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DIGITAL COMMUNITY ENGAGEMENT

Literature Review Report



DIGITAL COMMUNITY ENGAGEMENT ACCELERATOR FOR STUDENT LEARNING AND SOCIO-ECONOMIC IMPACT

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Project: Digital Community Engagement Accelerator for Student Learning and Socio-economic Impact - DiCE

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Work Package 2: Digital Community Engagement Value Maps

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Summary

This report summarizes five literature reviews on Digital Community Engagement (DiCE) in higher education with country focuses on Germany, Italy, Romania, Slovakia, and Spain. Its aim is to provide an overview on DiCE by identifying the current trends, benefits, risks, and key recommendations for its implementation. The findings set the basis for the development of the DiCE Project and are also useful for providing higher education stakeholders with an introduction to DiCE.

This report identified five trends in the implementation of university-community engagement with a focus on digital components. First, service learning as the main strategy to engage with society. Second, the use of digital platforms to promote civic engagement. Third, the increasing prioritisation of DiCE in policy strategies. Fourth, the growing visibility of citizen science projects with digital components. Fifth, the combination of DiCE and entrepreneurial initiatives involving societal stakeholders. In sum, DiCE is a growing priority in higher education as a strategy to incentivise student engagement with society.

The implementation of DiCE in higher education institutions faces several common risks, including the digital divide, data privacy and cybersecurity concerns, and inconsistent training on digital skills. Additionally, country-specific risks include a shortage of STEM experts, the potential for radicalising discourses, limited resources for public engagement, and difficulty in sustaining collaboration. These risks could jeopardise the effectiveness and impact of DiCE initiatives.

The benefits of DiCE for students include increased leadership skills, development of digital competencies, consolidation of critical thinking, personal development, understanding of community issues, and increased employability skills. The benefits for communities include increased participation in democratic and civic processes, tangible products and results, involvement of community members in processes and solutions, strengthening of local networks, increased availability of community resources, and improved quality of life.

To advance DiCE, the report recommends facilitating digital competencies in pedagogical work, developing synergies with already existing programs, encouraging collaboration and partnership, generating data on digital engagement, creating support structures, visibilising university DiCE initiatives, and creating roadmaps for educators and program managers on how to implement courses with DiCE components.

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ABBREVIATIONS

CE - Community Engagement

Civ Tech - Civic Technology

DCE - Digital Civic Engagement

DiCE - Digital Community Engagement

eSL - Electronic Service-Learning

EU - European Union

Gov Tech - Government Technology

HEI - Higher Education Institution

HIIG - Alexander von Humboldt Institute for Internet and Society

KPI - Key Performance Indicator

NGO - Non-Governmental Organisation

SL - Service Learning

SME - Small Medium Enterprise

STEM - Science, Technology, Engineering, and Mathematics

UK - United Kingdom

vSL - Virtual Service-Learning



GLOSSARY

Civic engagement: Individual and collective actions are designed to identify and address issues of public concern. It can take many forms, from individual voluntarism to organisational involvement to electoral participation (APA, 2009). It is often used synonymously with community engagement. The term 'civic' does imply a focus on promoting active citizenship and democratic values. The term is most frequently used in the USA.

Community: Community is defined as all possible communities of place (geography), identity (demography), or interest (experiences). It encompasses organisations from government, business, and civil society, as well as citizens (Farnell, 2020).

Community engagement: Community engagement is a strategic process with the specific purpose of working with identified groups of people, whether they are connected by geographic location, special interest, or affiliation to identify and address issues affecting their well-being. It often involves partnerships and coalitions that help mobilise resources and influence systems, change relationships among partners, and serve as catalysts for changing policies, programs, and practices (CDC/ATSDR, 1997).

Community engagement in higher education: Community engagement is a process whereby universities engage with external organisations to undertake joint activities that can be mutually beneficial, even if each side benefits in a different way. The principle of mutual benefit is central to community engagement (Benneworth, P. & Zeeman, 2018).

Digital Community Engagement (DiCE): DiCE blends established digital humanities, public humanities, citizen science, and community engagement practices. DiCE refers to using digital methodologies when partnering with communities and using digital



platforms to reach a wider public. “DiCE projects often draw upon the approaches and values developed in the field of academic civic engagement, which encompasses community-based research, place-based engagement, public scholarship, and service learning or community-based learning” (Wingo et al., 2022).

