**YUFERING Project**

**YUFE TRANSFORMING R&I THROUGH EUROPE-WIDE KNOWLEDGE TRANSFER**

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**List of Abbreviations and Definitions**

|  |  |
| --- | --- |
| AMST | Academic Motivations and Support |
| CERI | Community Engaged Research and Innovation |
| IMR | Inverse Mills Ratio |
| KE | Knowledge Exchange |
| NGO | Non-Government Organisation |
| R&I | Research and Innovation |
| SHEFCE | Steering Higher Education for Community Engagement |
| SME | Small and medium-sized enterprises |
| TEFCE | Towards a European Framework for Community Engagement in Higher Education |
| UANTWERPEN | Universiteit Antwerpen |
| UBREMEN | Universitaet Bremen |
| UC3M | Universidad Carlos III de Madrid |
| UCY | University of Cyprus |
| UEF | University of Eastern Finland |
| UESSEX | University of Essex |
| UM | Universiteit Maastricht |
| UMK | Uniwersytet Mikolaja Kopernika w Toruniu |
| UNIRI | Sveuciliste u Rijeci |
| UNITOV | Università Degli Studi di Roma Tor Vergata |
| YUFE | Young Universities for the Future of Europe |
| YUFERING | Transforming Research and Innovation through Europe-wide Knowledge Transfer |

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# Introduction

This report addresses the objectives of YUFERING work package 2.2. As stated in the grant agreement, the aims were: first, to devise a common approach to community-engagement based Research and Innovation (CERI) policies, support services and processes for YUFE partners; second, to identify potential legal or other barriers and, where possible, to suggest how to remove them to efficiently support the YUFE research community in CERI activities and initiate endorsement of YUFE research activities by the wider community.[[1]](#footnote-1)

To achieve these objectives, the team was firstly to map processes and decision-making structures across partners by undertaking a qualitative survey completed by key professional staff in collaborating institutions. Secondly, it was to investigate researchers’ motivations towards engagement in CERI and undertake a researcher’s evaluation of currently available community engagement-based Research and Innovation support services and policies across the YUFE network. This evaluation was to be carried out with the help of the ‘Academic Motivations and Support toolkit (AMST toolkit), an online quantitative questionnaire, that was sent to academics across all the YUFE institutions. By undertaking these two tasks the aims were also to identify success factors, challenges and tools to contribute to the overall objective.

We undertook the mapping exercise and the quantitative surveys (AMST toolkit) and the findings are presented as follows: in Section 1, we provide a brief overview of the methodology used in undertaking the qualitative and quantitative surveys and some of the challenges encountered. In Section 2, we map data to examine the influence of national and university policy and how this policy is implemented. We identify three models of internal implementation of CERI policies: 1. an ‘integrated’ approach; 2. an ‘emerging integrated’ approach 3. a ‘local’ approach. In Section 3, we outline the findings from the AMST toolkit. In Section 4, we present key recommendations and potential actions to devise a common approach to CERI as well as support services and processes of YUFE partners.

# Section 1: Methodology

For the purposes of this report, we utilise the definition of CERI agreed in WP 2, under the task 2.1; specifically, that CERI should not be primarily commercial[[2]](#footnote-2) and should have relevance to one or more of these traits:

*➔ Intends to have a social impact by deploying strategic research and its innovative outcomes to better understand, address and contribute to resolving societal challenges*

*➔ Actively involves affected community partners (non-academic communities) in one or more phases of the research and innovation process in a way that is mutually beneficial*

*➔ Facilitates efforts to encourage the implementation of the research outcomes and innovative solutions with the relevant communities*

*➔ Intends to build trusting bi-directional relationships between researchers and community partners that take into consideration all partners’ perspectives in defining research foci and the innovation strategies*”[[3]](#footnote-3)

## Section 1.1 Mapping

To map the different approaches to CERI, we created a survey to be completed by our partners at each institution. This survey was examined and agreed by the WP2 working group. The survey questions were separated into two sections (see Appendix C):

* The environment and support for CERI, including both national and internal environment and support structures
* CERI in action, including actions taken to promote and support CERI, metrics and case studies.

The YUFE representative for WP 2.2 for each university was asked to lead in completing the survey. In most cases this involved seeking information from other staff members or bodies within the university. Once the survey was completed, the data was analysed using a comparative approach.

*Challenges in the comparative analysis*

Collecting qualitative data that is comparable across the YUFE universities is challenging as each university has different systems and contexts. To facilitate the process, it was agreed that each university would complete the survey as fully as possible but with the understanding that the information available might vary. Although the broad context was that of the definition of CERI given in WP2.1, local interpretation and application of this concept varied.

These differences in interpretation could be due to a variety of reasons: first, CERI policies have developed in different historical moments and intensity across European countries; second, universities are located within regions that have contrasting level of economic development, some regions have more established innovation clusters because there are many research-intensive companies, amongst other features. In general, YUFE members located in northern Europe are more likely to be members of regions that perform highly in the innovation scoreboard of the EU.[[4]](#footnote-4)

YUFE members vary in size and research focus areas. In addition, there are differences due to a variety of university structures: some have highly integrated faculties and departments with an overarching management structure, while others have retained more decentralised and less integrated structures in which functions and decision-making power are more at the department level. It is also known that universities that specialise in science, engineering and medical subjects are more likely to exploit intellectual property and industry relations than those that specialise in the arts, humanities and social sciences. The latter tend to focus on relationships with local authorities, executive education and in establishing relationships with NGOs and community groups (Benneworth and Jongbloed, 2010). Institutions will often develop strengths in approaches more appropriate for either businesses (large or small) on the one hand and regional authorities or local communities, NGOs and local associations, on the other. Others will develop strengths in both approaches.

For these reasons, the results outlined below should be interpreted as explorative, rather than fully explanatory. The results could be used to engage in bench-learning exercises across YUFE (for an example of how bench-learning has already been used in education context, please see: Marit, Kirsten, Vennebo, and Kjell, 2020).

## Section 1.2 AMST

The quantitative survey was derived from the Academic Motivations and Support toolkit (AMST), as specified in the grant agreement. The AMST tool was originally designed to examine entrepreneurial intention and behaviour and for the purpose of this study, it was modified to directly include CERI (Athreye and Sengupta, 2020). Thus, in this AMST tool, CERI is considered as a subsection of wider ‘Knowledge Exchange’ or ‘Knowledge Transfer’ (See Appendix D).

*‘Knowledge Exchange’ and ‘Knowledge Transfer’*

These terms refer to the combination or totality of commercialisation and academic engagement activities, including community-engaged research, through which universities and its researchers interact with non-academic stakeholders.[[5]](#footnote-5) Such interactions are not always uni-directional. Knowledge or technology can flow from universities to practitioners, or vice-versa. The AMST toolkit distinguishes between sixteen different kinds of knowledge exchange activities, on the assumption that each sort of activity may be driven by different academic motivations and supports. Thus, we distinguish between activities such as ‘contract research’, ‘collaborative research’, ‘consultancies’, ‘entrepreneurship’, ‘professional development’ and ‘collaborative engaged research’ and ‘public engagement’.

During the survey instrument adaptation process, all WP2 partners were consulted and gave input into developing the toolkit comprising CERI items more specifically. The survey was piloted with a limited cohort, and received ethical approval, at Essex, then rolled out to each university in co-operation with the local lead and under local data management and ethical approval where necessary.

*Conceptual model*

The approach adopted in the AMST toolkit relies on theory-driven approach to survey construction and data analysis.[[6]](#footnote-6) The conceptual model underlying the AMST questionnaire is adapted from the theory of reasoned action to explore the impact of motivations, intentions and perceptions on academic engagement and knowledge exchange in universities. It is captured in the figure below. The model assumes *causal relationships* between academic motivations (H1) that influence academic intentions, which in turn influence actual knowledge transfer engagements (H2). Perceptions about departmental (H3) and university support (H4) moderate and shape engagement in knowledge exchange activities.

Diagram

Description automatically generated

#### Figure 1: Adaptation of the conceptual modelfor the AMST to study CERI activities*.*

The original conceptual model was then translated into a simpler empirical model as given in Figure 2 below. The model explores the impact of various individual level characteristics, specifically motivations and perceptions about the academic’s department and university’s support for engagement on the academic’s Knowledge Exchange (KE) activities, as captured by questions and constructs derived from the survey instrument. For the purpose of this report, we simplify the analysis to examine the *direct* impact of individual motivations and their perceptions on their KE activities, ignoring the more complex intermediary roles played by intentions and perceptions represented in Figure 1.

For the analysis, a multivariate regression analysis method is adopted.[[7]](#footnote-7) This kind of analysis examines whether a set of *independent variables* are simultaneously and independently associated with a *dependent variable*. The dependent variable is sometimes called the response or the outcome variable. The independent variables may be referred as the predictor, regressor or covariate. Because motivation, intentions and perceptions are multi-dimensional constructs, they are measured using multiple variables. The purpose of the analysis is to examine the link between motivations, intentions and perceptions on KE engagement. However, these are not the only factors that impact KE. There are other factors that can potentially have an impact as well and these are accounted for as much as possible through additional control variables within the analysis. In other words, the control variables are potentially relevant for explaining changes in the dependent variable but are not central to the questions being asked in this report.



Figure 2: The empirical model for the AMST based on Figure 1[[8]](#footnote-8)

The multivariate regression is specified as an equation (or set of equations), having a dependent variable as the item(s) of interest (in our case, levels of KE engagement) and which are assumed to depend on a set of independent and control variables which can potentially be associated with the former. The analysis will reveal a set of coefficients associated with each independent and control variable. Each coefficient reveals the *impact* of the corresponding independent variable on the dependent – that is, the direction and degree of change of the dependent variable if there is a small increase in the said independent/control variable *alone*. Each coefficient is also associated with a probability of error, that is, the probability of accidentally observing an effect in the sample being considered when in reality no such effect exists in the wider population. From a statistical standpoint, we only consider those coefficients when interpreting the results, for which this probability is sufficiently low (or in other words, for which the corresponding variable is “statistically significant”).

In the case of dealing with many variables, as in this study, the variables themselves are computed as the *mean of specific items in the questionnaire*. The items used, the variable names, descriptions and associated constructs are described in Table B1 in Appendix B.Independent and dependent variables are listed below, as well as the control factors.

*Independent Variables/covariates*

In the model there are **4 classes of independent variables** **whose impact on** KE outcomewe aretrying to estimate (Figure 2)**.** Each of the variables is related to several items in the questionnaire as described in Table B1. These are:

* **Motivation to undertake Knowledge Exchange:** categorised as: ‘knowledge motive’; ‘resource motive’; ‘financial motive’; ‘institutional incentives/pressure driven motives’; ‘career progress’; ‘social impact driven motives’.
* **Intention about creating commercial or social impact from own research**: categorised as ‘intention to commercialise research’ or ‘intention to create social impact from research’.
* **Perception about departmental support for KE to undertake research with 4 different types:** categorised as perception for ‘community collaboration’, ‘industry collaboration’, ‘research mobilization’ and ‘unconventionality’.
* **Perceptions about institutional frameworks and facilities**: categorised as the following independent variables: ‘Leadership’ and ‘governance’; ‘Organisational capacity incentives’; ‘Entrepreneurship through teaching and learning’; ‘pathways for entrepreneurs’; ‘business and external relationships’; ‘internationalisation’; ‘assessment of impact of entrepreneurial teaching and learning’; ‘community-based research and innovation’.

*Dependent variables*

The main dependent variables of interest in the analysis are the levels of engagement through the various types of KE channels. KE channels are further aggregated into two broad groups – public and community facing engagement, and private engagement.

* **Each KE channel type** (Label: *Ke\_type)*. This corresponds to a dummy question indicating whether any type of KE has been undertaken in the last 3 years. It corresponds to question 15 in the questionnaire.
* **Overall Public and community facing engagement** (Label: ‘*Pub\_comm\_eng’)*. This groups together all the public and community facing engagements, which relate to questions 22 and 24 in the AMST questionnaire (For how the definition is constructed from the items in the questionnaire see table B1).
* **Private Engagement** ‘Label: *‘Pvt-Eng’*. This groups together all other types of engagement apart from the public and community facing one. In the questionnaire they correspond to the mean of items under questions 18, 19, 20, 21, 23 (refer to Table B1 for definitions).

*Selection equation*

Although the dependent variables of interest in this report are the various measures of KE activities, we need to recognize that not all academics actually engage in KE. In fact, it is only a relatively small fraction of academics who do report having engaged in KE. Thus, attempting to examine the impact of individual characteristics on the KE engagement, without taking into account the inherent difference between the group that engages in KE and the other which does not, will introduce a “selection” bias in the results. Hence, we carry out the analysis in two steps – first, we examine factors that can directly impact the probability that an academic engages in any form of KE at all, and second, accounting for this difference, the extent to which the individual characteristics impact the levels of KE engagement. This is done using the well-known Heckman two-step correction technique using the *Heckit* estimator (see Amemiya, 1985 for more details), with a separate “selection equation” incorporated, which estimates the impact of specific independent variables on the probability that an academic engages in KE at all.

The selection equation has its own set of independent variables, some of which are assumed to impact the probability of participation in KE but *not* which channel of KE is used. This is critical, as from an econometric point of view, the selection equation must contain one or more independent variables which don’t appear in the main equation where the dependent variable is one or more KE types. The variables we have chosen to be part of the selection equation are:

**Academic motivation**: they cover ‘salary and benefits’; ‘nature of job’; ‘career advance’; ‘impact generation’.

**Career incentives**: ‘teaching and ability and workload’; ‘administrative roles’; ‘research and publications’; ‘KE’; ‘funding success’; ‘supervision’; ‘esteem’.

**Control factor**[[9]](#footnote-9), including discipline, university, type of employment and nationality. As explained above, a lot of different factors can impact an academic’s participation and extent of KE engagement, apart from the independent variables of interest. We include as many control variables to account for impact of all other such factors, as much as is allowed by the dataset. These include:

* University and subject discipline
* Nationality
* Employment type (fixed term, permanent, part time)
* Position (academic)
* Non-Zero KE participation, to control for selection bias (see Table B1 in appendix B)

In summary, the model in Figure 2, expressed a set of multivariate regression equations, is estimated using both the Heckit and Tobit estimators.[[10]](#footnote-10) The Tobit estimator is, like the dependent variable, expressed as averages of items measured on a Likert scale limited between 1 and 6, and the Tobit estimator accounts for these limits better than the standard ordinary least squares (OLS) estimator. Thus, we present two sets of results, and the choice of whether the Heckit or Tobit results are used in the conclusions depends on how severe the selection bias is, which is indicated by an estimated quantity referred to as the Inverse Mills Ratio (IMR). When the IMR itself is seen to be significant, we use the results of the Heckit estimates to draw our conclusions (Tables B2, B3, B5) and in other cases, we use the Tobit results (Tables B4, B6)

*Challenges for the AMST*

A digitised survey instrument was released simultaneously to the participating YUFE universities from 1 October 2021 to 31 Jan 2022. Essex University retained control over the questionnaire and overall data collection process, but data collection was conducted by the Research Offices of the participating institutions. Once the survey closed in January 2022, the data were aggregated. The rate of responses was lower than expected for some institutions, and this has consequences for the analysis. The highest rate was achieved by Essex University (8.42%), following by Carlos III de Madrid at 5.23% and Nicolaus Copernicus (3.15%). All the other universities had a response rate lower than 2.5. (See Figure 1 in Annex and note that rates are approximate as staff numbers vary depending on how they are recorded at different institutions). In addition, the rate of responses decreased as the respondents went through the questionnaire. This meant that for the last questions administrated in the quantitative survey, the overall response rate was high enough only for a few institutions. Future surveys could address this limitation by reducing the number and complexity of questions, though this obviously reduces the data available for analysis of quite a complex question.

