

Mapping the Regional Impact of Universities of Applied Science (UASiMAP)

Results of a forward-looking project



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- Polytechnic University of Coimbra
- Polytechnic University of Portalegre

Estonian Rectors Conference of Universities of Applied Science

- Tallinn Health Care College
- TTK University of Applied Science

Hungarian Rectors Conference

- Kodolanyi Janos University
- University of Dunaújváros

Technological Higher Education Association (Ireland)

- Atlantic Technological University
- Technological University of the Shannon

VHLORA (Belgium)

- Thomas Moore College
- Howest

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1 Introduction

Over recent decades, governments in Europe and from around the world have started to place more importance on innovation, community engagement and the socioeconomic impact of Higher Education Institutions (HEIs). Many people rightly question the wider value of institutions that are mostly publicly funded. However, compared to established ‘outputs’, such as the number of graduates or publications, capturing and measuring these public goods is much more difficult.

Growing demands for HEIs to provide a wide range of public goods has driven the use of new concepts, such as the Entrepreneurial, Engaged, or Civic University. At European level, new policies often refer to their role and importance, such as in Smart Specialisation, HEInnovate, the European University Initiative, Centres of Vocational Excellence, and more recently, Startup Villages, Partnerships for Regional Innovation, and Innovation Valleys. The fact that many have geographical names shows that while the impact of HEIs may also be felt nationally and globally, there is a heightened interest in how they contribute to cities and regions.

The tertiary education landscape in Europe is rich and diverse, as can be appreciated when viewing the European Tertiary Education Register (ETER)¹. Large comprehensive universities exist alongside more specialised institutions. Some programmes are theoretically based, while others are more practically orientated. The volume of research activity can vary substantially, which may also be distinguished between ‘basic’ (advancement of knowledge) and ‘applied’ (solving particular problems), although the two often overlap.

While all types of HEIs may have a local and regional impact, generated in different ways, the particular profile of Universities of Applied Science (UAS)² leads to even greater expectations. In fact, many UAS were purposefully created by governments to foster local and regional development. Understanding and measuring their impact is therefore even more important.

This report helps to achieve this aim in three ways, by:

¹ See: <https://www.eter-project.com/>

² The term Universities of Applied Science is an internationally used term to describe a type of higher education institution that offers professionally orientated tertiary level teaching programmes and conducts applied research. Their names in national languages include Hochschule, Technological University, Politecnico, Haute Ecole or Fachhochschule. Some countries do not have a distinction between universities and UAS, where universities may be fully or partially similar to UAS.

- Presenting a self-assessment tool³ that can be used by managers and staff to start the process of reflecting on the local and regional impact of their institution.
- Proposing quantitative and qualitative indicators for constructing 'narratives with numbers' to assess the impact of particular UAS.
- Illustrating the local and regional impact made by UAS through examples of good practice.

The information has been collected thanks to a project funded by the European Union's Erasmus+ Programme named UASiMAP - Mapping Regional Engagement Activities of European Universities of Applied Sciences. The project was coordinated by EURASHE, the European Association representing UAS and other HEIs with a similar profile (EURASHE also has several members that can be described as comprehensive universities, but with many applied programmes and research projects). The partnership brought together five national associations of higher education, namely:

- Flemish Council of Universities of Applied Sciences and Arts (VLHORA)
- Hungarian Rectors' Conference
- The Irish Technological Higher Education Association (THEA)
- The Portuguese Polytechnics Coordinating Council
- Estonian Rectors' Conference of Universities of Applied Science (RKRN)⁴

The project was supported in content by the Centre for Higher Education Studies, Czech Republic and for communications by the Italian agency Augentes.

³ The tool is available to view and use at: <https://uasimap.knowledgeinnovation.eu/>

⁴ Represented formally by TTK UAS.

2 UASiMAP Method

UASiMAP was inspired and informed by different self-assessment frameworks designed for higher education institutions and their stakeholders, notably HEInnovate and the Regional Innovation Impact model. Before presenting the approach used by UASiMAP, these two frameworks are briefly explained.

2.1 HEInnovate

HEInnovate is an initiative developed by the European Commission and the Organisation for Economic Co-operation and Development (OECD). It aims to promote and support innovation and entrepreneurship in HEIs.

HEInnovate provides a self-assessment tool that allows HEIs to evaluate their entrepreneurial and innovative potential across various dimensions. It covers areas such as leadership and governance, organizational capacity, teaching and learning, and knowledge exchange and collaboration. The tool helps institutions identify areas for improvement and provides resources and best practices to foster an entrepreneurial and innovative culture within the higher education sector.

Through HEInnovate, the European Commission and the OECD aim to enhance the role of HEIs in driving economic and social development, promoting innovation and creativity, and preparing students for the challenges of the future. The initiative supports collaboration and knowledge sharing among HEIs and encourages the development of entrepreneurial skills and mindsets among students and staff.

The HEInnovate framework was the starting point for UASiMAP because it provides a user-friendly tool to stimulate reflection in HEIs. A similar format with dimensions and statements has been developed into a targeted tool that captures a more territorial and practice based approach to measuring impact.

