instagram	National Science Festivals, Science week, Food fairs, Expos, and summits, Future work conferences	Performances, Exhibitions including artistic, literary and historic.	News items are updated daily as necessary and otherwise weekly	Have an EUT+ comms. strategy and common procedures, and each partner to have their own by virtue of differing local, cultural and national agendas; An engagement and impact EUT+ website and each one have their own; Greater EUT+ connectivity for events and reach to non-EUT+ community; greater visibility in local community; Open events to showcase research to public, chambers of commerce and industry, local government offices and civic offices and regularly, TED talks, roadshow and also an EUT+ science media centre
H_Da	Cutting edge research results; Main research fields / Applied research Outputs/ Research findings implemented in companies; Notable / Distinguished researchers; Interesting research labs / equipment; Research teams and their achievements; Start Ups and Spin Outs	Researchers contact Communications team; Comms. asks for information from researchers; Service Centre for Research and Transfer also share content on funding; and on rare occasions from the media (where researchers had been contact by media for interviews)	Decisions rest with researchers, and Comms team support them if requested. Official press releases sent through Comms. team	Press releases / talks; articles and videos on our bilingual online research magazine/newsletter, films, social media, podcasts sometimes; and occasionally direct topics to journalists; public panel discussions organised by the SCRT	LinkedIn, Twitter, Instagram, facebook, Youtube, Our own digial channel for sci. comms.; and for non-science Tik Tok	LinkedIn, Twitter, Instagram, facebook, Youtube, Our own digial channel for sci. comms.; and for non-science Tik Tok	University Science Day, Public workshops, Digital Forum, Symposium; Darmstadt Trasnformation Conference	Conference, Hessentag, On-campus exhibition space	around 3 articles per month in the online research magazine; pres releases - 2 per month; topics to journalists directly - several times a year; press talks around 1 per year	Provide more content in English; Have more multimedia content with greater frequency and high quality film formats, short videos targeting younger audience via Instagram/Tik Tok and have a young host of those videos who has been trained; podcast series with one per month; have a yearly international science day with EUT+ partners
TUS	Cutting edge research results; Main research fields / Applied research Outputs/ Research findings implemented in companies; Notable / Distinguished researchers; Interesting research labs / equipment; Research teams and their achievements; Students' research; Collabroations with Industry	Mainly Comms. Team seeks content; Sometime researchers contact Comms. Team or PR Department; More famous researchers are directly contacted by TV and radio and they are provided with assistance from the Comms. Team before sharing content this way	No specific regulations in place regarding communicaitons of research or policies/procedures; In most cases the R&D sector arranges comms. For research of social impact etc. Sometimes PRs contact Comm.s teams when assistance is needed; Journalists working for the university approach researchers, students and academics and present various research stories	University newspaper; TU Science Days, conferences; In popular science jourals; on unviersity website (videos); social media posts; Bulgarian science podcast	Facebook, LinkedIn, University Youtube channel	Facebook, LinkedIn, university Youtube channel	Researchers' nights; FameLab	Unversity has a permanent exhnibtion	Apart from the university newspaper, at present there is no regular feed of research news; News are also published on website	Develop science communication policies and procedure; Establish research communication office; Communicate research more regularly; Create community; Organise regular science communication events, such as Café Scientifique, Science debates, round tables; Organise annual international competition of best innovation project
UTT	Research teams and their achievements / Students and PhD students on their research / Outreach project (Fete de la Science et de la Technologie, conferences for the public, exhibitions) / Outstanding researchers, retiring researchers / Research labs equipment	The Communication department obtains information by both approaching researchers and also by being approached by researchers if they want to share important information about their research. / If they wish to communicate, the communication department can provide them with a "communication package" which includes different communication materials such as videos, posters and kakemonos, news, press releases, social networks, newsletter, article, interview, ...	The director of research and the director of communication of the UTT decide whether a piece of information is important enough to be disseminated. If the information is significant, the person in charge of the scientific communication must then gather all the details in order to write a "news" about it. Then, the created news is sent back to the concerned person for validation before being disseminated through various channels (social media, UTT website, newsletter, ..).	The research carried out at the UTT university is promoted through teasing videos and interviews, short articles and news posted on the university website and social media. Scientific findings, important conferences and events are sent for press release.	Instagram, Facebook, LinkedIn, Twitter, Tiktok, Discord, Slack, and YouTube. / The festival of science and technology (Fete de la Science et de la Technologie) / Short informal talks organised at the UTT library three to four times a year (les midis a la BU) / large conferences organised every semester in the evening (Tech et Science en Partage).	Instagram, Facebook, LinkedIn, Twitter, Tiktok, Discord, Slack, and YouTube.	UTT scientists communicate their research to society through the festival of science and technology (Fete de la Science et de la Technologie) dedicated to students and families and organised once a year, short informal talks organised at the UTT library three to four times a year (les midis a la BU), large conferences organised every semester in the evening (Tech et Science en Partage), exhibitions and conferences organised at the city library several times a year to highlight the work of doctoral students.	Temporary scientific exhibitions are organised either in the UTT library or in the city library. Permanent exhibitions are presented on some walls of the university.	Information about science and research at UTT are communicated at the beginning of each month in the newsletter Ellipse News, then throughout the month as the month goes by.	We would like to organise more events to target the civil society and intensify our anchorage in the territory. / Scientists take active part in communication also during Laboratory visits. Visitors are school children, people from industry and politicians, policy makers etc.