Engaged university: A university that engages directly with external communities and embeds engagement as a core activity, meaning that engagement is incorporated into teaching and research rather than as a peripheral third mission (Fernell, 2020).

Engagement: Engagement is defined as the range of ways in which university staff, students and management interact with external communities in mutually beneficial ways, whether as a part of teaching and research, of joint projects and initiatives, or of university governance and management (Farnell, 2020).

Public engagement: Public engagement describes the myriad of ways in which the activity and benefits of higher education and research can be shared with the public. Its definition is very close to the definition of community engagement in higher education. The term is frequently used in the UK (NCCPE, 2019).

Service Learning (SE): Service learning is a community-based learning or a pedagogical approach that combines the goals of service to the community with the learning opportunities offered to the engaged students. It is generally described as experiential learning that includes a balanced focus on the service provided to the community and the learning that takes place in that service (Furco, 2002). Service learning can be fully integrated into the curriculum.

Societal needs: Societal needs are defined as all political, economic, cultural, social, technological, and environmental factors that influence the quality of life in society (Farnell, 2020).

University-Community Engagement: university-community engagement involves a relationship between universities and the community that will support research and facilitate learning through teaching practice, community service, and other public engagement (Heloise, 2021).

Volunteering: Volunteering is time willingly given for the common good and without financial gain. It is a form of helping in which people actively seek out opportunities to assist others in need, make considerable and continuing commitments to aid, and sustain these commitments over extended periods of time, often at considerable personal cost (Snyder, 2001). It is a part of the wider concept of civic participation.

1

INTRODUCTION

The third mission of universities aims at enabling higher education institutions (HEIs) to develop the society and its communities, to become a bridge between the scientific community and the people, and to strengthen the community engagement (CE). This engagement usually takes place in physical spaces and through various activities aimed at supporting the surrounding ecosystem of the institutions. At the same time, digitalisation has consolidated as an omnipresent mediator of social interactions, from healthcare, urban planning, and waste management to education. What we have learned during the COVID-19 pandemic is that we can move many processes and services into the digital world, which opens new possibilities for institutions and society.

University-CE can also benefit from the positive outcomes of digitalisation. The consolidation of Digital Community Engagement (DiCE) strategies can help universities to broaden their activities, interact with stakeholders beyond the physical borders, and enable them to connect with people from various cultural, social and economic backgrounds. DiCE refers to using digital methodologies and tools when engaging with society (external stakeholders). DiCE initiatives include community-based research, place-based engagement, online hackathons, Collaborative Online International Learning (COIL) approaches, online fundraising, crowdsourcing, citizens science projects, and digital service learning, among others.

However, interlinking DiCE and universities is not easy, as educators and course directors often don't know how to proceed. They lack information about the tools and procedures that might help them to improve students' learning and social impact. They miss the



guidance to help them step-by-step set up the CE courses in the digital space, often resulting in frustration and failed motivation. This document provides an overview of a literature scanning on DiCE conducted by the partners participating the DiCE project, with a focus on their countries.

1.1 The DiCE project

The European Union funded project Digital Community Engagement Accelerator for Student Learning and Socio-economic Impact - DiCE aims to foster the digitalisation and third mission of universities by providing educators and course directors with concrete practices on how to create their own digital community engagement courses and, at the same time, make an impact on their surrounding community. The project gathers the latest knowledge on support for advancing CE initiatives, builds an acceleration program, and pilot the accelerator in HEIs. The results are a digital a tool, enhanced capacity, and orientation to dissect the complex challenge of digitalising community engagement into smaller parts and translates it into enhanced student learning and social impact.

To develop its aim, the project carries out research to produce two value maps from the perspective of students and communities as final users. With a literature review, the partners gain understanding on state of the art in CE in Europe and current trends and developments in DiCE in each of their countries. This literature review is enhanced with a students' survey to examine their understanding of DiCE. The results of these two inputs feed the development of the value maps. These value maps contain information on the perception of students on the priorities and the benefits that the implementation of DiCE brings to the communities.

Furthermore, the project creates a manual for university educators and course directors that provides a step-by-step guidance on how to create a DiCE courses. This manual also supports the creation of an innovative Digital Accelerator Platform for enabling educators and course directors to create their tailored courses according to their requirements. Additionally, the created manual and accelerator are operationalised into workshops and capacity building strategies to promote its usability. Finally, the project summarises the key learnings from piloting the accelerator in a handbook to implement DiCE in higher education, plus a best practices report.