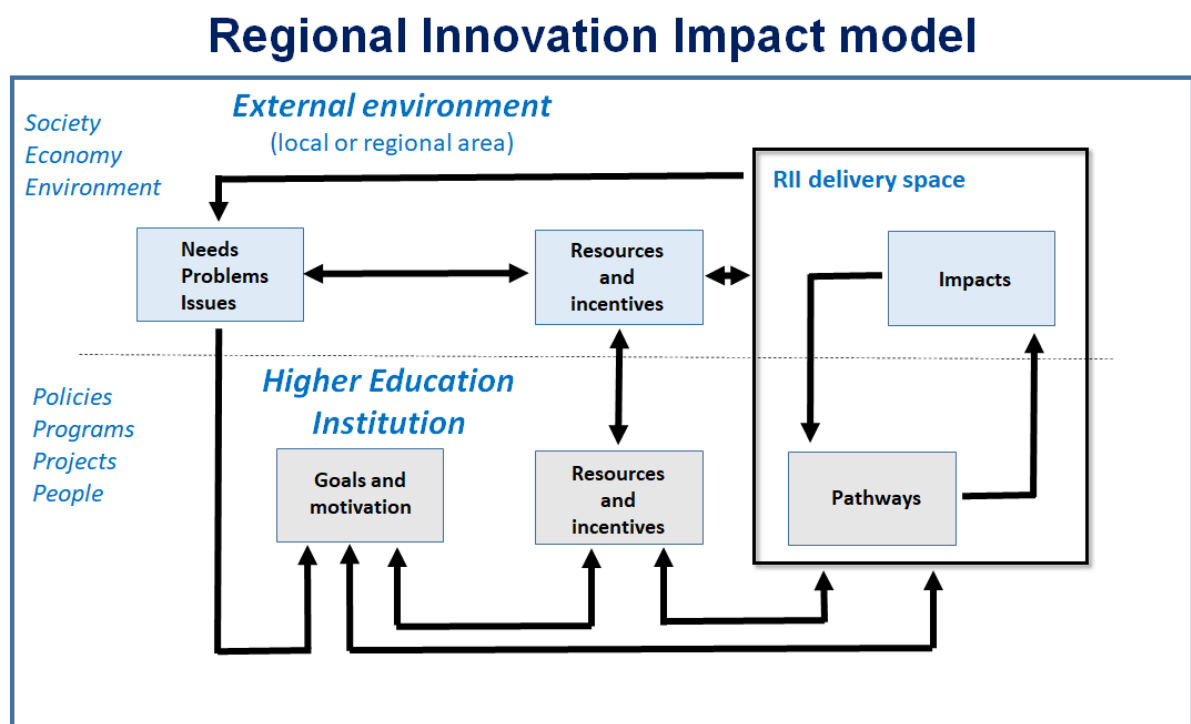
2.2 The Regional Innovation Impact model

The UASiMAP project adopted elements from the Regional Innovation Impact (RII) model, and its associated RII self-reflection framework, which was specifically developed for applications within European universities by the European Commission's Joint Research Centre (JRC). The

framework was later refined and tested through 20 self-reflection reports of universities across Europe⁵.

Compared to HEInnovate, RII assessment foresees that self-reflection could also be strengthened through external assessment by independent evaluators. This may provide an element of legitimacy and credibility that could be used to make policy and funding decisions. The RII approach focuses on the role of HEIs in innovation systems and how their in-house resources and ‘RII pathways’ may contribute to socio-economic development in their hometown or metropolitan region. Figure 1 depicts the underpinning conceptual model.

Figure 1: The Regional Innovation Impact model



Source: Tijssen, Edwards and Jonkers (2021)

One of the distinguishing features of the RII framework is its information gathering methodology which relies on a combination of qualitative information and quantitative data - the ‘narrative with numbers’ model. This particular framework also encourages critical self-reflection within a HEI and self-selection of ‘Key Performance Indicators’ (KPIs) to provide

⁵ The framework and case studies can be found in Tijssen, R., Edwards, J. and Jonkers, K. (2021). Regional innovation impact of universities. Edward Elgar Publishing.

relevant and high-quality data on the organisation's Regional Engagement and Impact (REI) profile. The RII conceptual model and its information gathering toolkit was specifically designed to gather, produce, and communicate empirical information about the engagement of an HEI within local or regional communities, the business sector and civic society.

Ideally, RII performance indicators should cover inputs, throughputs (processes), outputs as well as outcomes/impacts produced by HEIs. Many UAS apply a very limited number of indicators (if any) and tend to focus such management performance indicators on investments and other inputs, where data can be collected relatively easy. Gathering information on REI-related outputs, outcomes and impacts can be very challenging, especially for smaller UAS with limited resources. Moreover, suitable metric based KPIs are often missing and developing such metrics often a major obstacle for collecting information on public value creation and RII.

The RII model offers a different approach for organisational self-reflection on measuring regional impact and use of the outcomes. By using both metrics-based quantitative indicators as well as non-metric information ('narrative') the approach offers many benefits for organisational learning on local/regional engagement. The narrative part may provide essential details on investments or activities that have made a relevant contribution to a region's society or economy, but also – and perhaps even more importantly – background information on how to contextualize and interpret those numbers.

2.3 Designing and Piloting UASiMAP

UASiMAP adopts a broad perspective on the Regional Engagement and Innovation profile of a UAS.⁶ The framework includes the following four performance dimensions corresponding to organisational objectives and institutional missions:

- Providing capacity for regional strategy development
- Developing talents, skills and competencies reflecting regional needs and opportunities

⁶ In the academic literature this broad perspective is captured by the 'quadruple helix' model

- Promoting regional development through user-inspired research, development, and innovation
- Enhancing social, civic, and cultural activities of the regions' community

Each dimension consists of several relevant activities and modes of engagement, as shown in Figure 1. These dimensions and activities were used as a basis for a self-reflection tool in which users select a score from one to five in answer to a series of statements, in a similar way to HEInnovate.

In order to operationalise the framework, the UASiMAP project undertook a pilot exercise involving a diverse group of 10 UAS that were selected by their respective national associations across five European Union Member States, as shown in Figure 2.