RTU	Cutting edge research results; Main research fields / Applied research Outputs/ Research findings implemented in companies; Notable / Distinguished researchers; Interesting research labs / equipment; Research teams and their achievements; Students' research; / - Information about awards that our scientists have received (Scientist of the year, Young scientist of the year, awards from Latvian Academy of Science, international awards etc.); / - Information on Scientific conferences, forums etc.; / - Information about our study program Industrial doctor (we communicate about students research in this program); / - information that is more targeted to young people and children (Researchers night, RTU open door days, children science center Futurimo etc.)	If scientists have written in their project proposal that they will provide communication for the project, then they usually approach us. When we visit them regarding certain projects, often in conversations pop-up interesting topics on their research outside this particular project . And this new information can later be developed and made into materials for broader audiences. If there is a publication in a top scientific journal, then scientists usually send us links and we make materials from this information. / RTU Science and innovation center provide us with this information and then we contact research groups or scientists directly.	Decisions are made by PR department/Communication office. Researchers contact PR/Communication department and then together it is decided about the time of publicity and "packaging" (only press release + photo, or there is enough visual material to make video etc.) If the topic is discovered by PR/Communication department, then we contact scientists to organise practical matters in order to prepare the material.	Information usually is published on university website and shared on our social media channels. Press releases are send (including audio visual materials that we prepare - photos, videos) to Latvian news agencies and directly to journalists. / If Radio, TV or press people are interested in our content, they contact us and we organize meetings with scientists. / Media often is looking for experts in certain topics. We are that middleman who connects them with the right expert. / Our scientists as experts are invited to conferences, forums, discussions, round tables, webinars etc.	Facebook; LinkedIn; Twitter; TikTok, YouTube, Instagram.	Facebook; LinkedIn; Twitter; TikTok, YouTube, Instagram.	Ours scientists take active part in Researchers nights, Conversation Festival LAMPA, RTU Open door days. We also have help our scientists to create podcasts. / Scientists take active part in communication also during Laboratory visits. Visitors are school children, people from industry and politicians, policy makers etc. Scientists take active part in communication also during Laboratory visits. Visitors are school children, people from industry and politicians, policy makers etc.	We do not have our own exhibition but time after time we put traveling expositions, like exhibition of young Latvian scientists, awardees of L'Oreal award for female scientist etc.	Frequency and regularity depends on time of the year. Usually during the summer we post less information. Most active communication is in November/December.	It would be great if we had in Latvija a media that would be specifically science related. Or at least that science would take up more media space.
CUT	Cutting edge research results; Main research fields / Applied research Outputs/ Research findings implemented in companies; Students' Research; Artistic Activities	Currently this is mostly handled at the level of individual research labs / individual research teams / and sometimes at departmental level. Exception to this is the trans-departmental Social Computing Research Centre (SCRC) that occasionally disseminates information horizontally to all affiliated researchers, as well as various universty bodies that disseminate certain kinds of information (e.g. Recotr's Office, etc.)	There are no strict procedures in place.	CUT promotes research in an electric way, through articles in newspapers, non-scientific or more popular journals, (in)formal round tables, posts in social media, TV or Radio programmes	Instagram /university bodies; schools; departments; and research labs accounts/; - Facebook /university; university bodies; schools; departments; and research labs accounts/; Twitter /university; university bodies; schools; departments; Individual websites /university; university bodies; schools; departments	Instagram, Facebook, Twitter	Research Labs organise SEC events individually; Research Labs regularly participate in various Researcher's Nights events organised at national level		Some labs participate regularly in Researchers' Night and support other national efforts for communicating science and scientist profession at school activities and other nationally coordinated actions for schools. Labs typically participate in events 1-2 times per year and are responsible for social media posts at irregular intervals from 1-2 times per few months to 1-2 times per week.	It would be nice if some central university service would aid the documentation of events and preparation of social media friendly video promos and audio-visual material of professional quality.