Thus, the DiCE project answers to two of the greatest challenges of contemporary higher education at once: fostering digitalisation and advancing the third mission.

1.2 The purpose of the DiCE Literature review report

This report summarizes five literature reviews conducted by the partners of the DiCE project and focused on their countries and aims at providing a general overview on DiCE.

This report is based on academic and non-academic resources (success stories, good practices etc.) and reflects on the state of the art of university-CE with a specific focus on DiCE in the five countries of the project — Germany, Italy, Romania, Slovakia, and Spain. It examines current trends, practices, and initiatives in university-CE with digital elements. Additionally, it explores the possible risks to its implementation and the benefits it brings to the students and communities engaged in DiCE. In the final section, the report provides recommendations on how to improve DiCE in each country participating in the project. The sources used in all the country reports are contained here in Annex I and II. Furthermore, the glossary introduced in this report applies to the key terms used in all the reports, which are available in the website of the project.

The information gathered in this report provides a holistic picture of DiCE in HEIs in Europe and five countries respectively to deepen the understanding of DiCE. Moreover, the findings contrasted with students' understanding of DiCE at a later stage, in the form of a questionnaire survey. The inputs of the literature review and the student questionnaire survey provide the necessary basis for the creation of two value maps on students' learning and on social impact. The value maps are analytical frameworks to be used by the target groups (university educators and course directors) to help them improve study programs, student learning, social impact and to create DiCE courses. The information from this literature review and a follow-up survey is thus crucial for the consolidation of the value maps as the building stone for the upcoming project results.

2

THE CURRENT TRENDS IN UNIVERSITY COMMUNITY ENGAGEMENT WITH A FOCUS ON DIGITAL ELEMENTS

After scanning research, reports, practices, projects and policy documents, the team of the DiCE Project identified the following **trends in the implementation of university-community engagement across Europe**, with a focus on digital components:

1. **Service learning (SL) as the main trend in the implementation of community engagement in Europe**: SL is the most identifiable strategy for the implementation of digital CE in various European countries, often included as a part of university curricula, especially in engaged universities (universities with a strategic focus on social engagement). **Traditional onsite SL has been adapted to e-Service-Learning (electronic Service-Learning [eSL] or Virtual Service-Learning [vSL])** and has been extensively analysed in reports such as “2021 Annual Report of European Association of Service-Learning in Higher Education” (Ribeiro et al., 2021), featuring 50 experiences on the topic. Within service-learning courses, students are placed into organisations which deal with community-related issues. By implementing SL into the curricula and syllabus design, universities help students to gain experiential learning, become more relevant in their community, increase their level of civic engagement, and make a difference by actively participating (Skledar Matijević et al., 2020). According to Waldner et al. (2012). Under the concept of eSL there are four categories of virtualisation:

- Type I (Hybrid) e-service learning: Instruction online and services onsite;

- Type II (Hybrid) e-Service-Learning: Instruction on Site, Service Online;
- Type III (Hybrid) e-Service-Learning: Instruction and/or service partially on site and partially online;
- Type IV (Extreme) e-Service-Learning: Instruction and service 100% online.

The disciplines with the most initiatives in SL are education, business, and economics, according to Ribeiro et al. (2021).

2. **The use of digital platforms:** One of the most widespread trends at universities in recent years is the use of online platforms to promote diverse forms of digital community engagement (Schroedel, 2020). **Platforms are an effective tool to inform the public about civic engagement events, surveys, engagement opportunities with academia, or other initiatives in a similar way as social media, but more specialised and with additional services.** At the EU level, there are consolidated platforms such as EU.Citizen.Science and InSPIRES. Additionally, there is a growing number of Civ Tech platforms developing activities such as crowdsourcing, fundraising, volunteerism, or activism.
3. **Digital university-community engagement as a policy priority:** Continuous and growing digitisation in all contexts of life, as well as changes within technology itself, mean that government strategies and policies tend to become obsolete in a short period of time. **The European countries face the pressure of continuously reviewing and renewing their approaches to meet the new demands for high-quality digital education.** While Eastern and South-Eastern European countries tend to address digital education as part of a broader strategy, Western, Central and Northern European countries tend to have specific strategies in education. Digital education is usually embedded into these areas:
 - lifelong learning and education strategies;
 - digital, media literacy and information society strategies;
 - science, technology, engineering and mathematics (STEM) strategies;
 - socio-economic development and industrial strategies or innovation strategies.