The pilot included five main steps:

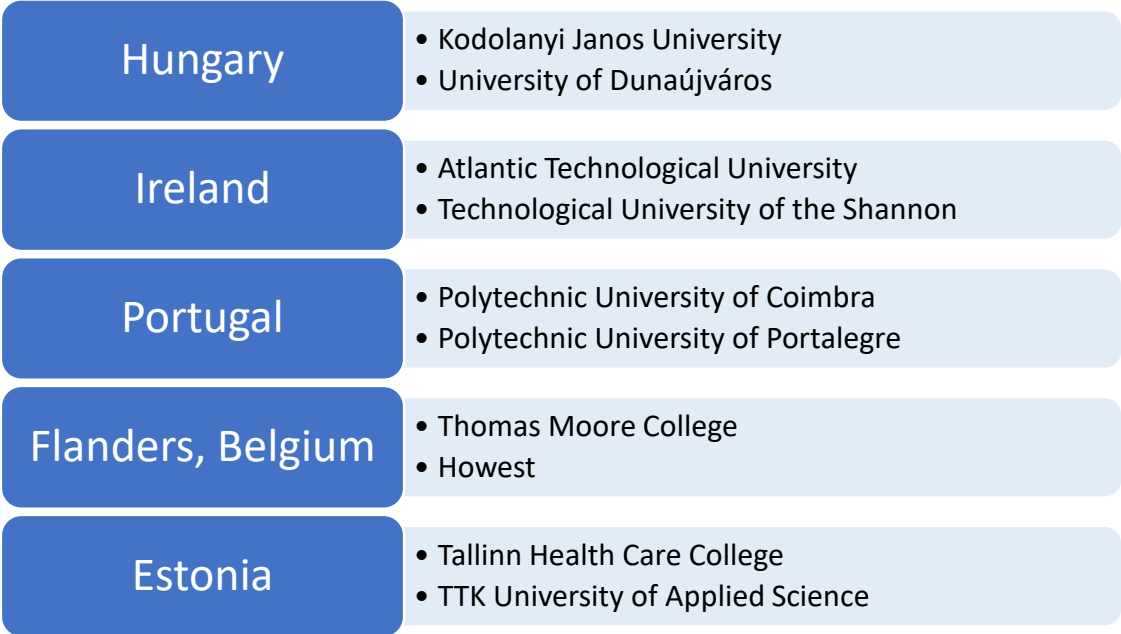
1. Use of the UASiMAP self-reflection tool by a project team. As the online tool was not complete, the piloting institutions used an excel based tool instead.
2. Gathering of evidence to support the responses of the self-reflection and the completion of a template resulting in a 'narrative with numbers'
3. Review of the narrative with numbers by an external expert, providing comments and suggestions for improvement
4. Peer review: Results of the self-assessment framework shared with other institutions and a workshop to gather feedback
5. Management reflection on outcomes (interpretation and analysis of information), assessment of organisational performance

Steps 1 and 2 required a considerable degree of commitment from UAS staff and active involvement of internal stakeholders. Steps 2 and 3 involved active contributions and targeted feedback from external stakeholders (such as funders or local government authorities), while

steps 4 and 5 involved a wider team to translate and apply the UASiMAP outcomes in their respective organisational environments.

The UASiMAP process and its methodological approach was introduced at a training session for representatives of UAS that participated in the pilot exercise. During a half-day session in January 2022, they were informed on how to complete their self-reflection exercise by way of processing a pre-designed survey questionnaire. Previously, other training modules had included the policy background and an overview of existing self-assessment frameworks.

Figure 2: UASiMAP piloting institutions



2.4 Self-assessment reports: Narrative with numbers approach

The self-assessment reports used during the pilot were based on a common template, bringing together performance metrics (‘quantitative indicators’) and evidence-informed narratives (‘qualitative indicators’). The quantitative indicators consisted of a series of 12 pre-selected ‘common’ indicators⁷, with a set of three indicators per UASiMAP dimension, shown in box 1.

⁷ These indicators were selected in through a voting scheme, where the piloting UAS were requested to indicate their preference from a shortlist of candidates selected by the UASiMAP project team.

1. Providing capacity for regional strategies development

1a. Non-teaching and non-research staff involved in initiating or supporting innovation-related cooperation with local or regional partners: number of staff AND/OR % of all administrative staff

1b. Innovation development agreements or contracts with external local or regional partners: number AND/OR % of all agreements/contracts with external local or regional partner

1c. Funding from external local or regional sources of innovation-related work: amount of funding AND/OR % of total external funding from local or regional sources

2. Developing talents, skills and competences reflecting regional needs

2a. Students in internships in the local or regional business sector: number AND/OR share of all students

2b. Teaching staff with an entrepreneurial background in the local or regional business sector

2c. Alumni in recent 3 years who found jobs in the local or regional business sector within a few years after graduation: number AND/OR share of all recent alumni

3. Promoting regional development through use-inspired research, development, and innovation (RDI=Research, Development and Innovation)

3a. RDI-active staff engaged in active innovation-related cooperation with local or regional partners

3b. Physical space for RDI workplaces (such as 'laboratories', 'living labs' and 'innovation centres'): amount of space (square meters) AND/OR number of facilities

3c. Joint research publications with local or regional partners resulting from RDI: number AND/OR share of all research publications

4. Enhancing civic, social and community engagement

4a. Number of public lectures or presentations (online or physical) for local or regional audiences

4b. Number of school projects (primary or secondary education level) in city or region

4c. Number of exhibitions (co)organized specifically for local or regional audiences

The template also offered a UAS the possibility to insert three additional self-selected indicators per dimension, where the UAS is able collect data at short notice or specific indicators that represent key features of the UAS' profile. These UAS-specific 'optional' indicators (either of a quantitative or qualitative nature) may provide relevant statistical data or substantiate qualitative information provided by the UAS in the narrative. This set of additional indicators may also include 'aspirational indicators' describing specific information sources or data that the UAS would like to collect, or will collect, in due course.

The second component is the template's Data and Information section, the 'narrative' section, providing space for inserting additional information – in a 'free text' format – on any aspect that the UAS finds relevant with regards to the organisation's regional engagement profile or relevant information concerning external factors and stakeholders.

The template's third section, Future developments and prospects, introduced a forward-looking perspective with regards to relevant initiatives and activities, where the UAS may provide information on (possible) plans and developments during the years 2023-2024.

The fourth and final section, Additional background information, offered an opportunity to insert any other relevant background information such as literature references, end notes or lists of data sources.

3 Results of the UASiMAP pilot exercise

This section of the report analyses the main results of the pilot exercise, including the use of the self-reflection tool and completion of the self-assessment report.