Annex 3

Science communication Demonstrators' Pilot Study

EUt+ Science communication Questionnaire:

Evaluating demonstrators

Note to colleagues:

Each participant to the questionnaire will be given a full package of the various types of demonstrators, including:

- YouTube channel;
- Websites;
- Facebook;
- Twitter;
- LinkedIn of EUt+ and alliance partners

This questionnaire is part of a holistic approach in science communication that aims at continuous improvement, informed by recipients' feedback. There are 2 sections in this questionnaire. A first one with a series of the same questions for each type of message or video alternately, to evaluate the main features and impact of the various types of demonstrators. Then, more general questions about the global communication approach, to evaluate the extent to which our communicational approach is achieving the intended impact / the objectives set.

Note to respondents:

Your feedback is important to us. The principle of this questionnaire is for you to give your honest perception about the different messages or videos, in order to help us improve them.

For each question, please indicate your position on the 1-5 scale (compulsory). You can justify, clarify or complement the score you have given in the comment's section (not compulsory).

There is a first section, where the same questions are asked alternately for each type of video or message, then a general section with broader questions to globally evaluate the communication approach.

Thank you for your contribution.

Section 1

(series of questions repeated for each video / message).

1. I find this video / message interesting and appealing.

Strongly disagree						Strongly agree

Comment:

2. I feel this video is adequate.

Strongly disagree						Strongly agree

Comment:

3. I find that the information presented in this message/video is enough.

Strongly disagree						Strongly agree

Comment:

4. I find that the length of the message's text / video is adequate.

Strongly disagree						Strongly agree

Comment:

5. The length is

☐ too short

☐ adequate

☐ too long

6. The video / post message is in an appropriate format for the media (i.e. is appropriate for a FB message / Tweet/ website video, etc.)

Strongly disagree | | | | | | Strongly agree

Comment:

7. I can understand the content easily.

Strongly disagree | | | | | | Strongly agree

Comment:

8. I think the content arouses interest efficiently.

Strongly disagree | | | | | | Strongly agree

Comment:

9. The video / message has increased my interest in the topic presented.

Strongly disagree | | | | | | Strongly agree

Comment:

10. As a result of watching the video / reading the information, I have learned things I did not know before.

Strongly disagree						Strongly agree

Comment:

11. In my opinion the video / message I have seen is about:

(list from which to choose, specific for each demonstrator)

☐ Show the role of research done at our university to the society

☐ Change the perception about researchers and research careers (make them attractive)

☐ Encourage collaborations with universities

Please explain why you understood the message as such:

Section 2

12. The messages and videos changed my attitude towards science / research.

Strongly disagree						Strongly agree

Comment:

13. I have started appreciating science as entertainment or art.

Strongly disagree						Strongly agree

Comment:

14. I believe that, after being exposed to the videos and messages, I have a better understanding of the issues discussed.

Strongly disagree | | | | | | Strongly agree

Comment:

15. When looking at these messages / videos, I feel proud of the work done at the universities, members of the EUt+ alliance.

Strongly disagree | | | | | | Strongly agree

Comment:

16. When looking at these messages / videos, I changed the way I think about universities and the research they do and the impact they have on society.

Strongly disagree | | | | | | Strongly agree

Comment:

17. As a result of being exposed to the messages / videos, I now feel the desire to contribute to the research problem presented, enriching it with my own opinion.

Strongly disagree | | | | | | Strongly agree

Comment:

18. These messages / videos makes me want to engage more with the EUt+ alliance members, interacting and collaborating with researchers.

Strongly disagree						Strongly agree

Comment:

19. Knowing more about research done by the EUt+ alliance strengthens my sense of belonging as a European citizen.

Strongly disagree						Strongly agree

Comment:

20. Seeing the messages and videos makes me want to know more about what is going on at EUt+

Strongly disagree						Strongly agree

Comment:

Section 3 – demographic data

1. I am a

(drop-down menu)

☐ Man

☐ Woman

☐ Prefer not to reply

2. Age group

(drop-down menu)

☐ 12-17 years old

☐ 18-24 years old

☐ 25-34 years old

☐ 35-44 years old

☐ 45-54 years old

☐ 55-64 years old

☐ 65-74 years old

☐ 75 years or older

3. Nationality

(drop-down menu)

☐ Germany

☐ Latvia

☐ Ireland

☐ Bulgaria

☐ Cyprus

☐ Spain

☐ Romania

☐ Italy

☐ France

4. My most relevant profile

(drop-down menu)

☐ Student

(if click student – goes to question 17a)