# Section 2: Findings from mapping

The findings are here summarised using the structure of the questionnaire that is attached in Annex 1.

## Section 2.1 External Environment

All national governments in which YUFE partner universities are located have education and R&I strategies that include aspects of CERI. However, they define and approach CERI differently. For example, in the case of the UK and Italy, CERI policies are part of a ‘Third Mission’ (next to education and research); whereas in other countries, such as Belgium, Finland, Germany and Spain, they are considered as part of R&I policies to address societal challenges. For a summary of the findings of the survey, see Table 1 below. Further information regarding different enablers and inhibitors of CERI can be found in Table A2.

Recently the EU has provided strong incentives for the implementation of CERI policies. CERI policies have been promoted via the [EU smart specialisation frameworks](https://s3platform.jrc.ec.europa.eu/home) (S3) and its links with Cohesion policy. S3 aims to help the regions of Europe grow their capabilities and increase European competitiveness. It adopts a bottom-up approach, bringing together local authorities and universities as well as business and civil society. Universities were identified as key actors in the process of designing S3 strategies (Goddard, 2011).[[11]](#footnote-11)

CERI policies have also been promoted through the key schemes in Horizon 2020 and Horizon Europe (HE), specifically through the development of [EU Missions in Horizon Europe](https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe_en). These missions are based on a policy of focusing on citizens’ needs and working closely with citizens in the process. In addition, within Pillar II of HE, there are calls that aim to create collaborations between researchers, businesses, local authorities and NGOs to achieve specific research objectives. There has also been an increased focus on CERI in the European Higher Education Agenda, such as the Bologna process.

Each YUFE university was asked to identify the national policy that shapes CERI activities. Table 1 provides a summary of key findings and, whilst most institutions mentioned specific legislations, others mentioned strategies and policies.

### Table 1: Summary of key findings on national policy**[[12]](#footnote-12)**.

|  |  |  |
| --- | --- | --- |
| **Country** | **Policy** | **Key features** |
| Belgium/Flemish Region (UANTWERPEN) | Codex for Higher Education; Flemish Decree on the organization and financing of science and innovation policy | The Codex defines a societal mission for universities. The Decree defines ‘strategic basic research’ as “generic research, which aims to build scientific or technological capacity as a basis for economic and/or societal applications”.  The government supports ‘strategic basic research’ through various programmes and schemes for universities and research performing organisations. This type of research equals CERI or supports CERI approaches. |
| Croatia (UNIRI) | National Act on Science and Higher Education | Higher education is based on “interactions with social community” and “higher education institutions are obligated to develop social responsibility in students and other members of the academic and scientific community” (Article 2), emphasising how “university achieves its purposes in accordance with the needs of its local community” (Article 3). |
| Germany (UBREMEN) | High-Tech Strategy 2025 | The strategy addresses all players: science, society and industry. German ministries publish calls for funding that are open to many stakeholders in R&I. [[13]](#footnote-13) |
| Finland (UEF) | Universities Act | Emphasis on the societal impact of R&I is embodied in the Universities Act, which states that carrying out research and education, universities should promote lifelong learning, interact with the surrounding society, and promote societal impact of university research findings and artistic activities. Finnish science policy increasingly emphasises the societal impact of R&D. This is manifested in national R&D funding instruments. Three funding sources are especially relevant: strategic research funding granted by the Strategic Research Council at the Academy of Finland[[14]](#footnote-14), R&D funding from the Business Finland[[15]](#footnote-15), and funding for the Government’s analysis, assessment, and research activities[[16]](#footnote-16). |
| Netherlands: (UM) | Connecting Science and Society NWO Strategy 2019-2022 | NWO (Dutch scientific organization) would like to connect and have scientific and societal impact. NWO developed five ambitions: connecting agendas, science and society; providing perspective to researchers;  collaboration for excellence and innovation; ensuring an accessible  and sustainable scientific infrastructure; and effective use of  knowledge through co-design and co-creation. Therefore, in almost every grant, a knowledge utilisation paragraph is required which underlines how the society could benefit from the research. |
| Poland (UMK) | No specific policy/part of general aim of universities in Poland | The university is public and it is implied that most of the research is made for the common good of the local, regional and national public. There are also three major research funding agencies which fund basic (National Science Centre NCN), applied research (National Centre for Science and Innovation NCBiR) and medical research (Medical Research Agency ABM), which includes clinical trials. Depending on the scheme, they can support or even require public or community involvement. |
| Italy (UNITOV) | [National Research Plan](https://www.mur.gov.it/it/aree-tematiche/ricerca/programmazione/programma-nazionale-la-ricerca), (NRP)  (Programma Nationale per la Ricerca)[[17]](#footnote-17)  and  National Recovery and Resilience Plans (PNRR).[[18]](#footnote-18) | In NRP, the six main areas of research and innovation and related areas of intervention reflect the [six clusters of Horizon Europe](https://ec.europa.eu/info/files/horizon-europe-investing-shape-our-future_en), the European Framework Programme for Research and Innovation 2021-2027 and consider the areas of the [National Strategy for Smart Specialization.](https://www.agenziacoesione.gov.it/wp-content/uploads/2019/06/Strategia_Nazionale_di_Specializzazione_Intelligente_Italia.pdf) To promote collaboration and knowledge transfer among universities and citizens, all the Italian universities have the so called “*Third Mission*” (TM), which is: *“the set of activities through which universities directly interact with the society, alongside the traditional mission of teaching (1st mission, interaction with students) and research (2nd mission, interaction with research entities or universities).”* According to ANVUR’s (Agenzia Nazionale di Valutazione del Sistema Universitario e della Ricerca) definition, there are two types of TM:   1. Third mission aimed at economically enhancing knowledge 2. Cultural and societal Third Mission   According to the PNRR, there are 6 missions, one of which is “Education and Research”. This mission includes investments lines that include CERI activities related to funding for starting grants and advanced grants. |
| Spain (UC3M) | Spanish Science, Technology and Innovation Strategy 2021-2027[[19]](#footnote-19) | The main objectives of this strategy are to strengthen public-private collaboration, promote knowledge transfer, improve the status of research personnel and institutions, enhance Spain's capacity to attract, recover and retain talent and guarantee the application of the principle of real equality between women and men in Research and Technological Development. In this context, the CERI concept is deeply embedded in this strategy, which defines the principles and priorities for public R&D&I funding for the period 2021-2027. |
| UK (UEssex) | Research & Development Roadmap (RDR) (21/1/2021) | “Third mission agenda”: The first two agenda include teaching and research, while the third refers to activities that occur between a given university and an external partner. CERI is part of this third stream. This roadmap outlines the objectives and motivations for research activities in Higher Education, with a special focus on innovation. This includes producing economic and societal benefits. |

## Section 2.2 Implementation of EU and national strategies

The implementation of EU and national strategies with regard to CERI policies takes different forms subject to funding availability and government regulations or expectations.

At the national level, central grants are available for CERI activities in countries such as Finland, Germany, the Netherlands and the UK. In the case of Antwerp University in Belgium, funding is available from the federal regional government. In the Netherlands, there are also local funding organisations and the regional government, such as OP Zuid.[[20]](#footnote-20) In the case of universities based in Croatia, Italy, Spain and Poland, respondents most consistently mentioned the funding available through Horizon Europe and the previous programme Horizon 2020. Respondents gave these examples of how national governments support CERI:

* The creation of innovation clusters (local, regional, town based);
* Setting expectations that impact is included in research applications financed by national ministries;
* Grant schemes that specify that universities should work together with companies, NGOs, local communities and local authorities;
* Developing doctoral programmes with industry and other societal actors;
* Expectation that some research contributes directly to policy-making and involves communities or stakeholders affected by national policies.

*National Regulation*

All universities in YUFE have regulations at the national level for the implementation of grants, outreach activities and teaching programmes. They need to adhere to high ethical standards and to national quality standards, amongst others. However, most respondents did not identify explicit regulation for CERI. It seems that the UK is an exception because it has a highly regulatory system, that includes CERI activities. UK Research England is the public body that provides most of the national regulation with regards to CERI through the management of the ‘Research Excellent Framework’, along with UK Research and Innovation (UKRI) that has developedthe ‘Knowledge Exchange Framework’. [[21]](#footnote-21)

This is included in the work of UK Research England and in policies such as the ‘Research Excellence Framework’ and the ‘Knowledge Exchange Framework’.

**Regional or Local authorities and other organisations that have strategies toward CERI or aspects of CERI.**

In all YUFE universities surveyed there are *regional and local authorities*that provide incentives. In the case of University of Tor Vergata (UNITOV) in Italy and University of Carlos III de Madrid (Spain), *city authorities*also play a key role. Other organisations mentioned:

* Schools and voluntary organisations (UNIRI, Croatia)
* Private, social and cultural institutions in the urban and regional districts (UBREMEN)
* National Foundations (UNITOV)
* NGOs and local agencies in specific fields such as logistics, health, energy and aeronautics (UBREMEN)
* International associations (UC3M)
* Business developers (UEF)

## Section 2.3 Internal Environment

Several questions were asked to understand the internal environment of the universities participating in this survey. Questions were asked about the nature of internal support services, level of financial and human resources allocated for CERI, existence of training courses and matrices and examples of best practices. The success factors and challenges mentioned by respondents are given in the appendixes (Table A2).

From the examination of the data obtained through the mapping exercise via qualitative survey (Appendix B) we derived three models of internal implementation of CERI policies:

* Integrated approach
* Emerging Integrated
* Local approach

Although in the three models there is a ‘bottom-up approach’, that is initiatives taken at departmental or faculty levels for CERI actions, the differences across the models are the *intensity* of existence and implementation of the following:

* Existence of central missions and strategies for CERI at the highest management level;
* Availability of highly visible and multifaceted communication strategies;
* Internal processes to meet specific objectives in relation to the strategy;
* Dedicated financial and human resources;
* Availability of training for academics, researchers and professional staff;
* Promotional criteria for researchers and academics rewarding engagement with CERI practices;
* Experimentation with new research co-design methodologies in research grants and research-related projects.

The categorisation is given in Table 2 and it is suggested that the institutions that took part in this project are on slightly different paths to achieving an integrated model. Some variations will develop along the path because of their specific national, regional and local circumstances (see discussions in the methodology sections about some key factors that shape differences in CERI policy development at institutional level).

### Table 2: Categorisation of models of implementation of CERI policies.

|  |  |  |  |
| --- | --- | --- | --- |
| **Features** | **Integrated approach** | **Emerging Integrated** | **Local Approach** |
| *Mission statements* | Centrally formulated policies and management promotes a vision of CERI | Not fully integrated; developing but not fully promoted vision | No central policy and management strategy to promote CERI; rather, local departments/faculties take a lead |
| *Communication*  *strategy* | Highly visible communication strategy using different channels | The communication strategy is not fully integrated. | International communication exists (e.g., newsletters etc) but not extensive use of many different communication channels |
| *Human*  *Resources* | Internal dedicated human resources to CERI that do not just support grant applications but that are involved in impact, knowledge exchange and fostering interdisciplinarity. | Dedicated resources are limited | No extra human resources, apart from work undertaken by already existing professional staff |
| *Tools* | Application of tools to assess the implementation of policies on a regular basis | No fully developed tool to assess the implementation of policies | No application of best practice tools for CERI as a whole |
| *Co-creation/co-design methods* | Strong emphasis on co-creation and co-design at all stages of grant/project development and emphasis on interdisciplinarity | Co-creation practices do exist but only for a limited number of projects | Exist for certain specific projects |
| *Processes* | Special working procedures in place to check that grants and projects integrate impact; involve co-design at early stages of development and throughout the implementation of projects | Some special working procedures in place but do not cover the full spectrum required. | Some in place on a very limited scale |
| *Metrics[[22]](#footnote-22)* | Use of metrics to evaluate outputs | Metrics not fully developed | No metrics or limited to relationship with business |
| *Finances* | Special financial resources allocated for CERI institutionally | Limited internal dedicated financial resources | No extra internal resources apart from those provided by departments/faculties |
| *Training* | Specialised training courses on CERI such as impact, knowledge exchange, knowledge transfer, etc. | Limited training courses | Some specialised training courses but not covering all aspects of CERI |
| *Career progression* | Promotional criteria rewards for academics and researchers who engage in CERI practices | Limited representation in promotion criteria | Very limited or no representation in promotion criteria |

*Integrated model*

It could be argued that **UANTWERPEN, UESSEX, EUF and UM** belong to, or are very close on the path to the integrated model, for several reasons: first, they have availability of central and local grants for CERI activities.[[23]](#footnote-23) Second, in these universities CERI policies have resulted in several projects in which researchers and academics, working with external stakeholders, - ranging from local authorities, businesses, NGOs and representatives of communities - , create activities or work in ‘innovation hubs’ in a co-creating manner.[[24]](#footnote-24) Third, there are strategies aimed to target specific communities with specific tools, supported by internal activities to create collaborative projects with external stakeholders.[[25]](#footnote-25) Fourth, they all have central policies to train academics, researchers and professional staff for CERI activities, such as in the area of public engagement, knowledge transfer, participatory research methods, amongst others. Fifth, they have policies in place to monitor the implementation of CERI policies and develop best practices. For example, managers in UK universities make use of an ‘Edge tool’ and implement policies as provided by the *Knowledge Exchange Concordat*. (see best practices below)[[26]](#footnote-26) Sixth, they have specialised staff either located in central units or in partnership with other teams across the university with the aim to implement CERI policies.[[27]](#footnote-27)

*Emerging integrated model*

It could be argued that **UNIRI, UBREMEN and UC3M** are on the path to an “emerging integrated model” because, although they have some policies and resources in place, others are at present not fully developed.