A prominent example of policy strategies that are currently in place is the Digital Education Action Plan (2021-2027), which aims to bring education and training to the digital age. This change is complemented by universities being conceived as a source of help in responding to diverse societal challenges (climate crisis, the impact of the pandemic, migration, ageing of the population, digitalisation, etc.). The question of how universities can use their knowledge and resources to contribute to social and economic rehabilitation is a high priority in policymakers' agendas not only at the EU level but also at national and local levels (Farnell, 2020).

4. **Increased visibility of citizen science projects:** Currently, a growing number of **citizen science projects involve digital engagement with citizens** and can be noticed at the regional, national and European levels. Science Europe (2018) and Bonn et al. (2022) report that countries such as Germany and the UK are leaders in citizen science projects, especially in fields such as life sciences, sustainability, and humanities.
5. **Combination of university DiCE and entrepreneurial initiatives: Universities are using digital strategies to foster entrepreneurship education.** The implementation of digital strategies allows universities to connect students, entrepreneurs, businesses, SMEs, civil society organisations, and government agencies through strategies such as online mentoring, online networking, digital incubators, online hackathons, or online communities of interest.

As part of the DiCE Project, the consortium focused on the countries of the consortium. The following are the **Current trends of DiCE in Germany, Italy, Romania, Slovakia, and Spain:**

The five project countries reflect the general trends visible in Europe. **The strongest and most frequent trend in student community engagement is SL.** While in Slovakia it is recognised in some universities as a part of the curricula (University of Matej Bel), in Germany many universities have support units organising SL at the institutional level, as a co-curricular activity (University of Kassel). Similarly, the CE activities of universities and HEIs in Spain are mainly focused on the application of the service-learning option. The Spanish universities have specific units or programs dedicated to CE.

HEIs in Germany, Romania and Slovakia are using *digital platforms* and related tools to engage with their communities. This usually includes **online forums, social media, and other digital platforms that allow universities to reach a wider audience and build stronger relationships with the community.**

Linking the corporate world with universities through common DiCE initiatives is visible also in Slovakia. Many universities collaborate with corporations, NGOs, and associations via online hackathons, mentoring or digital incubators. In Romania, collaborative research projects between universities and local organisations have become increasingly popular. This type of CE allows universities to contribute their expertise and resources to solving local problems and improving community well-being. Internal support structures that plan, advise, and develop independent activities, such as creative labs and living labs (Creative Lab Ruhr, Edible Cities Network, etc.) or science shops (Wissenschaftsladen Bonn, etc.) are formed in Germany.

In addition to these common trends, every country has its development of university-CE. For instance, thousands of *citizen science projects* are being carried out in Germany. **Citizen science is a modality of research in which citizens take part in one or several stages of a research project by achieving specific tasks.** Such community-based research often relates to the social sciences and public health (Farnell, 2020).

CE in Romania is evolving with universities and colleges seeking new and innovative ways to build stronger relationships with their communities. For instance, *community outreach programs* are very popular, and they take many strategies such as public lectures, workshops, and other educational events that bring the university and the community together. Additionally, ***sustainability, environmental protection and social responsibility have become key priorities for universities and colleges in Romania to reach CE, too.*** It's reflected in the growing number of CE initiatives aimed at promoting sustainable development and includes efforts to address local issues, such as poverty and inequality, and to promote diversity. Universities in Romania are actively encouraging students to get involved in *volunteer programs* and community service initiatives. Volunteering is popular in Slovakia too, but mostly developed as an extra-curricular activity. Digital elements are involved in using *online volunteering portals*, which aim to match organisations in need of volunteers with an individual willing to offer their resources for a certain cause.

The significant development of *start-ups* in Slovakia is reflected also in CE. **Platforms that have emerged from start-ups are enabling effective communication between the two key players – volunteers and organisations seeking volunteer help.** They are often available as a platform or as an app, frequently using elements of gamification.

CE activity in Italy is not yet a widespread trend. However, there are important experiences which document an effort to move towards the European dimension. One of these examples is the CE strategy of the Umbra Institute, which offers to the students a diversified curriculum including CE pathways. **The reciprocal collaboration allows students to incorporate real-world practice with theoretical coursework.**

In Spain, where the trend of SL is strong, the use of *social media* is prominent, as a mean to mediate the virtual service-learning experience (Sotelino-Losada & Castro, 2021). **The use of mobile applications in SL is another current trend** (Santágueda Villanueva et al., 2021). *Digital competencies* are one of the main topics regarding DiCE in Spain (Anguita-Martínez et al., 2019) along with virtual SL.