3.1. Experience of the pilot self-assessment

General response and peer learning workshop

Clearly, many of the UAS teams spent considerable time and effort in compiling the self-reflection reports, which offered a wealth of interesting information - not only on issues related to regional engagement and impacts, but also on the history of the organisation and the current geopolitical or socio-economic context in which the UAS operates. Some of the narratives were very detailed and extremely informative. Six of the nine UAS produced a total of 30 quantitative self-selected indicators that they considered to be relevant additional indicators to the 12 'core indicators' (see box 1).

The results were analysed during a peer learning workshop in June 2022, held at the Polytechnic University of Coimbra. In the morning session various UAS presented their outcomes, highlighted elements of their self-reflection reports and introduced additional information. In the afternoon, a general discussion took place that was structured around each of the UASIMAP dimensions.

Self-reflection tool

The content and structure of the tool was well received by piloting institutions. The objective of stimulating discussion internally was clearly met, with the probing nature of questions well adapted to exposing the strong and weak points of regional engagement. The guidelines on how to use the tool were considered adequate although there was a recommendation that they should be adapted to different user groups (e.g. institutional managers, staff, students and stakeholders). This would help to increase uptake of the tool, especially if the aim is for a large range of responses. In fact, only one institution was able to complete the self-reflection tool with external stakeholders (a regional authority).

Given problems in finalising an online tool, the piloting institutions used an excel version which was considered viable but not a suitable long term substitute. Feedback from the pilot

persuaded the project team to reengage with developing an online tool that was subsequently finalised. Furthermore, the experience of the pilot allowed improvements to the original conceptualisation of the online tool. In particular, there was a desire to benchmark responses with other similar institutions, and the final tool provides star diagrams that map an institution's response with the average of others.

Finally, a link to the self-assessment report template (see below), including options for indicators would 'complete' the tool and allow integrated use by external experts. However, it was understood that this was outside the scope of the project.

Information gathering for self-assessment

Although the self-assessment template ensured a degree of comparability across the UAS, the reports and reporting styles varied greatly. This was due to several reasons, two of which are particularly relevant. First, there was a difference between single-campus organisations and those with multiple campuses or branches distributed across their region(s) or within the country. The second is the stage of development in which the UAS finds itself – in several cases the UAS was in the process of merging with other organisations and unable to produce the required information due to lack of relevant sources or clarity on future prospects.

Large differences were also observed with regards to providing information on the pre-selected 'common' metrics-based indicators. Only two of them were able to submit the requested data on all 12 pre-selected indicators: TTK University of Applied Sciences (Estonia) and Kodolanyi Janos University (Hungary). Overall, the ability to submit data varied between the four UASiMAP dimensions. Gathering data on the three pre-selected indicators on 'Promoting regional development through user-inspired research, development and innovation' was significantly easier than for 'Enhancing social, civic and cultural activities of the regions' community'. Similarly large differences were found with regards to the 'optional' self-selected indicators, where some UAS provided several indicators while others offered none.

The narrative section in the survey presented much fewer problems. All UAS managed to supply interesting and informative narratives. Some presented very concrete empirical information on regional impacts; others included interested statistics that could serve as a

self-selected quantitative indicator. Overall, the narrative part of the self-reflection template proved to be a successful mode for information gathering and a key feature of the self-assessment report.

In some cases, the UAS simply lacked an in-house information management system to produce or retrieve data on their local or regional engagement. The quotes presented in Box 2, selected from several self-assessment reports, illustrate some of the problems faced when trying to collect the requested information. The findings of this pilot study, and the feedback provided during the interviews with UAS teams, highlighted a list of other issues that affected or hampered in-house information gathering in support of meaningful self-reflection or effective data analysis for self-assessment objectives:

- Defining or delineating the 'region' (especially in the case of a multi-campus UAS);
- Difficulty to pin down the concept of 'regional impact' in a self-reflection ('regional engagement' and 'regional outreach' are easier to grasp);
- In-house facilities and infrastructures for systematic information collection are insufficient or lacking (some statistics are only available from national authorities);
- In-house information on the local or regional dimension tends to refer to inputs and investments ('REI potential') rather than outcomes and impacts ('REI performance');
- Lack of regional impact studies, such as student and/or employer satisfaction surveys that may provide relevant information (initiated by UAS, authorities or other external organisations);
- Lack of (explicit) inputs from external local or regional stakeholders during the self-reflection exercise.

Box 2: Quotes on UASiMAP information gathering issues

“Only a very small part of our partnerships can be classified as purely local or regional”.

“There is no systematic data collection on the impact and effectiveness of the external use of university facilities”.

“Our HR department does not have this information collated but would be very interested in collating it and knowing this information”.

“Because we are a newly amalgamated University it wouldn’t be possible to have that information and would be a project itself to collate it. It would have been helpful, in terms of general background and context, to mention this in the introductory text”.

“However, the end products of these activities have direct and indirect effects on the beneficiaries, but the university does not follow them up systematically (no impact studies yet).”

“Measuring impact, however, should be more than simply measuring output and should include the processes and the conditions required to have impact. This means that stakeholder involvement and multidisciplinary approaches should also be taken into account”.

3.2 Analysis of indicators and good practice examples

Dimension 1: Providing capacity for regional strategy development

Only half of the participating UAS were able to produce useful data for one or more of the three pre-selected indicators of this UASiMAP dimension (see Box 1). The ‘easiest’ of these three indicators, in terms of UAS information gathering, was 1b (‘Innovation development agreements or contracts with external local or regional partners’), where six out the nine UAS were able to generate appropriate information.⁸ As for ideas on the additional performance indicators provided by the UAS, the following six self-selected quantitative indicators were suggested:

⁸ Crude estimates or educated guesses provided by some of the UAS where not considered to be appropriate in the sense the information was extracted from consolidated in-house information systems.

- Funding from EU and national sources in the last 3 years concerning partly local and regional developments;
- Volume of projects with international funding related to research, development, and creative work;
- Number of contracts by type of cooperation contract, or external partner
- Number of trusted partnerships;
- Number of partners in Regional Innovation Platform;
- Number of workplace/school of attendees at local-regional outreach events.
- In some cases, the UAS produced the data on their self-selected indicator.