**University of Carlos III of Madrid (UC3M):** UC3M has dedicated some financial and human resources to CERI and is creating process for ‘lessons learnt’. Academics do conduct research in partnership with non-academic colleagues and the university has in place methods for monitoring and evaluation of its own knowledge exchange activities. Nevertheless, it is at present in the process of developing a more centralised policy. As a respondent explained, in its Strategic Plan for (2016-2022) and in the Mission of the University, CERI is mentioned and a policy is being implemented in 2022, called “*New Research, Innovation (&Transfer)* Model] - RITMO. RITMO has been launched to make the conceptualisation and the functional design of a new Relational Research and Innovation Model based on Community (societal) Engagement.” It is composed of a total of 12 prestigious experts from outside UC3M, with the additional participation of another 9 experts from the UC3M Vice-Rector's Office for Scientific Policy.

**Bremen University (UBremen)**: has a central unit with professional staff concerned with CERI activities, unit 16 (UniTransfer); and a growing number of CERI projects that are regularly communicated.[[28]](#footnote-28) However, it has no metrics or best practices in place at present. It has a central aim to strengthen cooperation between the university’s institution, research groups and study programmes with regional partners but it does not mention CERI explicitly.

**University of Rijeka (Croatia, UNIRI)**. In its 2021–2025 strategy, developed in consultation with both internal and external stakeholders, UNIRI announced they are working towards the UN sustainable development goals, which are focused on CERI objectives. In fact, in the mission of UNIRI, it is stated that UNIRI teachers strive to prepare students for the jobs of the future and civic responsibility. The scope of research is also to develop the economy and improve well-being of the local community. Each university constituent departments have their own strategic documents, for both teaching and research, and most of them recognise collaboration with various community stakeholders as relevant for both for improving teaching and research as academic pillars. This university strategy contains both quantitative and qualitative metrics to examine CERI activities. UNIRI has a record in developing projects that have an impact on the city of Rijeka. It recognises CERI activities in the promotion of academic staff. It has centres that provide a great example of co-creation in many activities.

It is worth noticing that UNIRI was among the first group of piloting HEIs to use the qualitative self-evaluation tool called Towards a European Framework for Community Engagement of Higher Education (TEFCE) and is currently in the process of creating an action plan (empirically based on the TEFCE data), within the SHEFCE project (Steering Higher Education for Community Engagement - https://www.shefce.eu/project). As part of the TEFCE piloting, UNIRI created a data-base of the best community engagement practices, which is available online ([https://uniri.hr/en/community-engagement-database](https://uniri.hr/en/community-engagement-database/)/) and is being updated continuously. There is an evident growth of EU funded projects (particularly Erasmus+) on both university and faculty (departmental) level in which CERI activities are usually immersed and implemented in collaboration with diverse external stakeholders. Due to exogenous factors, it has experienced challenges in engaging with businesses.

*Localised approach*

It could be argued that **University of the** **Study of Rome Tor Vergata (UNITOV)** and **Nicolaus Copernicus University (UMK)** fall within this category.Their approach is different from the other two, previously mentioned, because there is no central policy with clear objectives for how to implement CERI as well as more limited resources available. Although universities have specialised services to help with grant applications and with relationships with businesses, there are no specialised central units or dedicated professional staff to support a wide range of external stakeholders, not purely businesses but also local communities and NGOs. There appears to be a lack of training in impact and knowledge exchange for academics and researchers. Nevertheless, a wide range of CERI activities have been successfully developed and promoted by specific departments or faculties, particularly targeted to business in cooperation with local authorities.

As an example, **University of the Study of Rome Tor Vergata (UNITOV)** has created “Start Cup Lazio”. This is a structure for intermediation and technological technology transfer via collaborative network. It was created in 2015 from a pilot at Tor Vergata and developed over time. It involves an increasing number of subjects at different levels of the University and the Lazio territory. The core activity of the Network is the regional Business Plan Competition that rewards the best innovative business projects from the research system in Lazio with the aim of promoting academic and student entrepreneurship for the sustainable development of the region and the country.

**Nicolaus Copernicus Universi**t**y (UMK)** has, for example, participated in the Project AMULET (Advanced Materials & Manufacturing Technologies United for LightwEighT) from the Horizon 2020 programme to support the development of sectoral SMEs. The project AMULET, worth EUR 5 million, was prepared as part of an international consortium consisting of 13 organisations from 10 countries. The project aims to create new value chains by supporting the development of advanced materials from different fields through interregional and intersectoral knowledge exchange.

# Section 3: Analysis of the AMST questionnaire

## Section 3.1 AMST: Key questions

In this section we present findings focused on some of the key questions inserted into the AMST survey instrument which are specific to CERI. A summary of the multivariate analyses of researcher motivation and support is presented below in section 3.2.

*About the participants*

As there were a high number of participants who did not complete the full survey; a cut off of 50% completion was applied, eliminating those participants who completed less than this threshold, resulting in a total of 572 respondents distributed across the universities as shown in Table 1 in Appendix A. Of the included respondents:

* 47.9% were women, 48.6% men, 1.5% non-binary, ‘prefer not to say’ 2%
* 78.5% have a PhD; most respondents were within the first 20 years after their PhD (see Figure 2 in the Appendix);
* 67% were combined teaching and research staff and 11% were research only;
* Participants were from a diverse range of areas of study but social sciences seemed to be best represented as the most common areas were political science, business and management and economics and finance.

*The definition of CERI*

Survey responses largely validated the definition of what ‘CERI’ is as outlined in the methodology section and in the YUFERING report of WP2.1 In AMST, some of the questions asked respondents to use a Likert five-point scale to assess the following statements:

* ‘In community-based research it is important for the intended beneficiaries to be engaged throughout the research process’
* ‘In community-based research, it is important to share, and encourage the ownership of, research outcomes with beneficiaries e.g. the community’
* ‘In community-based research, we (researchers) should research with people, as opposed to on people’

The results show a majority agreement with each statement, as shown in Figures 3 to 5 below.

Figure 3: AMST question 14.2: related to definition of CERI [[29]](#footnote-29)

Figure 4: AMST question 14.3: related to definition of CERI [[30]](#footnote-30)

Figure 5: AMST question 14.4: related to definition of CERI[[31]](#footnote-31)

*Taking part in CERI*

42.6% of the respondents have participated in at least one type of knowledge exchange activity within the last three years; Figure 6 shows the percentage for each university.

Figure 6: Percentage of respondents taking part in CERI by university

Figure 7 shows the mean number of days, over the last three years, participants estimated they spent on “Work on Collaborative research projects with non-academic external partners (e.g., communities, local government, charity, etc.) to address a societal challenge(s) or community needs, via strategic research”.

Looking more closely at the data, we see that some individuals report numbers as high as 500 days (with the lowest being 0), so it seems likely that scores are driven by certain individuals who engage in a lot of CERI related activity. Similarly, of those reporting engagement in CERI, the majority (64%) had spent less than 21% of their time on these activities, suggesting that in the majority of cases CERI is not the primary focus but only a part of the academic work. This is coherent with previous findings from the CAP (Changes in Academic Profession) survey which found that “service” (which includes CERI but also other functions such as paid consulting or technology transfer) only takes a small percentage of academics’ weekly time compared to teaching, research and even administration (Ćulum, B., Rončević, N., & Ledić, J. 2013).

#### Figure 7. Mean of number of days spent engaging in CERI over the last 3 years.

When we asked about barriers to CERI (Q27), the most reported factors were: “lack of time” and “Personal preference to prioritise my engagement in academic pillars e.g., teaching and fundamental research”, which collectively suggests that many researchers see CERI as a peripheral activity; they do not have the time to fully invest in. Again, this is similar to trends found in previous research (Ćulum, B., Rončević, N., & Ledić, J. 2013), which suggests that this is likely to be because the first two academic pillars are seen as more worthy of time investment as they are better recognised in measures of achievement (Krücken et al. 2009; Göransson et al. 2009), more influential in terms of advancement (Bloomgarden and O’Meara 2007; Ledić 2007; Star 2007; Ćulum and Ledić 2010) and generally better rewarded (Macfarlane 2005; Cummings 2006). Our findings in this context suggest that making CERI more of a priority (without increasing the overall workload) would be an important step in increasing engagement.

## Section 3.2 Multivariate analysis

The results of the regressions can be found in the attached Tables B2, B3, B4, B5 and B6. To conserve space, here we present and discuss only the most relevant results. We first examine the key factors impacting public and community KE engagement (combination of public engagement and CERI, labelled as ‘Public community engagement (labelled: *pub\_comm\_eng*) as opposed to all other channels of KE, considered together ‘Private KE’ (and labelled as *pvt\_eng*).

*Key findings:*

* In terms of the many independent variables analysed to understand what is likely to influence anacademic to want to undertake any types of knowledge exchange activities, including CERI, the most significant is when respondents report that some forms of impact creation are an important reason for accepting an academic job. In other words, an academic who is highly motivated to generate social impact through their profession is more likely to engage in some form of KE activities.
* If creating *social* impact is an important factor behind an individual academic choosing to do research, such academic will exhibit higher levels of public and community engagement than other academics. In other words, overall levels of public and community facing KE engagement in academics can be predicted by the intention to create social impact from research.
* Generally, academics follow the lead set by their university and department. Universities can increase their income by extending support for entrepreneurial activities that extend teaching or commercialise research through knowledge exchange. Our analysis reveals that respondents’ perceptions that the university is interested in increasing the reach of entrepreneurial support to teaching is negatively correlated with all types of (research based) Knowledge Exchange. Similarly, if the department is perceived as being more supportive of industry collaboration, then researchers show a lower level of effort directed to CERI (as the department clearly prefers to partner with industry).
* Positive perceptions of strategic focus and leadership on KE centrally within the university are associated with higher public and community engagement by academics. The same happens if the university is seen to encourage and actively support entrepreneurial activities centrally.

As this report is mainly concerned with CERI activity, we can summarise key factors shown to impact individual types of KE (and the directions of association) are:

* Financial motives are a motivator of engagement in CERI.
* Several negative correlations discovered in the analysis of the survey indicate that academic staff want to become engaged in CERI for reasons that have nothing to do with the following:
* Desire to gain in knowledge;
* Obtain resources;
* Perceptions that the department supports industry or commercial collaboration or research mobilisation;
* Internationalisation;
* Perceptions about institutional frameworks and facilities.[[32]](#footnote-32)

*Implications*

The results above highlight a few important patterns:

* CERI is generally carried out by academics who value the potential social impact of their research over commercial impact. This does not mean that academics value either CERI or commercial impact because CERI activities also respond positively to financial reward. But in addition to financial reward, a strong social motivation helps increase hourly commitment to CERI.
* Perceptions of support from an academic’s *department* matter for CERI engagement. For instance, the degree to which the department encourages collaboration with the external community has a positive effect.[[33]](#footnote-33)
* Perceptions about institutional support and encouragement to forge links with external stakeholders positively impact CERI engagement.
* The factors that affect each type of KE are somewhat different from each other. However, some factors which positively impact CERI also have a positive impact on academic entrepreneurship, for example, financial motive of academics, social impact of own research, and perceptions about the department’s support for community engagement.
* Some factors have an unambiguous positive impact across multiple channels, without negatively impacting any others. These are: financial motive, social impact of research, perceptions about the department’s support/encouragement for community engagement, perceptions about the organization’s strategic focus and leadership on KE, and perceptions about the university support for entrepreneurial pathways.
* While several factors are seen to impact different KE activities negatively, one which stands out is the perception about the university’s focus on entrepreneurship through *teaching and learning*. This factor impacts several KE engagement channels negatively, including entrepreneurship itself, consultancies and CERI. It has no discernible positive impact on any knowledge exchange activities.

# Section 4: Conclusion and Recommendations

The aim of this project task was to devise a common approach to CERI and support services and processes for YUFE partners. Considering the findings, we believe that there are some suggestions that could be made for achieving a fully ‘integrated model’. However, given that CERI institutions are shaped by different national and regional contexts, the approach will need to be modified to consider these specific circumstances. We subdivide our recommendations at individual institutional level and across the YUFE partners. Because of insufficient information provided regarding the regulation that are present at national level in many countries, we are unable to make recommendations with regards to regulations.

*Best-practice suggestions for actions at the institutional level*

At the individual institutional level, we consider that to achieve a fully integrated model, the following best practices could be undertaken:

1. Developing institutional strategies[[34]](#footnote-34):

* It would be important to execute ***a mapping exercise of already existing CERI actions*** undertaken by academics within departments and faculties, by using tools such as TEFCE (Towards a European Framework for Community Engagement in Higher Education)*.[[35]](#footnote-35)*
* Once this is undertaken, management at different levels of the organisation could brainstorm the following: Why are we doing CERI? Is CERI the same as public engagement policies, knowledge exchange, citizens science? Who are our key external stakeholders that we want to engage with CERI policies?
* Once this work is done, **a *mission statement***would be useful and this mission statement needs to be integrated into the actions that are subsequently developed.
* Our findings suggest that, for researchers, it is most important that CERI is supported at a departmental level and so initiatives should feed through from departmental leaders and/or research champions or similar roles.
* Management could **appoint some influential leaders as champions of CERI** or aspects of CERI.
* It could be important to **develop a communication strategy for CERI both internally and externally**, the external one needs to be targeted to identified external communities.
* An **analysis of the human and financial resources** required for CERI policies would need to be undertaken and implemented. This would mean asking the following questions: who are the professional staff who can support CERI? If no new professional staff can be appointed, are there programmes for **continuing professional development** in this area?[[36]](#footnote-36) Can specific budgets be allocated for CERI policies?
* It would be important to have **a policy for the recognition of staff efforts** in implementing CERI policies, for academics and professional staff.
* It would be important to **develop a promotion of co-production, participatory research methods** within the university and to promote best practices in this area whilst considering that these methods tend to be used more in some subject areas – such education, business, ecology, politics etc - than others.[[37]](#footnote-37) This might involve academic and/or professional staff teaching techniques that facilitate co-production and participatory research methods, such as stakeholder analysis, social network analysis, the theory of change, logical frame models etc.[[38]](#footnote-38)

1. Developing and monitoring internal processes and implementation of activities

* Specific processes will need to be devised to ensure that CERI policies are implemented during **grant capturing, project implementation and reporting**.[[39]](#footnote-39) These processes could also consider the knowledge that has been developed for best practices in promoting impact, at grant and institutional level.[[40]](#footnote-40)
* It would also be important to have processes in place for **evaluation of activities** and for training of professional and academic staff, which could use qualitative wwwwwand quantitative methods.[[41]](#footnote-41)

*Across YUFE collaborating institutions*

In terms of policies to devise a ‘*common approach to CERI amongst YUFE partners*’, they could include the following options:

* Set up an advisory board that is composed of members of YUFE universities, to assess and/or benchmark the quality of the procedures put in place.
* Establish a working group across YUFERING to discuss and establish useful ways of monitoring and improving CERI activities as well as exchanging good practices.
* Co-develop training programmes in specific areas for academic staff and students and consider whether it is feasible to include community representatives/non-academic stakeholders/members of various community organisations.
* To normalise and promote discussions of CERI, we suggest the creation of a virtual document for websites and internal circulation. This would set out what is meant by CERI and resources for engaging further (i.e., the training mentioned above) and identify local champions and resources.