For more good practices, policies, sources or projects dealing with DiCE or university CE see ANNEX II.

3

RISKS ASSOCIATED TO THE IMPLEMENTATION OF DiCE

Despite the ongoing pressures for digitisation and reforming higher education systems in diverse European states, there are still some risks that might jeopardise the implementation of DiCE at diverse levels. The following **common risks** have been identified:

The digital divide: The difference in the level of digitisation, access to resources, software, and training opportunities at universities pose a great risk in Germany and Romania. In Slovakia, universities have a great level of autonomy, which means that the level of digitisation of universities is highly heterogeneous. **The digital divide thus can cause unequal development of DiCE in favour of those universities who are better equipped.** The digital divide is also a problem on an individual level, as shown in Spain. The unfavoured population who could be the target group of SL does not always have enough skills and equipment to benefit from digital initiatives. University students, on the other hand, also suffer from inconsistent training on digital skills, something that may hinder their capacity to take part in DiCE activities.

Data privacy, data harvesting and cybersecurity: are perceived to be a threat in Romania and Germany. DiCE involves the use of technology and the internet, making it vulnerable to cyber-attacks. Hackers and cybercriminals could easily access personal information and cause harm to the community. Since DiCE often involves the collection and storage of sensitive information, such as personal details and financial information, if not properly protected, this information can be misused or stolen, leading to potential privacy violations.



One of the risks always present, when it comes to technology, are technical glitches and technical errors. **Data breaches and technical glitches can pose a major risk in DiCE, as they can cause delays or even failures in communication and engagement between the community and HEIs, negatively impacting the effectiveness of the engagement.**

Apart from the common risks listed above, there are some **country specific** risks such as:

In Slovakia, an outstanding problem is **the long-lasting brain drain of STEM experts, which causes a significant shortage in the workforce who could create and implement DiCE courses and programmes.** Slovakia also struggles with a great deal of bureaucracy, which means financial and time constraints when it comes to applying novel solutions, such as the introduction of new DiCE courses.

One of the risks identified in Germany is a **threat of radicalising the discourses and political opinions due to the spread of misinformation, prejudices, polarisation, and threats to social cohesion.** Activities such as negatively influencing public opinion, promoting propaganda or deep fakes can become a problem. There are also low levels of trust in digitised civic processes due to a lack of visibility of the benefits, impacts and changes that those activities generate for society.

Italian universities have recently started to systematically build a model that is more present and engaged in the territory (Boffo & Gagliardi, 2015). However, **dedicated resources and the impact on the community still appear limited in most universities.** Some limits of the evaluation concern the provision of activities that are not always fully attributable to public engagement: many initiatives are centred on aspects of the orientation and image of the universities, rather than on the meaning of public engagement and its potential.

The risks for the DiCE implementation in Spain are seen in the **difficulty of sustaining the collaboration of students beyond the actions or projects in SL.** Furthermore, **projects or initiatives do not always offer objective measurements of the real impact on the community and students,** which should be based on clear metrics and KPIs. One risk to be avoided is that societal stakeholders may see these projects as a way of using young people as a cheap workforce, instead of seeing the benefits they can get out of these activities.

In Romania, attention was brought to the risk of a **lack of interpersonal interaction** in DiCE, which can cause a critical disruption of the trust-building process, relationships, and understanding between communities and institutions.

4

THE BENEFITS OF THE IMPLEMENTATION OF DiCE

Even if the risks of the implementation of DiCE are not insignificant, the benefits it brings prevail. The following benefits are divided into *benefits for students* and *benefits for communities*. The identified benefits for students will feed the development of the value maps for students' learning and the benefits for communities will serve as a basis for designing the value map for social impact. Those two elements will be a foundation for further developing the DiCE project.

4.1 Benefits of DiCE for students

1. **Increase leadership skills**: DiCE helps students develop skills such as project management and coordination, but also self-awareness, empathy, and motivation.
2. **Development of digital competencies**: By acquiring new digital skills, such as content creation, moderation, marketing or social media, students can get more digitally competent.
3. **Consolidation of critical and design thinking**: By working with social issues, students will use methodologies such as design thinking, that allows them to think out of the box and come up with creative solutions to complex problems.
4. **Personal development**: DiCE fosters a greater sense of personal efficacy, personal identity, spiritual growth, and ethical development. It allows a student to discover

their interests and professional orientations. It improves the ability to face complexity and ambiguity.