Box 3: Good practice in Providing capacity for regional strategy development

The Public Design Lab at the **Institute of Art, Design & Technology in Dún Laoghaire (IADT)**, has shown how HEIs can be essential partners in strategy development through a project with its local authority financed by Ireland's Creative Communities Economic Action Fund. The project explored ways of forging closer cooperation and embedding a presence for IADT in Dún Laoghaire Town. The partnership worked closely with a range of key local stakeholders to examine ways to enable IADT graduates and other creatives to stay working within Dún Laoghaire town and the wider county.

Another example involves **Kodolányi János University**, located in the Southern part of Békés County in Hungary. The region has lower levels of industry, while depopulation and ageing are posing significant challenges. The University developed a methodology to understand what works for local development, running a series of workshops that led to a retention development programme for each municipality.

Dimension 2: Developing talents, skills & competencies reflecting regional needs and opportunities

A small majority of the UAS were able to produce data on each the three pre-selected indicators. The easiest one, where six UAS offered data was indicator 2a ('Students in internships in the local or regional business sector'). Several alternative or additional indicators were suggested. The following eight indicators were mentioned by at least three of the participating organisations:

- Number/ratio of professionals engaged in Lifelong Learning courses;
- Number of students' internship abroad;
- Number of study programs and courses co-created with regional partners;
- Number/intensity of local partners engaged in development of educational programs;
- Number of regional companies' scholarships for students;
- Number of regional partners engaged in student projects;
- Number of members of specific university alumni unit;
- Number of theses written with both internal and external supervisors.

Box 4: Good practice in developing talents, skills, and competences

Tartu Healthcare College contributes to building human capital in the southern part of Estonia, both at its campus in Tartu and at the premises of employers. This enables a wider participation in higher education since students can remain in their hometown or place of work. Furthermore, employers or local governments provide significant input into the study programmes since there is lack of certain health care specialists in the different towns. These programmes have been very successful and are thanks to Tartu healthcare college for moving outside its comfort zone where traditional teaching occurs on campus.

The Talent Mining initiative in the Belgian province of Limburg illustrates the positive impact of HEIs in addressing structural problems in regions. In this part of Belgium there are low levels of participation in higher education and yet many unfilled highly skilled job vacancies. **University College Leuven-Limburg (UCLL)** has joined regional partners in developing a plan to strengthen 10 educational programmes: The strategy adopts an integrated approach: combining innovative forms of education with new infrastructure, guidance of specific target groups, future skills towards sustainability and entrepreneurship. The result is an increase in talented young people that provide the basis for innovation and economic growth.

Dimension 3: Promoting regional development through user-inspired research, development, and innovation

Six UAS were able to provide data on all three pre-selected indicators in this UASiMAP dimension. The other three left all these indicators blank. This split between 'haves' and 'have

nots' seems to suggest a fundamental difference within the selected UAS in terms of their engagement in research activities. But that was not case; the three absentees do in fact conduct application-oriented research but were not able to produce data for (unspecified) organisational reasons.

As for the self-selected quantitative indicators, three UAS proposed at total of seven of them (with or without accompanying data):

- Number of scientific publications per member of academic staff
- Number of scientific publications per employee with research obligation
- Number of all publications per academic staff member
- Number of participants in knowledge transfer activities;
- Number of invited talks for RDI in the region
- Number of science promotion events per year
- Number of products, processes and services resulting from RDI activities promoted.

Box: 5: Good practice in user inspired research and innovation

Fruit farming is an important economic activity in Flanders, and new solutions to old problems can help to upgrade a traditional industry. **Thomas More University College** is specialised in applied research for energy, and one project has led to innovative and energy-efficient frost control in fruit farming. This includes an online platform with tools such as a calculator for the energy impact of different frost control solutions, helping farmers and increasing the commercial reach of the new technology.

Collaboration with industry is a hallmark of UAS value and this can be observed at the engCORE research centre in Ireland's **South East Technological University** (SETU). In partnership with local firm TANCO, a leading producer of agricultural machinery, engCORE has pushed the boundaries of precision agricultural machinery through research funded by the Irish Research Council's Employment Based Scholarship Programme. The scholarship co-funded the transfer of a TANCO design engineer onto a full-time collaborative research project. This informed the future direction of the precision agri-machinery sector and strategically ensured that TANCO could leverage greater domestic and international market share.

Dimension 4: Enhancing social, civic, and cultural activities of the regions' community

This last dimension was the most difficult one of all to produce data - only three UAS were able to submit data on the three pre-selected indicators. However, collectively four of the UAS suggested a range of alternative quantitative indicators:

- Number of cooperation agreements on civic, social and community engagement
- Number of civic, social, community partners
- Number of projects including co-creation with citizens as a target group
- Number of reached readers of publications
- Number of activities directed towards the wider audiences
- Number of outreach events which do not fall under the category of 'exhibition'
- Number of students involved in local or regional social programs or community work
- Number of employees involved in local or regional social or community work
- Number of beneficiaries of specific, community-oriented programs.

Box 6: Good practice in Enhancing civic, social and community engagement

IPS Solidário is a leading community engagement initiative at **Setubal Polytechnic University** in Portugal. It supports social, cultural and sporting activities at specific target audiences in the local community, with the aim to foster a more cohesive and inclusive society. Activities include a waste collection activity in the Sado Estuary, which in 2019 counted on the support of 600 students who collected 2.5 tons of waste. The "Oficina das Profissões" offer local children and young people from vulnerable neighbourhoods innovative experiences in laboratories and simulators. In 2019, 140 children and young people (6-17 years) were involved. Finally, The "All and One" Project assists people with reduced mobility when traveling to and enjoying the beach. In the summer of 2019, more than 400 users were assisted by the initiative in Sessimbra, which led to its expansion to other beaches nearby.