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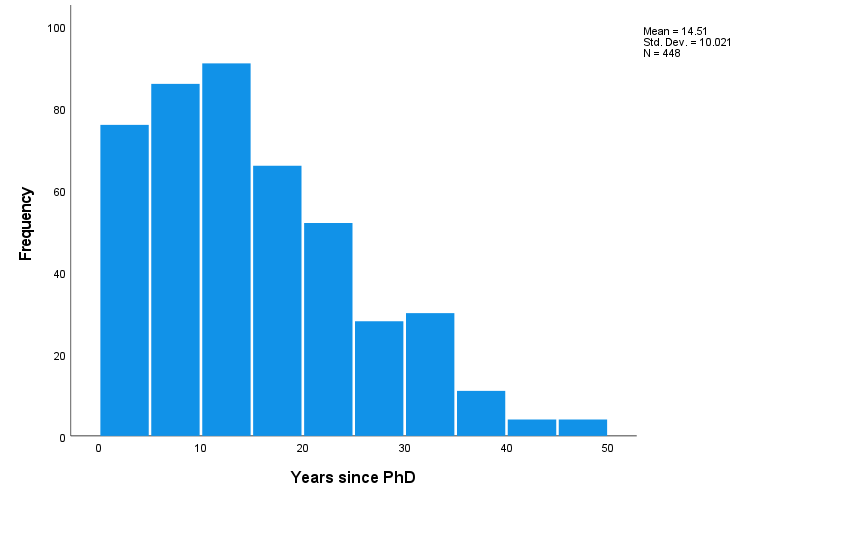
# Appendix A: Basic statistics from AMST survey; success factors and challenges

### Table A1: Responses by university.

|  |  |  |  |
| --- | --- | --- | --- |
| **University** | **Estimated staff** | **Responses**  **(at least 50% completed)** | **Response Rate** |
| Essex | 2139 | 180 | 8.42 |
| Rijeka | 1100 | 20 | 1.82 |
| Eastern Finland | 1582 | 25 | 1.58 |
| Cyprus | 1505 | 17 | 1.13 |
| Bremen | 3471 | 73 | 2.10 |
| Antwerp | 7770 | 24 | 0.31 |
| Carlos 3 de Madrid | 2216 | 116 | 5.23 |
| Nicolaus Copernicus | 2604 | 82 | 3.15 |
| Maastricht | 5000 | 29 | 0.58 |

*Note: Numbers are based on those who completed 50% or more of the survey. Staff estimates are those given by the respective institutions; note that there may be some variance depending on who is included in this number at different institutions (e.g., some PhD students and Research Assistants may be included for some centres).*

#### Figure A1 – Years since PhD completion (for those respondents who hold a PhD)



### Table A2: Success factors and challenges

The respondents identified the following success factors and challenges for the implementation of CERI actions within R&I support services.

|  |  |
| --- | --- |
| *Success factors: External environment* | *Challenges: External Environment* |
| Having access to external funded sources for CERI in the forms of grants and special funding provided by central and regional or city public authorities. | High level of competition for ‘special relationships’ with large size SMEs, large companies in local areas. |
| *Geographical location*: The more economically prosperous the geographical area in which the university is located, the more opportunities there are for establishing relationship with dynamic SMEs, larger companies, rich foundations, public and private organisations. | Government gives priorities to supporting businesses directly rather than supporting universities establishing relationships with business. |

**Institutional**

|  |  |
| --- | --- |
| **Success factors** | **Specific Challenges (not inverse of success factors** |
| Management in the university provides a vision for CERI as part of the strategic and annual plans and have in place procedures to monitor the implementation of CERI policies. | Seeking all kinds of external stakeholder relationships without a clear understanding of the benefits and risks involved |
| Internal culture of the institutions: culture of experimentation and learning facilitated by central management. Plus, provision of training on CERI and Knowledge Exchange for professional staff and academics. | Insufficient training for academic staff on how to approach and work with external stakeholders: both companies, public sector and NGOs. |
| Appropriate number of dedicated professional staff for implementing CERI policies | Academic staff and researchers are not enthusiastic about working on CERI activities and are more interested in fundamental or non-applied research for career progression. |
| Having local incentives for academic staff in terms of considering CERI as part of promotion criteria or providing for extra financial incentives for taking part in such activities. |  |
| Having appropriate/specialised strategies towards specific stakeholders, to match the internal specialisation and subject expertise present in the university. In other words, target the creation of network of stakeholders in relation to the research strengths of the university. |  |
| Having policies and business or commercial support in place to ensure that staff work transparently and ethically: this means having in place transparent policies on intellectual property rights, liabilities as well as warranties in relation to access by third parties as a result of licensing agreements or the outcome of collaborative research. |  |
| Having expertise in topics that are highly sought after by external stakeholders, particularly companies, local or regional government or cities and specialised NGOs. |  |

# Appendix B: Multivariate analysis details

### Table B1: Construct and variable definitions

|  |  |  |  |
| --- | --- | --- | --- |
| **Constructs** | **Dependent Variables** | **Meaning** | **Definitions** |
| KE activity type | pub\_comm\_eng | Overall public and community facing engagement | Sum of ke\_cer and ke\_public.  Each is the mean of the items under questions 24 and 22 resp. |
| pvt\_eng | All other types of engagement apart from public and community facing ones | Sum of ke\_contract, ke\_collab, ke\_pd, ke\_entrep. Each is the mean of items under questions 18, 19, 20, 21, 23 |
| ke\_*type* | Each KE channel type | Type specific items from questions 18-24 |
| Participation | ke\_participate (selection equation) | Dummy indicating whether any type of KE has been undertaken in the last 3 years | Dummy Question 15 |
|  |  |  |  |
|  | **Independent variables (outcome equation)** |  | **Items (mean of)** |
| KE Motivation | motive\_knowledge | Knowledge motive | 25.1, 25.2, 25.3 |
| motive\_resource | Resource motive | 25.4, 25.5, 25.6, 25.7 |
| motive\_finance | Financial motive | 25.8, 25.9, 25.10 |
| motive\_institution | Institutional incentive/pressure driven motive | 25.11, 25.12 |
| motive\_career | Career progress driven motive | 25.13, 25.19 |
| motive\_social | Social impact driven motive | 25.14, 25.18 |
| Research Intention | intention\_commercial | Intention to commercialize research | 13 all items |
| intention\_social | Intention to create social impact from research | 14 all items |
| Perceptions about departmental support for KE to undertake… | percep\_comcollab | Community collaborations | 32 all items |
| percep\_indcollab | Industry collaborations | 31.2, 31.3 |
| percep\_resmob | Research mobilization | 29 all items |
| percep\_unconven | Unconventionality | 30 all items |
| Perceptions about institutional frameworks and facilities | percep\_iff\_lead | Leadership and governamce | 34 all items |
| percep\_iff\_org | Organizational capacity, incentives | 35 all items |
| percep\_iff\_entrep | Entrepreneurship through teaching and learning | 36 all items |
| percep\_iff\_path | Pathways for entrepreneurs | 37 all items |
| percep\_iff\_busext | Business and external relationships | 38 all items |
| percep\_iff\_internat | Internationalization | 39 all items |
| percep\_iff\_entimpact | Assessment of impact of entrepreneurial teaching and learning | 40 all items |
| percep\_iff\_cer | Community based research and innovation | 41 all items |
|  |  |  |  |
|  | **Independent variables (selection equation)** |  | **Items (mean of)** |
| Academic Motivation | acad\_benefits | Salary and benefits | 10.1, 10.2 |
| acad\_nature | Nature of job | 10.3, 10.4, 10.5 , 10.6 |
| acad\_career | Career advance | 10.7 |
| acad\_impact | Impact generation | 10.8, 10.9, 10.10 |
| Career incentives | career\_teaching | Teaching ability and load | 11.1 |
| career\_admin | Administrative roles | 11.2 |
| career\_research | Research and publications | 11.3 |
| career\_ke | KE | 11.4, 11.5 |
| career\_grants | Funding success | 11.6 |
| career\_supervise | Supervision | 11.7, 11.8 |
| career\_esteem | Esteem | 11.9 |
|  |  |  |  |
|  | **Control variables (selection and outcome equation)** |  | **Items** |
|  | University |  | 0 |
|  | Employment type |  | 3 |
|  | Position |  | 4 |
|  | Nationality |  | 9 |
|  | Subject area |  | Self-created from 5 |

### Table B2: First Stage Probit Results of Heckit Estimator

|  |  |
| --- | --- |
| **Variables** | **KE participate** |
| acad\_benefits | 0.107 |
|  | (0.067) |
| acad\_nature | -0.136 |
|  | (0.140) |
| acad\_career | -0.082 |
|  | (0.073) |
| acad\_impact | 0.285\*\*\* |
|  | (0.102) |
| career\_teaching | -0.077 |
|  | (0.061) |
| career\_research | 0.084 |
|  | (0.083) |
| career\_admin | 0.039 |
|  | (0.069) |
| career\_ke | 0.039 |
|  | (0.072) |
| career\_grants | 0.092 |
|  | (0.078) |
| career\_supervise | -0.026 |
|  | (0.082) |
| career\_esteem | -0.085 |
|  | (0.071) |
| Constant | -1.097 |
|  | (0.785) |
| **Observations** | 437 |
| **Log Likelihood** | -280.393 |
| **chi2** | 42.530\*\* (df = 27) |

### Table B3: Heckit Estimates – Public vs Private KE

|  |  |  |
| --- | --- | --- |
| **Variables** | **Public** | **Private** |
| motive\_career | -8.937 | -0.505 |
|  | (7.436) | (36.220) |
| motive\_finance | 5.914 | 43.683 |
|  | (7.150) | (39.359) |
| motive\_institution | 1.241 | -26.617 |
|  | (4.306) | (22.904) |
| motive\_knowledge | -9.717 | 40.593 |
|  | (7.153) | (34.786) |
| motive\_resource | -8.802 | -70.767\* |
|  | (7.870) | (39.529) |
| motive\_social | -0.298 | -17.373 |
|  | (6.420) | (31.568) |
| intention\_commercial | 8.434 | 14.432 |
|  | (6.677) | (32.949) |
| intention\_social | 15.360\*\* | 0.035 |
|  | (6.367) | (32.436) |
| percep\_commcollab | 10.350\* | 38.420 |
|  | (5.595) | (29.424) |
| percep\_indcollab | -13.204\*\* | -45.013 |
|  | (5.991) | (30.258) |
| percep\_resmob | -8.681 | 33.936 |
|  | (7.730) | (41.635) |
| percep\_unconven | 7.356 | 24.194 |
|  | (8.849) | (44.207) |
| percep\_iff\_busext | 15.475 | 70.271 |
|  | (11.413) | (56.515) |
| percep\_iff\_cer | -4.997 | -25.905 |
|  | (8.299) | (40.850) |
| percep\_iff\_entimpact | -1.895 | 1.747 |
|  | (5.448) | (28.545) |
| percep\_iff\_entrep | -13.788\* | -114.732\*\*\* |
|  | (8.172) | (41.890) |
| percep\_iff\_internat | -2.139 | -3.998 |
|  | (6.317) | (31.093) |
| percep\_iff\_lead | 12.505\*\* | 62.179\*\* |
|  | (5.501) | (27.226) |
| percep\_iff\_org | -15.913 | -26.203 |
|  | (9.741) | (51.656) |
| percep\_iff\_path | 17.095\* | 51.323 |
|  | (8.743) | (44.356) |
| Constant | 146.759\* | 10.676 |
|  | (78.385) | (335.300) |
| **Observations** | 302 | 302 |
| **R2** | 0.827 | 0.550 |
| **Adjusted R2** | 0.543 | -0.188 |
| **rho** | -1.082 | -0.659 |
| **Inverse Mills Ratio** | -54.278\*\* (25.282) | -90.888 (109.225) |

### Table B4: Tobit Estimates – Public vs Private KE

|  |  |  |
| --- | --- | --- |
| **Variables** | **Public** | **Private** |
| motive\_career | -8.407 | 12.283 |
|  | (6.654) | (33.235) |
| motive\_finance | 12.455\* | 53.641 |
|  | (6.998) | (35.101) |
| motive\_institution | -1.589 | -35.740 |
|  | (4.504) | (22.806) |
| motive\_knowledge | -6.277 | 46.811 |
|  | (6.201) | (31.226) |
| motive\_resource | 1.225 | -40.438 |
|  | (7.084) | (35.745) |
| motive\_social | -2.100 | -26.868 |
|  | (5.914) | (29.882) |
| intention\_commercial | 0.197 | -10.744 |
|  | (5.918) | (29.740) |
| intention\_social | 11.737\* | -15.540 |
|  | (6.592) | (31.953) |
| percep\_commcollab | 15.532\*\*\* | 40.699 |
|  | (6.006) | (29.268) |
| percep\_indcollab | -7.081 | -27.283 |
|  | (5.305) | (26.769) |
| percep\_resmob | -10.643 | 50.567 |
|  | (8.047) | (39.934) |
| percep\_unconven | 6.352 | 19.676 |
|  | (8.315) | (41.606) |
| percep\_iff\_busext | 18.752\* | 83.406 |
|  | (11.163) | (56.478) |
| percep\_iff\_cer | 1.349 | -7.829 |
|  | (7.989) | (40.455) |
| percep\_iff\_entimpact | -4.314 | -4.542 |
|  | (5.725) | (28.737) |
| percep\_iff\_entrep | -13.350\* | -106.715\*\*\* |
|  | (7.512) | (37.782) |
| percep\_iff\_internat | -5.057 | -15.133 |
|  | (5.592) | (27.570) |
| percep\_iff\_lead | 7.862 | 51.258\*\* |
|  | (5.181) | (26.116) |
| percep\_iff\_org | -17.609\* | -37.551 |
|  | (9.000) | (44.916) |
| percep\_iff\_path | 13.883 | 31.742 |
|  | (9.019) | (44.271) |
| Constant | 49.583 | -176.942 |
|  | (50.553) | (252.056) |
| **Observations** | 70 | 70 |
| **Log Likelihood** | -303.136 | -433.357 |
| **Wald Test (df = 40)** | 224.367\*\*\* | 70.469\*\*\* |