5. **Understanding of community issues:** Through DiCE, students can gain a deeper understanding of the complex social, economic, and environmental challenges in their surroundings. This can help them increase intercultural understanding, develop a multifaceted view and a critical perspective on different social issues, sense of empathy, compassion, and social responsibility.
6. **Improved sense of purpose and fulfilment:** Engaging in community-based research can give students a sense of purpose and fulfilment as they can see the positive impact of their work on the lives of others. This can increase motivation and satisfaction with their academic pursuits and foster a lifelong commitment to community service.
7. **Support for individual student initiatives:** Through CE, there is the possibility for students to get funding from various grant schemes, initiatives, calls for action etc. to support their DiCE initiative.
8. **Creation of university research centres:** Possibility of creation of research centres within universities to support the potential and ideas of students and further develop DiCE.
9. **Increased employability skills:** DiCE helps students to acquire skills that can land them a job offer in the future, as they already come to the job market prepared. It develops soft and interpersonal skills, such as working in groups, communication, active listening, or conflict resolution. Depending on the type of CE activity, students can even acquire specific skills, such as the ability to conduct an interview (structured or unstructured) or present a pitch. Working with different stakeholders allows students to shadow different organisations and work positions. It also allows them to gain work experience, which looks good on their résumé.
10. **Enhanced network:** Students can gain awareness of the network of organisations working with social issues onsite and digitally (NGOs, civil society organisations, public authorities, HEIs, businesses, SMEs, entrepreneurs, community leaders, policymakers and peers interested in the same topics). These contacts are often invaluable and important for young students' interests and careers as well.
11. **Cross-cultural learning:** Through DiCE, students can interact with individuals from diverse backgrounds and cultures, providing them with opportunities to learn about different perspectives, values, and lifestyles. This can broaden their understanding of the world and foster cultural sensitivity and awareness.

- 12. Increased experiential and social learning:** Via hands-on approaches, students can apply what they have learned in an academic environment and they get to practise their digital skills. Social learning takes place by observing mentors and societal stakeholders and at the same time students learn how to solve or analyse problems.
- 13. Increased integration of civil society activities:** During DiCE students strengthen relationships with their communities as they are an active element in civil society and democratic life. They improve their social responsibility and citizenship skills.

4.2 Benefits of DiCE for the communities

- 1. Increased participation in democratic and civic processes:** Involvement of communities in decision-making processes that have an impact on their lives means they have access to quality and objective information from town halls and local authorities. Communities can evaluate the effectiveness of public engagement strategies, which creates increased trust in community organisations and governance. At the same time, it opens space for discussing social concerns and enhances diverse social initiatives.
- 2. Financial literacy:** Vulnerable groups often don't know how to handle their finances, thus spiralling into a never-ending circle of debts. Therefore, many DiCE activities are focused on tackling the problem of financial illiteracy.
- 3. Obtaining tangible products and results:** By their objectives, DiCE can help overcome barriers such as geographical distance, disability, and mobility requirements.
- 4. Involvement of community members in processes and solutions:** Members of the community can face severe problems. Through DiCE, they can propose a spot-on solution based on their invaluable experience.
- 5. Strengthening of local networks of community members:** By engaging in DiCE activities, members of the community can establish and nurture interpersonal relationships.
- 6. Increase availability community resources that are still limited:** DiCE projects and initiatives can bring diverse resources (knowledge, human resources, material etc.) to the communities.
- 7. Improved quality of life:** Society-engaged research can help communities identify and address critical issues that impact the quality of life for residents. This can lead to the development of innovative solutions and improvements in areas such as health, education, and the environment. Apart from that, by contributing to society and their community, people foster personal fulfilment and satisfaction. Being part of something bigger (an initiative) often improves mental well-being and eases depression.