A second inspiring example is from Estonia's Mõdriku, Lääne-Virumaa County where a regional hub of **TTK UAS** has created the 'Silver Academy', an open lecture and seminar series. While it is aimed at elderly people in Eastern Estonia, primarily in the age group of 60+, others are also welcomed. The aim of the lectures is to provide new knowledge to the elderly, prevent and alleviate social exclusion, increase the cohesion of society, promote lifelong learning, and increase the competences of older people. In the current societal context, it is particularly important to provide such training opportunities for older people who have not voluntarily left work and cannot find a new job or learning opportunities.

4 Future development of the UASiMAP framework

4.1 Evaluation of the pilot study

Judging by the outcomes of this pilot study, its 'narrative with numbers' self-reflection template generated a rich source of interesting information. The results also revealed shortcomings in the design of the template that suggest room for improvement, both with regards to the 'numbers' and 'narrative' sections. As for the numbers, the uptake of 12 pre-selected quantitative indicators presented by the participating UAS was only a partial success. This outcome was not unexpected: concrete outcomes of regional engagement and tangible impacts are often difficult to capture with measurements and quantitative data. Such information is often not available within a UAS. Furthermore, the pre-selected compulsory indicators in the template can only go so far to cover information of particular relevance for a specific organisation.

In addition to the pre-selected quantitative indicators, the template also offered each UAS the opportunity to propose and apply self-selected quantitative indicators. These 'add-on' indicators show some promise for the future: several interesting suggestions emerged that could be further tested in follow-up studies and upgrades of the template. Importantly, two types of self-selected indicators should be distinguished; (a) those based on readily available data within the UAS' in-house information system; (b) 'aspirational indicators' based on data that could eventually be collected by a UAS (for example, through impact surveys distributed among graduated students or regional employers).

Determining the practical relevance of quantitative indicators in a UASiMAP template needs further study and experimentation. One could, for example, consider introducing a pre-selected 'indicator menu' in the template with a few compulsory ('common') indicators supplemented by a wide range of 'optional' indicators. The latter could be either country-specific or UAS-specific and target activities with the highest chance of readily available data within a UAS or on topics where the information is most needed.

The most promising source of information was the template's qualitative component: the self-assessment narrative. This 'qualitative' mode of information gathering provided very interesting outcomes. It seems to be the best entry point to available information sources and the way to generate general acceptance for using the UASiMAP method. The outcomes of the pilot study clearly indicate that narratives - with or without accompanying quantitative

indicators – offered the participating UAS a useful platform to communicate prior achievements, current activities, and organisational ambitions for the near future. However, owing to the ‘open’ format, the collected information in those narratives exhibits a large degree of variation across the UAS, which hampers detailed or straightforward comparisons across organisations. Some degree of standardisation is necessary, especially to enable or improve learning opportunities based on information from other ‘comparator’ organisations. High-quality narratives - based on carefully selected, verifiable information - could then become effective self-assessment reporting for a range of in-house managerial objectives, such as identifying good practices within a UAS but also for external communication of organisational strengths.

The quality and usefulness of self-assessment reporting should always be judged against the availability of relevant information and inherent information-gathering limitations. Any ‘successful’ exercise that produces useful and meaningful outcomes, will be critically dependent on the availability of appropriate information sources within a UAS and unhampered access to those sources. Some of the self-assessment reports clearly benefited from sophisticated in-house information systems with readily available data on regional engagement, whereas other reports suggest less-developed systems or indicate that the organisation is in the process of developing the required data sources or information infrastructures.

4.2 Added value for institutional learning

Self-reflections on regional engagement and impact should be framed and conducted firstly as an institutional learning process rather than a narrowly defined performance assessment. It should be designed in a way that allows HEIs to identify engagement activities and their impacts, helping the organisation to demonstrate its public value and societal benefits generated by investments and activities that create regional impact.

The results presented in this report provide several insights into limitations and added value of the UASiMAP approach. First and foremost, it is a labour and information-extensive exercise - for any kind of HEI, irrespectively of the available resources and infrastructure. Successful applications require in-house expertise and sufficient human resources. The results of the

pilot study suggest that information gathering efforts for the descriptive 'narrative' part is much less affected by organisational obstacles and constraints than the indicator-based 'numbers' component. Such numbers may not exist within the organisation or may involve considerable efforts to collect. Nonetheless, including a 'numbers' component in the UASiMAP template may serve two important objectives: (a) to sensitize and incentivize organisations to critically assess their capacity to gather such information; and (b) to illustrate the analytical added value of including quantitative performance indicators in their self-reflection.

While collecting quantitative data can indeed be challenging, it is important to realise that assembling a truly comprehensive regional engagement profile of a UAS is an impossible undertaking. The notion of 'regional orientation and engagement' is too context-dependent and multi-faceted: each UAS is a unique organisation embedded in its own particular geographic and socio-economic environment. A UAS is usually an integral part of a complex and dynamic higher education system. So, any attempt to describe the detailed metrics-based description of an institution's regional impact is hampered by inevitable limits of measurability and persistent information gaps.

The current version of the narrative with numbers approach does not allow for in-depth comparisons and performance benchmarking with other UAS. Detailed findings can only be assessed and interpreted within the framework of the UAS' own current activities and the underpinning development trajectory in recent years. Acknowledging the distinctiveness of each UAS and recognizing the diversity of the national or regional higher education systems in which they operate, UASiMAP users should avoid adopting any kind of 'one size fits all' approach when interpreting results of their own self-assessment or that of other organisations. Comparisons between findings in self-reflection reports are problematic and are therefore best restricted to identifying general patterns and trends across organisations.

A third fundamental question addressed by the study relates to UASiMAP's ability to provide actionable information for strategic management of a UAS. Nowadays, key performance indicators (KPIs) have become an essential part of monitoring and assessment toolkits for institutional management and strategic decision-making. UASiMAP may contribute to developing and applying such indicators on regional engagement and impact. The results of this study present some options and pathways to collect compelling information, and design effective KPIs on the organisation's regional footprint. The findings illustrate analytical

benefits of a mixed-method ‘narrative with numbers’ approach, which may produce a range of self-assessment information – from ‘hard’ verifiable evidence as well as more ‘soft’ impressions or opinions – that could be suitable for managerial applications. Presenting such varied information in a structured overview (either as a ‘scorecard’ or another format) will require proper contextualization and a sound evidence base. Whether or not such evidence-driven structured overviews are indeed effective in terms of producing ‘actionable intelligence’, for example by designing or changing organisational strategies, depends on the interplay between enabling factors, such as the level of commitment among an institution’s executive leadership as well as organisational framework conditions such as the organisation’s size and regional orientation.