### Table B5: Heckit Estimates – KE types

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Variables** | **Contract** | **Collab** | **Consult** | **Entrep.** | **Professional Dev.** | **CERI** | **Public Engage** |
| motive\_career | 11.355 | -2.150 | 4.828 | -14.869\*\* | 0.330 | -4.278 | -4.659 |
|  | (21.655) | (9.786) | (5.758) | (6.687) | (2.271) | (4.829) | (3.989) |
| motive\_finance | 28.025 | 21.760\*\* | 0.241 | -7.128 | 0.784 | 10.914\*\* | -5.000 |
|  | (23.525) | (10.762) | (6.319) | (7.024) | (2.439) | (5.127) | (3.562) |
| motive\_institution | -9.654 | -8.889 | 2.100 | -8.401\*\* | -1.773 | 4.299 | -3.058 |
|  | (13.691) | (6.244) | (3.668) | (4.124) | (1.424) | (3.002) | (2.197) |
| motive\_knowledge | 33.010 | -12.129 | 9.067 | 13.735\*\* | -3.090 | -11.701\*\* | 1.984 |
|  | (20.798) | (9.397) | (5.529) | (6.425) | (2.181) | (4.639) | (3.840) |
| motive\_resource | -78.391\*\*\* | 10.752 | -11.359\* | 5.053 | 3.178 | -12.457\*\* | 3.656 |
|  | (23.631) | (10.715) | (6.301) | (7.232) | (2.471) | (5.237) | (4.155) |
| motive\_social | 5.693 | -6.086 | -12.672\*\* | -2.370 | -1.939 | 3.019 | -3.317 |
|  | (18.873) | (8.538) | (5.023) | (5.811) | (1.977) | (4.200) | (3.427) |
| intention\_commercial | 1.540 | 5.076 | -1.850 | 6.892 | 2.774 | 3.633 | 4.802 |
|  | (19.699) | (8.915) | (5.244) | (6.059) | (2.063) | (4.381) | (3.558) |
| intention\_social | -6.158 | 1.477 | 6.131 | -0.862 | -0.553 | 15.661\*\*\* | -0.301 |
|  | (19.391) | (8.806) | (5.177) | (5.910) | (2.024) | (4.286) | (3.335) |
| percep\_commcollab | 18.672 | 15.776\* | 4.421 | -1.791 | 1.341 | 9.282\*\* | 1.068 |
|  | (17.589) | (8.013) | (4.708) | (5.314) | (1.831) | (3.864) | (2.875) |
| percep\_indcollab | -17.974 | -17.115\*\* | -3.167 | -4.311 | -2.446 | -9.689\*\* | -3.515 |
|  | (18.089) | (8.207) | (4.826) | (5.527) | (1.890) | (4.004) | (3.153) |
| percep\_resmob | 10.838 | 3.907 | 8.684 | 8.725 | 1.782 | -13.487\*\* | 4.806 |
|  | (24.887) | (11.363) | (6.674) | (7.472) | (2.585) | (5.444) | (3.911) |
| percep\_unconven | 14.455 | 13.338 | -5.773 | 1.070 | 1.103 | 6.736 | 0.620 |
|  | (26.429) | (11.977) | (7.044) | (8.100) | (2.764) | (5.863) | (4.685) |
| percep\_iff\_busext | 52.555 | 9.538 | 11.299 | -8.259 | 5.138 | 12.875\* | 2.600 |
|  | (33.787) | (15.297) | (8.998) | (10.382) | (3.537) | (7.509) | (6.071) |
| percep\_iff\_cer | -23.523 | -6.906 | -1.016 | 7.411 | -1.872 | -8.236 | 3.238 |
|  | (24.422) | (11.050) | (6.500) | (7.518) | (2.558) | (5.434) | (4.428) |
| percep\_iff\_entimpact | 15.157 | -2.722 | 2.676 | -11.739\*\* | -1.624 | 7.258\* | -9.153\*\*\* |
|  | (17.063) | (7.771) | (4.566) | (5.161) | (1.777) | (3.751) | (2.806) |
| percep\_iff\_entrep | -40.825 | -15.769 | -32.218\*\*\* | -26.460\*\*\* | 0.540 | -4.108 | -9.680\*\* |
|  | (25.042) | (11.379) | (6.689) | (7.619) | (2.613) | (5.528) | (4.266) |
| percep\_iff\_internat | -11.815 | 11.786 | -5.864 | 1.334 | 0.563 | -3.726 | 1.587 |
|  | (18.589) | (8.411) | (4.948) | (5.722) | (1.947) | (4.136) | (3.370) |
| percep\_iff\_lead | 34.269\*\* | 7.317 | 7.049 | 8.322\* | 5.220\*\*\* | 5.111 | 7.394\*\* |
|  | (16.277) | (7.369) | (4.335) | (5.002) | (1.704) | (3.618) | (2.927) |
| percep\_iff\_org | -20.412 | -14.350 | 10.513 | 7.247 | -9.201\*\*\* | -12.554\* | -3.359 |
|  | (30.878) | (14.078) | (8.270) | (9.308) | (3.212) | (6.773) | (4.980) |
| percep\_iff\_path | -0.926 | 14.209 | 9.084 | 25.268\*\*\* | 3.689 | 4.706 | 12.388\*\*\* |
|  | (26.516) | (12.036) | (7.077) | (8.091) | (2.769) | (5.865) | (4.590) |
| Constant | -0.754 | -66.605 | 29.010 | 38.062 | 9.963 | 58.921 | 87.838\*\* |
|  | (200.538) | (89.080) | (52.580) | (64.620) | (21.353) | (46.068) | (44.359) |
| **Observations** | 302 | 302 | 302 | 302 | 302 | 302 | 302 |
| **R2** | 0.494 | 0.539 | 0.605 | 0.591 | 0.568 | 0.873 | 0.685 |
| **Adjusted R2** | -0.336 | -0.217 | -0.042 | -0.080 | -0.140 | 0.665 | 0.167 |
| **rho** | -0.663 | 0.309 | -0.416 | -0.927 | -0.797 | -0.876 | -1.121 |
| **Inverse Mills Ratio** | -54.834 (65.324) | 10.046 (29.061) | -8.181 (17.148) | -30.281 (20.976) | -7.637 (6.947) | -19.389 (14.969) | -34.888\*\* (14.259) |

### Table B6: Tobit Estimates – KE types

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Variables** | **Contract** | **Collab.** | **Consult** | **Entrep.** | **Profession. Dev.** | **CERI** | **Public Engage** |
| motive\_career | -2.618 | 7.776 | 12.021 | -75.259\*\*\* | 0.231 | -8.349 | -6.908\*\* |
|  | (27.833) | (9.455) | (7.380) | (11.019) | (2.425) | (6.371) | (3.276) |
| motive\_finance | 49.046\* | 10.826 | 4.879 | 32.801\*\* | 1.329 | 32.126\*\*\* | 0.831 |
|  | (28.471) | (10.041) | (8.244) | (13.771) | (2.570) | (8.193) | (3.409) |
| motive\_institution | -18.808 | -11.886\* | 2.365 | -11.183\* | -2.782 | 2.520 | -4.289\* |
|  | (16.450) | (6.563) | (5.412) | (6.308) | (1.738) | (3.908) | (2.300) |
| motive\_knowledge | 32.477 | -7.854 | 16.885\*\* | 32.465\*\*\* | -1.706 | -15.528\*\*\* | 2.557 |
|  | (21.197) | (8.714) | (6.897) | (7.228) | (2.252) | (5.819) | (3.262) |
| motive\_resource | -49.037\*\* | 16.186 | -7.101 | 14.687\* | 6.822\*\*\* | -13.765\*\* | 7.759\*\* |
|  | (23.629) | (10.047) | (7.140) | (7.821) | (2.578) | (6.609) | (3.642) |
| motive\_social | -2.519 | -5.605 | -17.545\*\*\* | 10.534 | -2.361 | 2.227 | -2.780 |
|  | (21.583) | (8.302) | (6.752) | (8.723) | (2.111) | (4.656) | (2.926) |
| intention\_commercial | -4.045 | 11.300 | -6.368 | 5.433 | 2.119 | -12.608\*\* | 0.613 |
|  | (22.366) | (8.360) | (6.823) | (10.482) | (2.140) | (5.866) | (2.843) |
| intention\_social | 4.915 | -3.210 | 0.636 | 20.498\*\*\* | -2.221 | 32.136\*\*\* | -2.225 |
|  | (24.058) | (9.765) | (8.385) | (7.775) | (2.438) | (7.704) | (3.364) |
| percep\_commcollab | 33.591 | 19.850\*\* | 6.462 | 39.068\*\*\* | 1.655 | 25.742\*\*\* | 3.857 |
|  | (21.103) | (9.319) | (9.148) | (7.263) | (2.283) | (5.942) | (3.027) |
| percep\_indcollab | -7.288 | -7.701 | -5.306 | -6.165 | -1.129 | -11.503\*\*\* | -3.470 |
|  | (19.414) | (7.575) | (5.958) | (8.458) | (1.964) | (4.457) | (2.763) |
| percep\_resmob | 12.460 | 11.503 | 11.189 | -41.812\*\*\* | 1.886 | -17.398\*\* | 1.674 |
|  | (28.657) | (12.214) | (10.888) | (10.774) | (2.966) | (6.912) | (3.977) |
| percep\_unconven | 7.314 | -3.026 | -4.449 | 28.702\*\* | 1.572 | 7.268 | 2.714 |
|  | (30.379) | (12.288) | (10.858) | (12.986) | (3.039) | (7.234) | (4.167) |
| percep\_iff\_busext | 49.201 | 17.366 | 28.903\* | -78.536\*\*\* | 6.861\* | 15.334\* | 3.431 |
|  | (38.855) | (15.803) | (15.103) | (18.382) | (4.144) | (8.917) | (5.472) |
| percep\_iff\_cer | -12.768 | -2.621 | -4.734 | 12.775 | -0.354 | -0.141 | 5.877 |
|  | (27.602) | (11.389) | (9.251) | (9.788) | (3.077) | (6.593) | (3.825) |
| percep\_iff\_entimpact | 10.259 | -12.655 | 5.610 | -9.944 | -3.145 | 6.083 | -9.406\*\*\* |
|  | (20.816) | (8.340) | (6.322) | (7.446) | (2.158) | (4.700) | (2.769) |
| percep\_iff\_entrep | -36.444 | -11.383 | -35.336\*\*\* | -40.854\*\*\* | -0.685 | 1.506 | -10.008\*\*\* |
|  | (25.980) | (10.875) | (8.529) | (10.367) | (2.706) | (6.309) | (3.858) |
| percep\_iff\_internat | -7.670 | 10.568 | -12.159 | -9.030 | -0.330 | -13.307\*\*\* | 3.050 |
|  | (19.421) | (7.963) | (9.735) | (6.558) | (1.997) | (4.826) | (3.033) |
| percep\_iff\_lead | 27.319 | 12.152\* | 7.973 | -7.054 | 5.183\*\*\* | -4.182 | 5.540\*\* |
|  | (19.277) | (7.360) | (5.732) | (8.311) | (1.967) | (4.710) | (2.489) |
| percep\_iff\_org | -34.426 | -25.168\* | 5.987 | 48.750\*\*\* | -8.528\*\*\* | -5.280 | -6.702 |
|  | (31.426) | (12.964) | (10.127) | (14.090) | (3.252) | (7.471) | (4.762) |
| percep\_iff\_path | -1.622 | 15.337 | -0.185 | 70.716\*\*\* | 3.068 | -10.895 | 13.298\*\*\* |
|  | (32.527) | (12.949) | (10.929) | (11.819) | (3.286) | (7.948) | (4.498) |
| Constant | -156.230 | -99.741 | -48.944 | -111.360 | -53.305 | -73.318 | 29.054 |
|  | (198.045) | (73.764) | (58.681) | (53,133.770) | (10,919.820) | (46.568) | (24.576) |
| **Observations** | 70 | 70 | 70 | 70 | 70 | 70 | 70 |
| **Log Likelihood** | -332.711 | -314.229 | -214.828 | -130.128 | -206.457 | -233.514 | -240.270 |
| **Wald Test (df = 40)** | 60.011\*\* | 80.514\*\*\* | 93.611\*\*\* | 242.345\*\*\* | 66.286\*\*\* | 337.803\*\*\* | 106.000\*\*\* |

# Appendix C: YUFERING 2.2 Mapping Pro-forma

***General notes***

*Action Plan*

To meet the aims of the project we are asking each University to complete a short report according to this pro-forma; the reports should be returned by 30th November 2021. The information will be collated, at Essex, into larger report, which will include data from the survey and identify patterns and suggestions.

*Aim*

The aim of this exercise is to map the support services and decision-making bodies which have relevance for community-engaged research and innovation (CERI) in YUFE universities as per points 1 and 2 of task 2.2 of the YUFERING proposal. These reports will be combined with the findings from ‘Academic Motivations and Supports toolkit’ survey (point 3) to produce an overall report meeting deliverable 2.2:

“Report with an overview of identified R&I support services, R&I decision making bodies at universities, policies, bodies and support structures across YUFE partners and their associated processes in the YUFE partners that can be put in place for community-engagement based R&I”

To provide an overview of these elements it will also be necessary to cover the key points of the research environment within which each University operates as there are likely to be significant differences according to internal and national policy.

*Definition of Community-Engaged Research and Innovation*

Task 2.1 is producing a framework and definition for CERI, and everyone being asked to complete this report has access to their latest draft; this should be the primary reference for the definition and scope of CERI for this report. For reference, they identify a set of traits common to CERI; the structures and processes identified in these reports should not be primarily commercial and should have relevance to one or more of these traits:

➔ Intends to have a social impact by deploying strategic research and its innovative outcomes to better understand, address and contribute to resolving societal challenges

➔ Actively involves affected community partners (non-academic communities) in one or more phases of the research and innovation process in a way that is mutually beneficial

➔ Facilitates efforts to encourage the implementation of the research outcomes and innovative solutions with the relevant communities

➔ Intends to build trusting bi-directional relationships between researchers and community partners that take into consideration all partners’ perspectives in defining research foci and the innovation strategies

*Amount and nature of content*

While comprehensive information is needed it is also important that the information gathered is pertinent and manageable. We are suggesting, as a guideline, that each report should average about 1 sheet or 800 words per section, with some variation expected by section and institution depending on what information is available.

At Essex the information (currently recorded as two very comprehensive and wider-ranging reports and to be distilled into this more focussed format) was gathered via interviewing colleagues who lead in each area and collating information already available. It is hoped that the reports can be compiled without excessive labour by following this model and concentrating on collecting and compiling information and expertise already available.

When compiling the reports it should be noted that the prompts in this document are descriptive and not prescriptive; as such it is expected that not all institutions will cover every prompt and that there may be information that is not covered in a prompt but is nonetheless relevant.