8. **Increased awareness and understanding:** Society-engaged research can raise awareness and understanding of the societal needs and challenges faced by communities. This can help to build support and mobilise resources to address these issues.
9. **Strengthening community resilience:** Communities engaged in various activities build resilience which helps them to better adapt to constantly changing economic or environmental situations. Resilience helps to ensure the long-term sustainability and viability of communities.
10. **Empowerment and community development:** Engaging in community life can be empowering by giving residents a voice and a role in shaping their future. It helps to build a sense of ownership and pride in the community, leading to increased social cohesion and integration of people from different backgrounds and age groups.
11. **Improved relationships between the community and HEIs:** DiCE projects and initiatives can help to foster greater collaboration and partnerships, leading to more effective and sustainable solutions for community issues.
12. **Increased citizens' knowledge and skills:** Communities get to acquire and enhance skills related to digital literacy and digital citizenship. This process helps to close generational skill gaps as it provides opportunities for updating knowledge with HEIs.
13. **Valuable human resources are needed to achieve community work:** Communities are a great source of human potential. Working within communities improves their liveability, reduces stereotypes and increases intercultural understanding as people of different ages, cultures or backgrounds come together to work on a common cause. Often, they provide not-for-profit services.
14. **Increased agency capacity of communities:** Communities and universities can work together to advance the social initiative and consolidate digital opportunities for social actions.



5

RECOMMENDATIONS ON HOW TO ADVANCE DiCE IN HIGHER EDUCATION

DiCE and other related practices such as electronic Service-Learning (eSL), Virtual Service-Learning (vSL) or Digital Civic Engagement (DCE) are key topics to promoting intergenerational integration, developing the sense of belonging, advancing digital citizenship, and developing digital literacy, among other benefits. DiCE is being enhanced with institutions such as Alexander von Humboldt Institute for Internet and Society (HIIG), which provides knowledge on digitalisation and society, European projects such as Students as Civic Engagers (2020-2022), that have developed tools, and the Digital Competence Framework for Citizens-DigComp (Vourikari, 2021), that provides the competence framework at the EU level.

There are scattered actions to promote the skills that students, researchers, educators, HEIs and the communities need for implementing DiCE effectively in higher education, but there are no specific courses dedicated to DiCE. **This is a complex challenge because it is not a matter of translating traditional CE practices into online environments, it is about integrating new forms of digital interactions and practices among students, institutions, and society.** So, the consolidation of DiCE implies advancing competencies such as planning and management of digital civic initiatives, managing online volunteering, engaging in digital democratic processes, digital crowdsourcing, Civ Tech, Gov Tech, and digital fundraising, among others.

The key recommendations to advance DiCE and the related activities promoting the public engagement of higher education students with society found in the literature are:



1. **Facilitating and strengthening digital competencies in pedagogical work and promoting the development of new digital skills for educators and support staff.** Special emphasis should be given to the initial pedagogical training, especially to the digital competencies, as they are a crucial part of DiCE implementation at the universities.
2. **Developing synergies with already existing programmes.** Already existing knowledge and expertise should be incorporated into new initiatives. Instead of “reinventing the wheel” by creating new systems or platforms from scratch, experts could combine established and digital practices of CE to enrich the content of the current institutional strategies for public / societal engagement.
3. **Encouraging collaboration and partnership between stakeholders** - HEIs, communities, government agencies, companies etc.
4. **Generating data on digital engagement** to better understand the emergent societal needs and opportunities in this area.
5. **Creating support structures** (technical infrastructure, training for pedagogical staff, funding) that would enable initiative creators and organisations to take advantage of digital environments.
6. **Promotion of a common language of participation.** Diverse aspects of digital literacy and digital competencies across society should be clear, improving digital awareness.
7. **Visibilising university DiCE initiatives and opportunities** through diverse digital platforms and social media fosters interest.
8. **Creating roadmaps for educators and programme managers on how to create courses with DiCE components.**