Organisational learning processes within a UAS, which allow ample room for pilot studies and experimentation, should fit within the institution’s operational processes and governance structures. It should be actively endorsed and supported by key staff members and executives. Co-creation processes also require active participation and feedback from external partners or stakeholders. Clearly, the overall value of action-oriented regional impact reporting and mutual expectation management can be enhanced by incorporating constructive feedback by external stakeholders. Very few of the presented narratives in this pilot study included any (explicit) contributions from external stakeholders. If external parties are included in self-assessment processes, such narratives can be helpful for the development and alignment of internal organisational goals and external user expectations. Consulting key external stakeholders is advisable: it will better align such initiatives to local and regional needs and in doing so raise the external value and credibility of a UAS. Validation of UASiMAP findings could also be made more participatory through discussions with external partners and stakeholders.

4.3 Recommendations for improving the UASiMAP method

The UASiMAP project raised awareness among participants about the value of information on their local/regional engagement but also of information gaps within their institution on their local/regional engagement profile, and the need for dedicated efforts to gather such information. This general outcome suggests several options and opportunities for UASiMAP follow-up activities to improve institutional learning processes.

Ideally, the UASiMAP framework should offer an easily applicable method for systematic, coherent, and transparent analysis of information on an institution's regional impact profile, as well as provide a (digital) platform for communicating evidence-based findings and sharing of good practices. Such a structured self-assessment toolkit should support an institution's vision and mission, serve information requirements as well as needs of local or regional communities, and produce outcomes and insights that are both understandable and acceptable to all relevant stakeholders.

Recommendations with regards to possible upgrades of the framework include:

- Embark on a consultation round among UAS and key external stakeholders to select a very limited set of compulsory pre-selected quantitative indicators ('key performance indicators'). Make sure that these indicators are meaningful, well-defined, and cover inputs, throughputs, outputs, and impacts related to regional engagement.
- Introduce an option to apply additional self-selected indicators (either from a list of pre-selected indicators, or one or two UAS-specific indicators not on that list);
- Introduce questions on the availability and applicability of in-house resources and infrastructures to gather UASiMAP information;
- Upgrade the self-assessment template to accommodate impact studies (include compulsory or self-selected quantitative indicators to collect information on regional impacts; include the requirement to provide an 'impact story' narrative, as a supplementary source of contextualised information of selected impacts);
- Add clear guidelines regarding the structure and contents of self-assessment narratives to promote a similar format for each institution.

The following recommendations apply to incorporating tailor-made impact indicators within the framework:

- Reach out to external stakeholders of the UAS in the information gathering process to consult them on their views and needs with regards to expected impacts;

- Collect information from those stakeholders, especially with regards to observed or perceived impacts in the local or regional environment and preferably ‘tangible’ impacts that are concrete and measurable.

Improvements and upgrades of the framework should also aim to ease information gathering and reduce the workload for users. This may entail a degree of standardisation, by way of a more uniform structure of narratives, but may also involve options for tailored-made solutions such as, for example, institution specific KPIs. The template should be able to provide a higher level of analytical value (information for comparability across units, trend analysis, or performance benchmarking), assessment value (relevant information and knowledge for users; cost-effective and workable solutions) and stakeholder value (credibility and legitimisation among internal and external users and stakeholders).

Peer learning activities may benefit from the following recommendations:

- Encourage the pooling of resources, expertise, data, and infrastructures to promote more peer-learning practices;
- Promote collaborative efforts to adopt common, agreed definitions, metrics, and indicators to help improve the comparability across organisations, taking into consideration their organisational specificities and contextual differences.
- Support (inter)national peer learning processes and platforms for disseminating and encouraging by sharing of case studies, good practices, role models, lessons learned and developing common methods for monitoring and self-reflection.

It goes without saying that implementation of these recommendations requires adequate information infrastructures within a UAS and a receptive organisational environment for adopting outcomes of UASiMAP self-assessment. In-house information infrastructures are a crucial success factor for self-reflection capacity building within a UAS. Ideally, each UAS should have a dedicated unit on regional engagement and impact, incentivize systematic in-house collection of relevant data - preferably as an integral part of the annual performance

reporting cycle - and prioritize storage of data in an easily accessible management information system.

Finding an acceptable trade-off between the practical feasibility of UASiMAP and its information value, across a large variety of UAS throughout Europe, will require a follow-up pilot study and scaling up with a considerably larger number of UAS participating. Upscaling can kick-start the development and implementation of standardised information-gathering routines across a range of organisations. Such large-scale 'sector wide' pilot studies offer the best chances for developing a generally acceptable and workable UASiMAP framework for collective learning on how to optimise regional engagement and impact. Involving a large number of countries and UAS would enhance the likelihood of identifying international good practices. It would also offer opportunities to find out more about how and where the outcomes of such self-reflections could fit in with in-house information systems, institutional strategies, and governance models. UASiMAP's 'next generation' toolkit should also be 'cross-cutting' in the sense that it considers all kinds of benefits, for various stakeholders and across a variety of possible regional engagement impacts, including the contributions of UAS to longer-term societal goals. The availability of such high-quality information may boost informed judgements within UAS management on the best course of action to improve their local/regional performance.

Finally, the pilot study revealed limitations of self-assessment; not only in terms of obstacles to collect information, but also a natural bias and tendency to focus on positive narratives.