***Sections and prompts for completing the report***

Section 1: The Environment and Support for CERI

* 1. **External environment**

*Please aim to include areas of particular interest for CERI. For example a full overview of governmental funding may not be necessary if the important point to note is that it incentivises (or possibly does not incentivise) CERI.*

* Government Policy
* Government Regulation
* Funding requirements / expectations / opportunities
  + Where does most funding come from? (e.g. government/business/third-sector)
  + Are there particular drivers from the most common funding bodies?
* Sector standards
* Concordats
  + Agreements or adopted policies between the university and other bodies
  1. **External support organisations**

*While 1.1 deals with the research environment that may influence relevant research, this section looks to recognise any organisations or systems that primarily support and promote CERI.*

* Any organisations (including governmental) that support or promote public engagement in research
  1. **Internal environment**

*The primary interest here is how your University’s approach directly or indirectly influences CERI*

* Is community engaged research / impact a priority area for internal policy?
* University research and engagement polices and action plans
  + In particular, what, if any, specific CERI policies are in place?
  + If in place, when were these CERI policies adopted?
* University expectations and incentives
  + Is engagement with CERI reflected in promotional criteria or recruitment? And how is this weighted.
  1. **Internal support structures**

*This section is of particular importance for the mapping exercise as we look to understand the elements within your organisational structure that facilitate CERI*

* University bodies that provide training and resources around community engagement in research
* Professional staff roles/groups that facilitate community-based research
* Departmental or sectional academic leads
* Organisational diagrams

Section 2: CERI in action

**2.1 Actions**

*The focus in this section is on what actions your University is taking to engage with the points covered in section 1. While section 1.4 covers the structure of internal support bodies (and some overlap is expected) this section looks to recognise specific programmes, incentives or practices relevant to CERI.*

* Time and resources allocated to community research, including internal funding allocation
* Recognition and celebration of community-based projects
* Accessing and working with external support
* Internal communications
* Representing research participants or users in directing and designing research

**2.2 Metrics**

*We encourage you to include figures relevant to CERI in your organisation that are already available from your research office or that can be extracted from available data. It is not expected that all Universities will be able to provide figures to cover all the prompts below, or that new data will be gathered; the survey will provide new data that is comparable across institutions.*

* Total numbers of academics engaging with bodies specific to community-based research
* Total numbers of outside organisations (other than businesses except where business engagement is community-based) engaging with the university
* Funding acquired for community-based research
* Any other relevant metrics

**2.3 Case studies**

*We are suggesting three short case studies, each no longer than 800 words or 1 page; this will help support the material in the final report with examples of CERI in action.*

* Examples of best practice and successes
* Representing different disciplines and/partners where possible
* Showcase what worked well
* Identify any particular barriers encountered

# Appendix D: AMS survey

‘Academic Motivations and Supports’ Survey

**MASTER COPY**

**Finalised 27th September 2021**

Notes

* Original feedback from: Carlos, Silke, Marieke, Sasa, Barbara, Anastasia, Bojana, Nadine
* Post (Essex) pilot feedback for final master version from: Maria, Mireille, Ani, Sasa, Frederik. Lucyna, Silke, Tea, Carlos, Marios, Federica all approved the final version without further feedback.
* The survey in this document is a direct replication of ‘*Academic Motivations and Supports Tool – MASTER – original’* on Qualtrics

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |

**RESEARCH QUESTIONNAIRE**

**Academic Motivations and Supports (AMS) Toolkit**

This survey explores the motivations of researchers and their perception of the support they receive from the department and university. Please be as accurate as possible,there is no right or wrong answer and all responses are anonymous.

**Why should you complete the survey?**

Feedback from all researchers, regardless of career stage or discipline, are incredibly valuable to helping us understand *how* and *why* researchers engage with research activities beyond fundamental research across disciplines/faculties, especially within the YUFE (Young Universities for the Future of Europe).

Your feedback will help us to map best practices across 10 transnational institutions.

Findings will help the YUFE Alliance map both (i) differences **and** (ii) best practices for research and innovation in contexts beyond fundamental research, for example, with Knowledge Transfer/Exchange partnerships, community-engaged research, and entrepreneurial activities. **Who is conducting the survey?**

The survey is being conducted by YUFERING\*, the Horizon 2020 project of the YUFE Alliance academic partners (<https://yufe.eu/who-we-are#yufe-partners>). The YUFE Alliance believes that Transforming Research and Innovation through Europe-wide Knowledge Transfer plays a vital role in providing the necessary knowledge for community-engaged research, including the support of social, environmental and economic transitions that can formulate responses to local, European and global challenges.

**What is the purpose of the survey?**

We’d like to capture researchers’ motivations for engaging in research activities including, and beyond, fundamental research. For example, this might be research partnerships with external organisations and communities, that which directly engages with the community as beneficiaries, or other stakeholders. The YUFE require an understanding of how such research and innovation activities are differently (i) valued and perceived, (ii) incentivised, and (iii) supported across the 10 YUFE institutions.

**What kind of questions are in the survey?**

The present survey largely consists of statements, to which the respondent can indicate the extent to which they “Agree” or “Disagree” with each statement. We’ll ask you about engagement with external communities, commercialisation research, and what motivates or inhibits you from conducting such activities.

**What will happen to your data?**

* All data and information you supply will be kept **anonymous** and **confidential**
* Data will be used for research purposes only, stored securely and electronically (on Qualtrics and Dropbox).
* Anonymised data will only be shared with researchers directly involved on the YUFERING project, and YUFE institutions.
* Anonymised data may be published in peer-reviewed academic journals
* Data cannot be withdrawn after submission due to anonymity

**Please note that you are free not to participate in the research questionnaire and free to opt out at any stage of the exercise**.

Thank you for agreeing to participate in this survey.

**Suma Athreye**

Essex Business School

University of Essex, United Kingdom

[suma.athreye@essex.ac.uk](mailto:suma.athreye@essex.ac.uk)

This is the participant consent page and will appear immediately after the information page (above) and before participants respond to any questions.

For answers to the following questions, please refer to this document

* Will my information be kept anonymous?
* What is the legal basis for using the data and who is the Data Controller?
* Who is funding the research?
* What will happen to the results of the research study?
* Who will store my data once the study is finished?
* What happens if something goes wrong?

Please complete this digital consent form.

Project title: ‘Analysis of existing R&I policies, support and decision-making processes’

University of Essex ethics code: ETH2021-2106

**Consent items**

* I understand that any information I submit will be anonymous, and therefore I understand that I will not be able to withdraw this information retrospectively
* I understand that my participation is voluntary and that I can withdraw at any time without reason or penalty
* I understand that all (anonymous) data will be stored securely online
* I consent to have my (anonymous) data shared with my institution, and in published research
* I agree to take part in the present study

**Progression to the next page will be taken as your consent and agreement to the above item**

**SECTION A – 11 questions**

**PART A: RESPONDENT INOFRMATION**

1. **Name your institution or University.**

* University of Essex, UK
* University of Eastern Finland, Finland
* Nicolaus Copernicus University, Poland
* University of Bremen, Germany
* University of Rijeka, Croatia
* University Carlos III de Madrid (UC3M), Spain
* University of Cyprus, Cyprus
* Maastricht University, Netherlands
* University of Antwerp, Belgium
* University of Rome Tor Vergata, Italy
* University of Auckland, New Zealand

1. **What is your gender?**

* Man
* Woman
* Non-binary
* Other [free-text response]
* Prefer not to say

1. **Highest Level of Education:**

* Undergraduate or Bachelors degree
* Master’s degree
* PhD or equivalent
* I have not yet acquired my PhD

1. **Please indicate which option applies to your current position at your institution**

* Permanent employment
* Fixed-term employment
* Other [free-text-response]

1. **Position at your University (Choose form a drop down list):**

* Teaching-only staff
* Research-only staff (e.g. Postdoc, Research Associate, Professor, etc.)
* Teaching and Research (e.g. Professor, Lecturer, etc.)
* PhD student
* Other [free-text-response]

1. **Your Department/College/Faculty (choose from drop-down list):**

|  |
| --- |
| Life Sciences |
| * Biochemistry, Genetics and Molecular Biology * Agriculture and Food Science * Earth and Planetary Sciences * Chemistry * Physics * Materials Sciences * Energy * Physics and Astronomy * Environmental, Marine and Plant Sciences * Geography, Environmental Studies and Archaeology |
| Health Sciences (human and non-human) |
| * Public Health, Health Services, and Primary Care * Allied Health Professions, Dentistry, Nursing and Pharmacy * Clinical Medicine * Veterinary Science and Veterinary Medicine * Toxicology * Immunology and Microbiology * Psychiatry, Psychosocial and Psychoanalytical studies * Clinical Psychology   Social Sciences |
| * Psychology and Neuroscience * Political Sciences * Psychiatry, Psychosocial and Psychoanalytical studies * Clinical Psychology * Area Studies * Sport and Exercise Sciences * Anthropology and Development Studies |
| Humanities (e.g. Language, Literature, History, etc.) |
| * Communication, Cultural and Media Studies, Library and Information Management * Theology and Religious Studies * Philosophy * Classics * History * English Language * English Literature * Modern Languages and Linguistics * Area Studies * Leisure and Tourism * Education * Sociology * Social Work and Social Policy |
| Mathematical and Computer Sciences |
| * Mathematical Sciences * Computer Science and Informatics * Robotics and Artificial Intelligence |
| Engineering and Architecture |
| * Materials Science * Energy * Chemical Engineering * Aeronautical, Mechanical, and Manufacturing Engineering * Electrical and Electronic Engineering, Metallurgy and Materials * Civil and Construction Engineering * General Engineering * Architecture, Build Environment and Planning |
| Arts |
| * Music, Drama, Dance, and Performing Arts * Art and Design: History, Practice and Theory * Theatre and Performance |
| Law and Political Sciences |
| * Law * Politics and International Studies |
| Economics and Business   * Economics, Econometrics and Finance * Business and Management Studies * Social Economics |
| Other |

*Display Logic (if ‘Other’ selected on question 5)*

If you selected ‘Other’, please indicate below.

[free-text-response]

1. **How many years have you been employed at your current institution, or university?**

Free-text-response

1. **How many years ago did you complete your PhD?**
   1. [free-text response], OR:
   2. I have not yet completed my PhD
2. Your age band

* <23
* 23-30
* 31-40
* 41-50
* 51-60
* Over 60

1. **Is your nationality the same as your current country of employment?**
   1. Yes
   2. No

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**SECTION B – 6 questions**

**PART B: ABOUT YOUR JOB**

1. **Please indicate your level of agreement with the following statements about what is most important to you when thinking about your job as an academic.**Responses are formatted so that:   
   Strongly disagree (1)  Somewhat Disagree (2) Neither agree nor disagree (3) Somewhat agree (4) Strongly agree (5), Not relevant to me/my position (6) *OR* I don’t know (6)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | *When thinking about what my job offers as an academic, I am strongly influenced by* | 1 Strongly disagree | 2 | 3 Neither agree nor disagree | 4 | 5 Strongly agree | 6 Not relevant to me/my position |
|  | The salary |  |  |  |  |  |  |
|  | The benefits (pension, work-life balance, etc.) |  |  |  |  |  |  |
|  | The job security |  |  |  |  |  |  |
|  | The independence |  |  |  |  |  |  |
|  | The level of responsibility |  |  |  |  |  |  |
|  | The intellectual challenge |  |  |  |  |  |  |
|  | The potential for career advancement |  |  |  |  |  |  |
|  | The potential for my research to positively impact the welfare of society |  |  |  |  |  |  |
|  | The potential for me to engage with external communities on research projects (NGOs, businesses, public, etc.) |  |  |  |  |  |  |
|  | The potential for me to teach and positively impact the welfare of students |  |  |  |  |  |  |

1. **In my university, career advancement and promotion depends upon:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | 1 Strongly disagree | 2 | 3 Neither agree nor disagree | 4 | 5 Strongly agree | 6 I don’t know |
|  | Teaching ability and workload |  |  |  |  |  |  |
|  | Faculty and departmental administration , leadership and/or citizenship roles |  |  |  |  |  |  |
|  | Research and publications |  |  |  |  |  |  |
|  | Work with collaborative research projects with external businesses/partners in the **private sector** |  |  |  |  |  |  |
|  | Work with local community development projects in the **public/civic sector** e.g. non-profit organisations, local charities, members of the public, etc. |  |  |  |  |  |  |
|  | Success in applying for third-party research funds from national /international sponsors and/or funding bodies |  |  |  |  |  |  |
|  | Joint or single supervision of studentships (PhD or Postgraduate taught, e.g. masters) |  |  |  |  |  |  |
|  | Joint or single supervision of Postdoctoral researcher, including research associate, fellows, etc. |  |  |  |  |  |  |
|  | Measures of esteem and peer recognition, e.g. keynote speaker invitations, international standing |  |  |  |  |  |  |

1. **Does career advancement at your university depend on something else not previously listed?**

* Yes [free-text-response]
* No

1. **To what level do you agree with the following statements:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | 1 Strongly disagree | 2 | 3 Neither agree nor disagree | 4 | 5 Strongly agree | 6 Not relevant to me/my position |
|  | In the future, I would like to find a way to commercialise, or monetise, my research |  |  |  |  |  |  |
|  | It is likely that, in the future, I will find an external business partner (e.g. company, etc.) to benefit from my research |  |  |  |  |  |  |
|  | I have recently sought information about the ways and means of founding a firm (or similar) with the object of commercialising my research |  |  |  |  |  |  |
|  | I spend a lot of time thinking about having my own business to market my inventions |  |  |  |  |  |  |
|  | I have the intention to start my own academic business to commercialise my research |  |  |  |  |  |  |
|  | I am enthusiastic about starting my own academic business |  |  |  |  |  |  |

1. **To what level do you agree with the following statements.**Community: **Non-academic** e.g. Organisation, NGO, business, members of the public, charity, local government etc.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | 1 Strongly disagree | 2 | 3 Neither agree nor disagree | 4 | 5 Strongly agree | 6 I don’t know |
|  | It is important for me, as a researcher, to be involved with community-based research e.g. that which tackles societal challenges |  |  |  |  |  |  |
|  | In community-based research, it is important for the intended beneficiaries to be engaged throughout the research process |  |  |  |  |  |  |
|  | In community-based research, it is important to share, and encourage the ownership of, research outcomes with beneficiaries e.g. the community |  |  |  |  |  |  |
|  | In community-based research, we [researchers] should research *with* people, as opposed to *on* people. |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

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**SECTION C - 9 questions**

**PART C: INPUT BASED MEASURES OF KNOWLEDGE EXCHANGE ACTIVITY**

1. **Have you participated in any knowledge exchange activities in the past three years?**

**\*Knowledge Exchange** (or Knowledge Transfer) refers to the combination or totality of commercialization and academic engagement activities (including, for example, community-engaged research) through which universities and its researchers interact with non-academic stakeholders. Such interactions are not always uni-directional. Knowledge or technology can flow from universities to practitioners, or vice versa. It recognises that such interactions usually involve some form of co-creation of new knowledge resulting in "learning" among both sides, including research that benefits a community, society, or economy, by means of a product, process, organization or model.