☐ Business managerial staff

☐ Academic

☐ Secondary school teacher

☐ Parent of high school student

☐ Older adult 60+

☐ Local authorities (municipality etc.,)

☐ Industry representative

☐ Non-field experts

☐ Field experts – researchers

5. Student

☐ High school student

☐ Bachelor student

☐ Master student

☐ PhD student

6. I would say my knowledge and understanding of research is

(drop-down menu)

☐ Low

☐ Medium

☐ High

7. I would say my interest in research is

(drop-down menu)

☐ Low

☐ Medium

☐ High

EUt+ Science communication Focus Group:

Co-designing demonstrators

Table des matières

1. Introduction to this document

The objective of this document is to to serve as a common resource with organising the Focus Groups in the different universities in a harmonized way, so as to be able to capitalize, with a comparative dimension, the emerging insights.

2. What is a Focus Group?

A Focus Group is a method of participatory design. Traditionally, focus group research is “a way of collecting qualitative data, which – essentially – involves engaging a small number of people in an informal group discussion (or discussions), ‘focused’ around a particular topic or set of issues” (Wilkinson, 2004, p. 177). The difference with "group interviews", which are often used simply as a quick and convenient way of collecting data from several people simultaneously, is that Focus Groups use group interaction as part of the method. What sets it apart from other methods is that the interaction between research participants is explicitly used as a source of research data (Kitzinger, 1994).
This means that, rather than the researcher/facilitator asking each person to answer a given question in turn (a simple form of interview), participants are encouraged to talk to each other: asking questions, exchanging anecdotes and commenting on each other's experiences and views.
The method is particularly useful for exploring participants' knowledge and experience, and can be used to examine not only *what* participants think, but also *how* they think and *why* they think the way they do. So, like other qualitative methods, Focus Groups answer the "how" and "why" questions, whereas quantitative methods aim to identify and measure a given phenomenon ("What is X?" - Pope and Mays, 1995). In fact, participants in a group may ultimately develop particular perspectives, as a result of discussions with others who have had similar experiences (Kitzinger, 1995). The Focus Group method is also useful for exploring survey results.
This is because of this complementarity that the Focus groups are organised following the questionnaires (see above).

Pragmatically, you will need

- A facilitator / leader, and ideally a co-facilitator / note taker
- An audio recorder
- Small material like pens, post-its, printed content to analyse
- A nice coffee break

A crucial aspect concerning participation in EUt+ is the empowerment of participants, whose presence and contribution are valued. The demonstration of this recognition and consideration takes the form of the welcome: coffee, cakes, sweets… so that people feel comfortable and relax all through the session.

3. Representative panel of participants

Aiming at representativity, each panel is composed of:

- 4 students: 1 high school, 1 Bachelor, 1 Master, 1 PhD
- 2 academic staff: 1 junior assistant professor, 1 senior full professor
- 1 Tech transfer / R&D unit staff
- 3 external stakeholders: 1 from Industry, 1 senior citizen, 1 from local authorities like municipality

4. Objectives and Research questions

The objective of this focus group is to collect target audience's feedback in order to inform the iterative improvement of the demonstrators, following a co-design approach.
It is expected that the strong involvement of target audience in the co-construction of the communication approach and communication content will ensure the relevant design of the demonstrators. The focus groups are intended to take the same form in all universities, to ensure the rigour and validity of analysis, and thus the scalability of the insights to other contexts.
The research questions that drive the content of the focus group (cf. section 5 below) are:

- What are the needs of the target audience? (Co-analysis phase)
- How to improve the demonstrators with participants' input? (Co-design phase)

5. Focus group scenario

Duration	Phase	Who	Content	Documentation and tools
3 min	Welcome & introduction	Facilitator	Presenting the objective of the focus group	PPt
15 min	Icebreaker:	All	Quickly draw what you had for breakfast and alternately present it to the group, saying your name	Blank sheet of paper, felt pens
1h20	Co-analysis	Facilitator	Showing a demonstrator video of EUt+	Video + sound
		All	Analysis of content through sharing views	Giant post-it + post-its
		All	Storytelling method: "I would need…"	Printed sheets to write story
		Facilitator + All	Extracting common values from stories	Giant post-it + post-its
10 min	Break			
1h20	Co-design	Facilitator + All	Value cards method: "The demonstrator would need to integrate these values…"	Value cards pack
		Facilitator + All	Role playing: "the ideal science communication film"	Space, chairs, accessories
10 min	Round up and thanks	Facilitator	Summarizing the insights from the session. Explaining the utility and what the 'data' will be used for. Thanking participants.	Universities goodies to share