If UASiMAP was to be used by governments to make decisions on funding or quality assurance as described in section 4.4 below, self-assessment would have to be complemented by an element of external assessment by experts in the field. This could be applied to performance based funding / negotiation of contracts with individual UAS. It could be that UASiMAP has

BRONZE: Completion of the self-assessment tool; dissemination of results within the institution and with external stakeholders

SILVER: Collection of quantitative and qualitative data as part of the self-assessment; peer-review and benchmarking with other institutions

GOLD: Assessment of an institution's potential for regional impact by an external expert; possible use of results to negotiation funding contracts by governments

various levels of use, from a basic self-reflection exercise to collection of data and external assessment, as illustrated in the box below.

4.4 Policy Recommendations

The UASiMAP project and other studies on the regional role of HEIs clearly show that public authorities should have an interest in supporting them in this mission. Methods for self-reflection, benchmarking and external assessment can provide the basis for improvements to governance of UAS, the region and the tertiary education sector as a whole.

Recommendations for UAS

The scope and extent of regional engagement of a UAS is largely dependent on the role the institution adopts for itself. However, these efforts are hampered by the lack of information systems and data collection tools about the local and regional environment. Moreover, information on the successes and failures of the UAS practices are limited in scope and quality. UASiMAP can help fill the knowledge gap for UAS to improve their regional impact. Based on such self-assessment, UAS may consider measures such as:

- Mainstream regional engagement in teaching, research and community service.
- Establish senior management teams to deliver a corporate institutional response to regional development, as expected by key regional stakeholders.
- Invest in developing UAS staff who create and maintain links between the institution and its regional stakeholders. This can include appropriate career and other incentives to encourage and reward staff engaged in local and regional development.
- Strengthen the labour market relevance of the UAS education and training and alignment with regional needs in a systematic way.
- Improve capacity to provide upskilling and reskilling opportunities that combine work and study, in order to prepare the population for the green and digital transitions

- Develop co-operation and coordination of all education and training institutions within the region. This could involve establishing a partnership to undertake collaborative projects that address regional needs and opportunities.
- Create mechanisms for foresight, monitoring, evaluating and improving activities with regional impact, to share good practice within the UAS and to benchmark this experience with other institutions and localities.
- Develop a robust information collection system including quantitative and qualitative indicators.

Recommendations for local and regional authorities

Local and regional authorities can help bring together different education and training institutions and enable better coordination and collaboration between them. UAS are a particularly important stakeholders for regional and local authorities given their close links to the labour market and their ability to involve first generation tertiary education students. In order to make the most of UAS, local and regional authorities could:

- Mobilise UAS in the preparation and implementation of regional and urban strategies, as genuine stakeholders.
- Use UASiMAP to understand the current regional engagement activities of UAS and carry out a needs assessment and a gap analysis.
- Promote collaboration between education and training institutions, clarify their tasks and remit, and strengthen their accountability to the public.
- Create a partnership structure with stakeholders in the region to provide a focus for dialogue on the role of tertiary education in the economic, social, cultural and environmental development of the region.
- Establish intelligence and foresight systems to monitor the performance of education and training in the region and benchmark the results with other places in the country and the EU.

- Collect comprehensive labour market intelligence and publish data to improve individuals' ability to make rational choices about skills development and their opportunities to find jobs.
- Use data to identify regional priorities and promote course offerings and the provision of employer-, industry- or cluster-specific skills by UAS and other educational institutions.
- Invest jointly with UAS in programmes and services that bring benefit to regional business and community, such as RDI facilities aligned with local needs, advisory services for SMEs, reskilling and upskilling for the green and digital transition, continuous learning and professional development, talent attraction and graduate retention programmes.
- Consider establishing a regional investment fund (financed by public and private resources) to build UAS capacity for regional engagement and provide incentives to institutions and their staff and students for regional initiatives
- Use competitive funding to stimulate cross-institutional, multidisciplinary applied R&D and education programmes which are aligned with the region's challenges and opportunities.

Recommendations for the tertiary education system level

Tertiary education systems that wish to mobilise UAS and/or other HEIs for local and regional development should embed a regional dimension in the tertiary education policy, but also acknowledge that the national policies and the regional and local contexts may generate differential regional impacts depending on the local contexts. Consequently, the quality assurance and monitoring of institutions should take into consideration specific regional characteristics.

Authorities at system level who want to encourage a stronger role of UAS in their regions and local communities, could consider the following approaches:

- Make regional development and its wide agenda for economic, social and environmental development explicit in the policies steering UAS and other HEIs. Moving to this direction may require a policy audit to identify barriers to the regional engagement by institutions and possible revisions in their governance and regulation, student selection policies, financing of institutions, and support for students and adult learners.
- Encourage HEIs to address regional and community engagement in their mission statements and strategies and policies, and involve them in the preparation and implementation of regional strategies as genuine stakeholders (beyond the role of technical advisers).
- Ensure or strengthen the autonomy of UAS by increasing their responsibility over the use of human, financial and physical resources. Provide incentives for institutions to exercise these responsibilities through long-term core funding and/or additional strategic incentive-based funding schemes.
- Strengthen UAS' accountability for regional engagement, through governance, quality assurance and monitoring mechanisms. Where appropriate, provide the institutions access to adequate information systems that enable not only central monitoring but also institutional development.

Recommendations for the European Union

While the EU does not have competence for regulating higher education institutions, it does have several soft policy options and funding programmes that could be used to implement UASiMAP:

- Promote peer learning and mutual learning exercises to encourage the role of UAS in regional development and innovation as genuine stakeholders, as well as peer counselling with focus on priority areas such as intelligence systems.
- Provide support for pilots, platforms and projects for the evaluation of UAS regional role as well as evaluations of regional tertiary education systems.

- Encourage cross-border cooperation at regional level among applied universities and other tertiary education institutions, including joint education programmes targeted at regional priorities, R&D in UAS and with industry and community organisations to reach a critical mass and address challenges and opportunities.
- Develop synergies between European funding programmes to ensure the development of sustainable policies in regional development and innovation. This could include dedicated programmes for applied universities and cooperation among education and training institutions at regional level. More ambitiously, the use of self-assessment or external assessment could be a thematic conditionality to enter certain funding programmes.