* Yes
* No (SKIP TO PART D (Q27))

1. **What percentage, on average, of annual dedication have you spent on knowledge exchange activities with ANY external partners in the past three years (regardless of whether it is public/private)?**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| <= 20% | 21% - 40% | 41% - 60% | 61% - 80% | >80% |

1. **What is the total number of work days that you have engaged in the following activities with external communities within the past three years?**  
     
   \*External community: Non-academic, private or public e.g. an organisation, NGO, business, member of public, company, charity, etc.  
     
   Note that ‘0’ is a valid entry.

|  |  |
| --- | --- |
| **Type of activity** | **Total number of work days within past 3-years** |
| 1. **Contract Research** |  |
| Original research work conducted exclusively by academic researchers and sponsored by an external organisation (e.g. contract research) |  |
| Set up new physical facilities (labs, buildings etc.) with funding from external organisations |  |
| Prototyping and testing sponsored by an external organisation |  |
| 1. **Collaborative Research** |  |
| Joint research activity on a project (including work on publications, patents, reports) with an external community *where work is undertaken by both parties.* |  |
| Organising the hosting of personnel from external organsations on a short term or long-term basis |  |
| Secondment on a short term or long term basis to an external organisation, or placement |  |
| Participating in research consortia with external communities (for meetings, funding applications, scoping activity etc.) where you have worked towards the conception of new research, programme, or teaching, etc. |  |
| Joint or single supervision of studentships funded by external organisations (Undergraduate, Bachelors, or first degree, Postgraduate, Masters, or advanced students, PhD or Doctoral students, or Postdoc, Postdoc Fellow, or Research Associate) |  |
| 1. **Consultancy Work** |  |
| Provide paid consulting services (no original research undertaken) |  |
| Provide informal advice on a non-commercial basis |  |
| 1. **Professional Development, Training, Networking** |  |
| Developing and delivering bespoke courses and training for external organisations |  |
| Joint curriculum development with external organisations |  |
| Development and delivery of invited lectures to external organisations |  |
| Sitting on advisory boards of external organisations |  |
| 1. **Public engagement** |  |
| Developing and delivering public lectures, media appearances directly related to your academic specialism |  |
| Developing and delivering informal lectures, presentations and appearances directly related to your academic specialism (e.g. public presentations, outreach events) |  |
| Involvement in performance arts, including music, dance, drama etc. directly related to your academic specialism |  |
| Involvement in exhibitions and education in museums, galleries etc. directly related to your academic specialism |  |
| *Moved to ‘CER’ below* |  |
| *Moved to ‘CER’ below* |  |
| *Moved to ‘CER’ below* |  |

|  |  |
| --- | --- |
| 1. **Entrepreneurial** |  |
| Disclosures and activities related to writing and filing patent applications |  |
| Activities related to licensing your research to external organisations (including developing and testing prototypes, but not related to contract research above) |  |
| Activities for a spin out company, including all activities related to company formation, setting up facilities, financing, marketing, sale, exit etc. |  |
| 1. **CER** |  |
| Work on Collaborative research projects with **non-academic**external partners (e.g. communities, local government, charity, etc.) to address a societal challenge(s) or community needs, via strategic research |  |
| Actively identified and approached relevant **non-academic** communities, involving them in the design and implementation of a research project/programme |  |
| Working on activities to ensure that findings and research outputs are shared with, and owned by, beneficiaries in a given community |  |

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**SECTION D – 4 questions**

**PART D: MOTIVATION AND BARRIERS TO KNOWLEDGE EXCHANGE (or Knowledge Transfer) and community-engaged research**

1. **Please indicate your level of agreement with the following statements about your motivation to engage in Knowledge Exchange\* (or Knowledge Transfer) activities**  
     
   \*Knowledge Exchange (or Knowledge Transfer) refers to the combination or totality of commercialization and academic engagement activities (including, for example, community-engaged research) through which universities and its researchers interact with non-academic stakeholders. Such interactions are not always uni-directional. Knowledge or technology can flow from universities to practitioners, or vice versa. It recognises that such interactions usually involve some form of co-creation of new knowledge resulting in "learning" among both sides, including research that benefits a community, society, or economy, by means of a product, process, organization or model.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | *I engage with external partners/communities…* | 1 Strongly disagree | | 2 | 3 Neither agree nor disagree | 4 | 5 Strongly agree | 6 Not relevant to me/my position |
|  | To test the practical application of my research |  |  | |  |  |  |  |
|  | To gain insights in the area of my own research |  |  | |  |  |  |  |
|  | To keep up to date with research outside of academia, e.g. in external organisations |  |  | |  |  |  |  |
|  | To secure my access to specialist equipment, materials or data |  |  | |  |  |  |  |
|  | To secure my access to the expertise of researchers outside of academic, e.g. at the external organisation |  |  | |  |  |  |  |
|  | To gain knowledge about practical problems useful for teaching |  |  | |  |  |  |  |
|  | To create student project and job placement opportunities |  |  | |  |  |  |  |
|  | To source additional personal income |  |  | |  |  |  |  |
|  | To secure funding for research assistants and equipment |  |  | |  |  |  |  |
|  | To look for business opportunities linked to my own research |  |  | |  |  |  |  |
|  | To further my institution's outreach mission |  |  | |  |  |  |  |
|  | To further my institution’s impact mission |  |  | |  |  |  |  |
|  | To explore career avenues outside of academia |  |  | |  |  |  |  |
|  | To offer my expertise in non-commercial research settings, e.g. for charities, local government, and NGOs etc. |  |  | |  |  |  |  |
|  | To engage with non-academic communities who may benefit from my research |  |  | |  |  |  |  |
|  | To promote the inclusion of communities in the design of my research |  |  | |  |  |  |  |
|  | To promote and maximise the sharing of research outputs and findings with relevant communities and beneficiaries |  |  | |  |  |  |  |
|  | To valorize (ascribe value to) the outcomes of my research for the benefit of the economy and society by means of a product, process, organisation or business model |  |  | |  |  |  |  |
|  | For personal career development |  |  | |  |  |  |  |

1. **Are there any other reasons that you engage with external partners/communities that were not previously listed ?**

* Yes (free-text-response)
* No

1. **[Display only if NO to Q3]** Please indicate your level of agreement with the following statements about factors that constrained or prevented from engaging in **Knowledge Exchange\*** (or Knowledge Transfer), including community-engaged research, over the past three years  
     
   \*Knowledge Exchange (or Knowledge Transfer) refers to the combination or totality of commercialization and academic engagement activities (including, for example, community-engaged research) through which universities and its researchers interact with non-academic stakeholders. Such interactions are not always uni-directional. Knowledge or technology can flow from universities to practitioners, or vice versa. It recognises that such interactions usually involve some form of co-creation of new knowledge resulting in "learning" among both sides, including research that benefits a community, society, or economy, by means of a product, process, organisation or model.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *I could not engage in knowledge exchange/transfer, or community-engaged research with external partners due to* | 1 Strongly disagree | 2 | 3 Neither agree nor disagree | 4 | 5 Strongly agree |
| Such activities are not relevant to me/my position |  |  |  |  |  |
| Lack of time to fulfil all university roles |  |  |  |  |  |
| Insufficient rewards from interaction |  |  |  |  |  |
| Difficulty in identifying non-academic partners and/or communities |  |  |  |  |  |
| Poor personal marketing, technical or negotiation skills |  |  |  |  |  |
| Lack of training in marketing, technical or negotiation skills |  |  |  |  |  |
| Lack of interest by external organisations |  |  |  |  |  |
| Differences in work culture |  |  |  |  |  |
| Differences in the timescale for knowledge exchange sharing activity |  |  |  |  |  |
| Lack of resources in the external organisation to manage the interaction |  |  |  |  |  |
| Lack of experience in the external organisation for interacting with academics |  |  |  |  |  |
| Unwillingness in the non-academic partner to meet the full cost of the interaction |  |  |  |  |  |
| Bureaucracy and inflexibility of administrators in my institution |  |  |  |  |  |
| Poor marketing, technical or negotiation skills of administrators in my institution |  |  |  |  |  |
| Insufficient resources devoted by my institution to activities with external organisations |  |  |  |  |  |
| Difficulty in reaching agreement with external organization on terms of the interaction (such as intellectual property rights) |  |  |  |  |  |
| Reduced potential to create peer-reviewed journal publications |  |  |  |  |  |
| Personal preference to prioritise my engagement in academic pillars e.g. teaching and fundamental research |  |  |  |  |  |

1. **Are there any other factors that prevent you from engaging with knowledge exchange/transfer activities that were not previously listed?**

* Yes (free-text-response)
* No

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**SECTION E – 14 questions**

**PART E:** **PERCEPTIONS OF SUPPORT**

1. Please indicate your level of agreement with the following statements, and refer to the infographic where necessary.



|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **(29) Research Mobilization** | 1 Strongly disagree | 2 | 3 Neither agree nor disagree | 4 | 5 Strongly agree | 6 I don’t know |
| My department encourages our graduate students to engage in research with significant implications for industry or society |  |  |  |  |  |  |
| Academic colleagues in my department emphasise applied research |  |  |  |  |  |  |
| Compared to other departments in my university, my department has a reputation for its contribution to **industry** e.g. external businesses, entrepreneurial areas, etc. |  |  |  |  |  |  |
| Compared to other departments, my department has a reputation for its contribution to the **community** e.g. non-profit organisations, local communities, etc. |  |  |  |  |  |  |
| Many of my academic colleages conduct research in partnership with non-academic professionals |  |  |  |  |  |  |
| 1. **Unconventionality** |  |  |  |  |  |  |
| Cooperation with organisations outside the university significantly improves research activities in my field |  |  |  |  |  |  |
| Compared to other departments, my academic colleagues are known as very efficient and productive researchers |  |  |  |  |  |  |
| My department tries to generate off-campus benefits from research projects |  |  |  |  |  |  |
| My department supports my academic colleagues to collaborate with non-academic professionals |  |  |  |  |  |  |
| 1. **Industry Collaboration** |  |  |  |  |  |  |
| My institution encourages industry involvement in the research activities of its academic staff |  |  |  |  |  |  |
| My department collaborate with industry in joint research projects |  |  |  |  |  |  |
| My department is highly regarded by industry |  |  |  |  |  |  |
| My institution is recognised by industry or society for our flexibility and innovativeness |  |  |  |  |  |  |
| 1. **Community Collaboration** |  |  |  |  |  |  |
| My department encourages academic staff to involve communities (e.g. non-profit organisations, regional charities) in their research activities |  |  |  |  |  |  |
| My department collaborates with community in joint research projects |  |  |  |  |  |  |
| My department is highly regarded by local communities |  |  |  |  |  |  |
| My department is externally recognised for its research with the community |  |  |  |  |  |  |
| My department has built relationships with communities (NGOs, charities, local governments, etc.) |  |  |  |  |  |  |

1. **I am a member, or am affiliated with, of other platforms (or society/organisation/council etc.) that provide support and promote external research partnerships and collaborations in both private and public contexts**

* Yes [free-text-response]
* No

We’d like to know about the availability of institutional frameworks and facilities at **your** institution.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 1. **Leadership and Governance** | 1 Strongly disagree | 2 | 3 Neither agree nor disagree | 4 | 5 Strongly agree | 6 I don’t know |
| There is commitment at a high level to implementing the entrepreneurial strategy in the university |  |  |  |  |  |  |
| The university promotes individual ownership of initiatives |  |  |  |  |  |  |
| The university is a major driving force in the entrepreneurial development of the wider regional, social and community environment |  |  |  |  |  |  |
| 1. **Organisational Capacity, People and Incentives** |  |  |  |  |  |  |
| The university has a sustainable financial strategy in place to support entrepreneurial development. |  |  |  |  |  |  |
| The university invests in staff development to support its entrepreneurial agenda |  |  |  |  |  |  |
| There are clear incentives and rewards for staff who actively support the university’s entrepreneurial agenda |  |  |  |  |  |  |
| 1. **Entrepreneurship development in teaching and learning** |  |  |  |  |  |  |
| The university structure stimulates and supports the development of entrepreneurial mindsets and skills among academic staff and students |  |  |  |  |  |  |
| Entrepreneurial behaviour is supported throughout the university; from creating awareness and stimulating ideas through to development and implementation |  |  |  |  |  |  |
| Collaborating and engaging with external stakeholders is a key component of teaching and learning development in the University |  |  |  |  |  |  |
| 1. **Pathways for entrepreneurs** |  |  |  |  |  |  |
| The university raises awareness of the value/importance of developing entrepreneurial abilities amongst staff and students |  |  |  |  |  |  |
| The university actively encourages individuals to become entrepreneurial |  |  |  |  |  |  |
| The university provides support for individuals and groups to move entrepreneurial ideas to action. |  |  |  |  |  |  |
| 1. **University-business/external relationships for knowledge exchange** |  |  |  |  |  |  |
| The university is committed to collaboration and knowledge exchange with industry, society and the public/civic sector |  |  |  |  |  |  |
| The university demonstrates active involvement in partnerships and relationships with a wide range of stakeholders |  |  |  |  |  |  |
| The university provides opportunities for staff and students to take part in entrepreneurial activities with business/the external environment |  |  |  |  |  |  |
| 1. **The Entrepreneurial University as an internationalised institution** |  |  |  |  |  |  |
| The university explicitly supports the international mobility of its staff and students (including PhD students) |  |  |  |  |  |  |
| The university seeks and attracts international and entrepreneurial staff (including teaching, research and PhDs) |  |  |  |  |  |  |
| The university demonstrates internationalisation in its approach to teaching |  |  |  |  |  |  |
| 1. **Impact of the Entrepreneurial University** |  |  |  |  |  |  |
| The university assesses the level of engagement in entrepreneurial teaching and learning across the institution |  |  |  |  |  |  |
| The university regularly assesses the impact of entrepreneurship teaching and learning |  |  |  |  |  |  |
| 1. **Community-based research and innovation** |  |  |  |  |  |  |
| The university carries out regular monitoring and evaluation of the universities’ knowledge exchange activities |  |  |  |  |  |  |
| The university promotes research that works to understand and resolve societal challenges including research within the community |  |  |  |  |  |  |
| The university promotes active participation of relevant communities in 1+ phases of the research process in a way that is mutually beneficial for community and researcher(s) e.g. to gain insight, and include community in the design of research |  |  |  |  |  |  |
| The university promotes the sharing of research outcomes with relevant communities e.g. via feedback systems and sharing research evaluations |  |  |  |  |  |  |

1. **What kind of support, policies or incentives from your institution's research support services *could or might* encourage you, as a researcher, to perform community-engaged research activities?   
     
   E.g. research that involves a *non-academic* external community, such as the public, an NGO, a charity, an audience demographic, etc.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Support in identifying internal/external funding opportunities for community-engaged research | 1 Strongly disagree | 2 | 3 Neither agree nor disagree | 4 | 5 Strongly agree | 6 Not relevant to me/my position |
| Policies directed towards funding community-engaged research through competitive processes |  |  |  |  |  |  |
| Policies that identify community-engaged research as a criterion for promotion and career development |  |  |  |  |  |  |
| Structures facilitating quick, efficient decision-making regarding research-related matters |  |  |  |  |  |  |
| Structures enabling flexible, autonomous application processes for external research funding |  |  |  |  |  |  |
| Support for outreach activities with relevant non-academic stakeholders/communities e.g. networking, brokerage |  |  |  |  |  |  |
| Dedicated Training and Development for outreach with relevant non-academic stakeholders/communities |  |  |  |  |  |  |
| Facilitation of interdisciplinary connections and expertise-sharing required for engaging with relevant non-academic stakeholders/communities |  |  |  |  |  |  |
| Personal CV building: Recognition of [my] commitment in community-engaged research relevant for further career opportunities |  |  |  |  |  |  |
| Support with legal and administrative issues related the collaboration with external stakeholders/communities |  |  |  |  |  |  |
| Support for developing a valorisation strategy, or business plan, and different steps in the collaboration with external stakeholders |  |  |  |  |  |  |
| I would like there to be more opportunities for me to conduct community-engaged research |  |  |  |  |  |  |
| I would like there to be more opportunities for me to conduct commercial and entrepreneurial activities |  |  |  |  |  |  |

1. **Are there any other support services, policies, or incentives that could help and support you, that were not previously listed?**

* Yes [free-text-response]
* No

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**SECTION F - 2 questions**

**PART F: PREFERRED MEASURES OF RESEARCH OUTPUT**

1. **Finally, please select your personal preference(s) for indexing research output**. You can select more than one option.

* H-index (WoS)
* H-index (Scopus)
* H-index (Google Scholar)
* G-index
* HPoP
* I10-index
* Total number of citations (Google Scholar)
* Total number of peer-reviewed publications
* Other [free-text-response]

1. **Please enter an accurate value responding to your own (most preferred) index    
     
   This is voluntary.**

* H-index (WoS) [free-text-response]
* H-index (Scopus) [free-text-response]
* H-index (Google Scholar) [free-text-response]
* G-index [free-text-response]
* HPoP [free-text-response]
* I10-index [free-text-response]
* Total number of citations (Google Scholar) [free-text-response]
* Total number of peer-reviewed publications [free-text-response]
* Other [please include index and value]

**-------------------------------------------------------------------------------------------------------------------------------------------------------------**

END OF SURVEY

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1. Page 81 of the grant agreement: Description of work and role of partners. [↑](#footnote-ref-1)
2. The emphasis on ‘not purely’ commercial was also taken because in this project, the ‘innovation’ and university-business dimensions are to be fully covered by tasks in work-package 3. [↑](#footnote-ref-2)
3. This definition was adopted by the YUFERING project and used in the communication with participants in the survey. [↑](#footnote-ref-3)
4. These scores are available in the EU report entitled: “Regional Innovation Scoreboard”. <https://ec.europa.eu/info/research-and-innovation/statistics/performance-indicators/regional-innovation-scoreboard_en>. This report assesses the innovation performance of European regions on limited numbers of indicators. [↑](#footnote-ref-4)
5. Although the terms ‘Knowledge Exchange’ and ‘Knowledge Transfer’ are often used interchangeably, in the theoretical literature the latter is more passive and drawn from the linear model of knowledge production which pre-supposes that knowledge from universities will flow one way towards industry. In contrast, knowledge exchange refers to a process where knowledge is developed interactively with users. CERI is possible only in a knowledge exchange setting and so we will use the term knowledge exchange in reporting the analysis of KE [↑](#footnote-ref-5)
6. For an introduction to theory-based data analysis model see Aneshensel, 2013. *Theory-based data analysis for the social sciences*. Sage Publications. [↑](#footnote-ref-6)
7. For an introduction to multivariate regression analysis please see: Allison, 1999. *Multiple regression: A primer*. Pine Forge Press. [↑](#footnote-ref-7)
8. There are two distinct questions in the empirical analysis that are linked. Who participates in knowledge exchange and how much time is spent on particular knowledge exchange activity. The figure 2 includes a black box around research intentions because that group of variables are important in explaining the stage two (How much time an academic spends on different types of KE (including CERI) but they do not play a role in determining participation in KE itself). [↑](#footnote-ref-8)
9. See Allison (1999), page 50 for an explanation of the role of control variables. [↑](#footnote-ref-9)
10. Heckit estimator corrects for selection bias arising out of the fact that non-zero KE outcomes are only observed for those who participate in Knowledge Exchange in the first place. The Tobit estimator does not explicitly correct for selection bias, but recognizes the bounded nature of variable measures between 1-6, resulting in greater efficiency. To understand the Heckit estimator model, see: Heckman (1974) and Heckman (1976). See also: <https://en.wikipedia.org/wiki/Heckman_correction>. (Accessed on 4 July 2022) [↑](#footnote-ref-10)
11. See also presentation by John Goddard (2016): ‘*Connecting universities to regional growth through smart specialisation*’ at [www.oecd.org/sti/Session2\_John%20Goddard.pdf](http://www.oecd.org/sti/Session2_John%20Goddard.pdf), retrieved on 21 May 2022 [↑](#footnote-ref-11)
12. This table does not include data for UCY because it was not available. [↑](#footnote-ref-12)
13. The strategy also focuses on specific thematic fields: for example, in the areas ‘Health and Care’, ‘Sustainability, Climate Protection and Energy’, ‘Mobility’, ‘Urban and Rural Areas’, ‘Safety and Security’, and ‘Economy and Work 4.0’. [↑](#footnote-ref-13)
14. [www.aka.fi/en/strategic-research/](http://www.aka.fi/en/strategic-research/) [↑](#footnote-ref-14)
15. www.businessfinland.fi/en/for-finnish-customers/services/funding [↑](#footnote-ref-15)
16. <https://vnk.fi/en/government-s-analysis-assessment-and-research-activities>. Strategic research funding is intended for extensive, multidisciplinary research consortia that carry out research with an emphasis on active interaction and engagement with users and beneficiaries of research. Business Finland is a government organisation, which funds business and innovation activities. Funding for the Government’s analysis, assessment and research activities aims at interaction between the producers and users of information, and it is tightly connected to the needs of decision-making [↑](#footnote-ref-16)
17. The NRP (PNR, “*Programma Nazionale per la Ricerca”* in Italian), is a participatory and dynamic multi-year framework programming tool designed to contribute to the achievement of the United Nations Sustainable Development Goals (SDGs), the European Commission's priorities, the 2021-2027 Cohesion Policy Objectives as well as the Next Generation EU initiative. [↑](#footnote-ref-17)
18. Italian [PNRR](https://www.mef.gov.it/en/focus/The-National-Recovery-and-Resilience-Plan-NRRP/) - Piano Nazionale di Ripresa e Resilienza [↑](#footnote-ref-18)
19. Estrategia Española de Ciencia Tecnología e Innovación, EECTI 2021-2027 [↑](#footnote-ref-19)
20. Example of Local funding organizations in the Netherlands: Koninklijke Nederlandse Akademie van Wetenschappen, Stichting Wetenschappelijk Onderwijs Limburg (SWOL) [↑](#footnote-ref-20)
21. The official website of Research England is at: <https://www.ukri.org/councils/research-england/>. For the ‘Research Excellence Framework’ see: <https://www.ukri.org/about-us/research-england/research-excellence/research-excellence-framework/>; For the ‘Knowledge Exchange Framework’ <https://www.ukri.org/what-we-offer/supporting-collaboration/supporting-collaboration-research-england/knowledge-exchange-framework/>. See also: https://kef.ac.uk/about [↑](#footnote-ref-21)
22. Metrics could be quantitative and qualitative. In our survey, an assumption was made that it would be quantitative but given that CERI is very contextual, qualitative should also have been an option. [↑](#footnote-ref-22)
23. UESSEX has an Impact Acceleration account, funds awarded to the university by one of the UK Research and Innovation bodies (ESRC), worth over £1 million, to run competition to award money to social scientists to form Knowledge Exchange and Impact activities, addressing social, economic and societal changes, by way of knowledge sharing in communities, and contributions to policy change. [↑](#footnote-ref-23)
24. For example, UEF has large-scale strategic research projects funded by the Strategic Research Council, the Academy of Finland. These are consortia which include researchers and experts from multiple Finnish universities, research institutes, private sectors organisations and non-governmental organisations. The external competitive funding of the ongoing projects (November 2021 dated) amounted to approximately 11.5 million euros. UANTWERPEN has open innovation hubs. This is part of the ‘Valorisation strategy’ and it has a ‘valorisation unit’ which is tasks to work with and for all scientific domains in close interaction with external stakeholders, primarily business. The employer’s organisations and sector federations are involved as voices for the needs of entrepreneurs. The Open innovation hubs, such as the Beacon and BlueApp and Antwerp Smart Region Link (Antwerp.SRL), and the collaboration with VOKA (Flemish Chambers of Commerce) are examples of actions put in places. UM has Brightlands as an innovation lab. [↑](#footnote-ref-24)
25. For example, UESSEX has ‘*Challenge Labs’*: collaborative projects where researchers are assembled to formulate solutions to a specific challenge set out by an external partner. External partners can be from business and the third sector and can often contribute to the costs of the project. It is an opportunity for researchers at Essex to become more involved in impact-focused research and identifies novel pathways for collaborative work with external partners and/or stakeholders. UM has ‘*fieldlabs*’ that act in a similar manner as UESSEX Challenge labs. [↑](#footnote-ref-25)
26. See Edge Self-Assessment matrix: UK national coordinating centre for Public Engagement

    [The EDGE tool | NCCPE (publicengagement.ac.uk)](https://www.publicengagement.ac.uk/support-engagement/strategy-and-planning/edge-tool). accessed on 22 May 2022.; Knowledge Exchange Concordat, UK, [Home | (keconcordat.ac.uk)](https://www.keconcordat.ac.uk/). accessed on 22 May 2022. [↑](#footnote-ref-26)
27. For example, in the case of UM there is a platform that allows networking of multidisciplinary team of staff working on CERI activities. At UESSEX there are teams of impact officers, knowledge exchange professionals, along with business managers who collaborate with the University’s Centre for Public and Policy Engagement. [↑](#footnote-ref-27)
28. There are three examples of citizen science with topics such as “social cohesion” (GINGER; German only), on “stationary and outpatient care” (WIZZARD, German only) on “urban mobility of an ageing population” (AFOOT, available in English) which can be considered as case studies. Short introductions and further links are available under: <https://www.uni-bremen.de/kooperationen/uni-gesellschaft/buergerforschung> [↑](#footnote-ref-28)
29. The results exclude those who did not answer or missing responses. [↑](#footnote-ref-29)
30. The results exclude those who did not answer or missing responses. [↑](#footnote-ref-30)
31. The results exclude those who did not answer or missing responses. [↑](#footnote-ref-31)
32. Key factors seen to impact individual types of KE (and the direction of association): CERI: *motive\_finance* (+), *motive\_knowledge* (-), *motive\_resource* (-), *intention\_commercial* (-), *intention\_social* (+), *percep\_commcollab* (+), *percep\_indcollab* (-), *percep\_resmob* (-), *percep\_iff\_busext* (+), *percep\_iff\_internat* (-) [↑](#footnote-ref-32)
33. This might be because in many universities it is the Head of Department that decides the level of incentives that an academic should have access to undertake CERI activities. At Essex University, for example, the Head of Department can decide about the work-allocation model of a specific academic, whether internal money or research staff should be allocated for CERI activities to support an academic in his/her work in this area. [↑](#footnote-ref-33)
34. Some of these recommendations are taken from the material developed by UK national coordinating centre for Public Engagement [The EDGE tool | NCCPE (publicengagement.ac.uk)](https://www.publicengagement.ac.uk/support-engagement/strategy-and-planning/edge-tool). accessed on 22 May 2022 and also by Knowledge Exchange Concordat, UK, [Home | (keconcordat.ac.uk)](https://www.keconcordat.ac.uk/). accessed on 22 May 2022. [↑](#footnote-ref-34)
35. [TEFCE - Towards a European Framework for Community Engagement of Higher Education | Drupal (acup.cat)](https://www.acup.cat/en/project/tefce-towards-european-framework-community-engagement-higher-education#:~:text=The%20project%20(entitled%20'TEFCE%20%2D,to%20address%20pressing%20social%20needs.). accessed on 22 May 2022. [↑](#footnote-ref-35)
36. For an example of professional training in this area see: “Engaged research and innovation, new ‘Train the Trainer’ 6 week online course. <https://www.campusengage.ie/our-work/researchers-working-with-society/training/>, access on 4 June 2022. Or the Vita, ‘Vitae Research Development Framework: Domain D: Engagement, Influence and impact’. <https://www.vitae.ac.uk/researchers-professional-development/engagement-influence-and-impact>, accessed on 4 June 2022. [↑](#footnote-ref-36)
37. For some reflection on *practices* of developing co-production and participatory methodologies see: Royal Irish Academy: “Better together: knowledge co-production for a sustainable society”. 2021. [↑](#footnote-ref-37)
38. For principle for practice in co-production see: Norström, A. V. (2020). On the use of the theory of change see: Anderson, Andrea A. (2009); Rogers, P. (2014). For the use of the Logical Frame Model, see for example: European Commission (March 2004). page 57 to 94. On Social network analysis see: Carrington, P; Scott, J (2014). Löhr, K; Weinhardt, M and Sieber, S. (2020). [↑](#footnote-ref-38)
39. For example, [*Campus Engage*](https://www.campusengage.ie/wp-content/uploads/2022/03/FINAL-PBS10553-IUA-Engaged-Research-Framework-2022_V6-1.pdf) has recently produced a report entitled “[Engaged Research Framework 2022](https://www.dcu.ie/sites/default/files/inline-files/engaged-research-practice-and-principles-web.pdf)”. The guide explains how to co-generate ideas, undertake research planning and design and proposal development together with stakeholders, amongst other aspect related to data analysis, dissemination stage. <https://www.dcu.ie/sites/default/files/inline-files/engaged-research-practice-and-principles-web.pdf>, (url access on 4 June 2022) [↑](#footnote-ref-39)
40. For resources for researchers who want to generate impact of their research, the following website and tools are also useful. [Company | Fast Track Impact](https://www.fasttrackimpact.com/about) [↑](#footnote-ref-40)
41. For examples of potential metrics in CERI, see: <https://www.campusengage.ie/our-work/making-an-impact/engaged-research/>, accessed on 4 June 2022 [↑](#footnote-ref-41)