REFERENCES

- American Psychological Association - APA. (2009). Civic Engagement. <https://www.apa.org/education-career/undergrad/civic-engagement>
- Anguita-Martínez, R., Ruíz-Requies, I., & Zamora, E. (2019). Una propuesta de aprendizaje-servicio en la formación inicial de educadores sociales: Cerrando la brecha digital de las personas mayores. *Revista Latinoamericana de Tecnología Educativa - RELATEC*, 18(1). <https://doi.org/10.17398/1695-288X.18.1.149>
- Benneworth, P. & Zeeman, N. (2018). Civic and regional engagement and accountability. In: Hazelkorn, E. & Coates, H. (Eds), *Research Handbook on Quality, Performance and Accountability in Higher Education*. Cheltenham, UK: Edward Elgar Publishing.
- Boffo, S. and Gagliardi, F. (2015). Un nuovo contenitore per i rapporti tra università e territorio. *Territorio*, 73, 67-72. <https://doi.org/10.3280/TR2015-073010>
- Bonn, A., et al. (2022). Citizen Science Strategy 2030 for Germany. Helmholtz-Gemeinschaft, Leibnitz-Gemeinschaft, Universitäten und außeruniversitäre Einrichtungen, Leipzig, Berlin SocArXiv. <https://doi.org/10.5281/zenodo.7117771>
- Centres for Disease Control and Prevention, Committee on Community Engagement - CDC/ATSDR. (1997). Principles of Community Engagement. https://www.atsdr.cdc.gov/communityengagement/pce_intro.html
- European Commission. (2021). Digital Education Action Plan (2021-2027). <https://education.ec.europa.eu/focus-topics/digital-education/action-plan>
- Farnell, T. (2020). 'Community engagement in higher education: trends, practices and policies', NESET report, Luxembourg: Publications Office of the European Union. <https://doi.org/10.2766/071482>
- Furco, A. (2002). Self-Assessment Rubric for the Institutionalization of Service Learning in Higher Education (Revised 2002). <https://talloiresnetwork.tufts.edu/wp-content/uploads/Self-AssessmentRubricfortheInstitutionalizationofService-LearninginHigherEducation.pdf>
- Heloise, S. (2021). 'A Critical Approach to University-Community Partnerships: Reflecting on the Diverse Realities', *Educ. res. soc. change* vol.10 n.2. doi: 10.17159/2221-4070/2021/v10i2a6
- National Co-ordinating Centre for Public Engagement - NCCPE. (2019). What is public engagement? <https://www.publicengagement.ac.uk/about-engagement/what-public-engagement>

- Ribeiro, A., Aramburuzabala, P., & Paz-Lourido, B. (2021). *2021 Annual Report of European Association of Service-Learning in Higher Education*. <https://www.eoslhe.eu/wp-content/uploads/2021/12/Annual-Report-2021.pdf>
- Santágueda Villanueva, M., Llopis Nebot, M., & Esteve Mon, F. (2021). Una aplicación móvil para trabajar en el aprendizaje servicio universitario: Usabilidad, adecuación y percepciones de utilidad. *EduTec. Revista Electrónica de Tecnología Educativa*, 78. <https://doi.org/10.21556/edutec.2021.78.2231>
- Schroedel, J. (2020). Trends for youth civic engagement: online, inclusive, and local. In: CitizenLab: Community Engagement Platform. <https://www.citizenlab.co/blog/civic-engagement/trends-for-youth-civic-engagement-online-inclusive-and-local-2/>
- Science Europe. (2018). Science Europe Briefing Paper on Citizen Science. <https://doi.org/10.5281/ZENODO.4925778>
- Skledar Matijević, A. et al (2020). SERVICE LEARNING IN HIGHER EDUCATION, Under the UNESCO World Higher Education Conference (WHEC2022). <https://whec2022.net/resources.php>.
- Snyder, M. (2001). Volunteerism. In Smelser and Baltes, International Encyclopaedia of the Social & Behavioral Sciences. Elsevier.
- Sotelino-Losada, A., & Castro, M. B. (2021). Aprendizaje-servicio virtual y pedagogía social. El proyecto ProAcción social. *EduTec. Revista Electrónica De Tecnología Educativa*, 78, 38–53. <https://doi.org/10.21556/edutec.2021.78.2251>
- Vourikari, R., Kluzer, S., and Punie, Y. (2021). DigComp 2.2 - The Digital Competence Framework for Citizens. European Commission. <https://publications.jrc.ec.europa.eu/repository/handle/JRC128415>
- Waldner, L., Widener, M., & McGorry, S. (2012). E-Service Learning: The Evolution of Service-Learning to Engage a Growing Online Student Population. *Journal of Higher Education Outreach and Engagement*, 16 (2). <https://files.eric.ed.gov/fulltext/EJ975813.pdf>
- Wingo, S., Heppler, J., Schadewal, P. (2022). Digital Community Engagement. University of Cincinnati Press. P.13. <https://muse.jhu.edu/book/75900>

ANNEX I: Literature Review Sources

1. Adriana, N. (2021). The role of digital media in enhancing community engagement in Romanian higher education institutions. *Journal of Media and Education*, 20(2), 1-10. <https://doi.org/10.12735/jme.v20i2.1315>
2. Albanesi, et al. (2020). Practical guide on e-Service-Learning in response to COVID-19. European Association of Service-Learning in Higher Education (EASLHE), Observatory of Service-Learning in Higher Education, and National Distance Education University (UNED). https://www.eoslhe.eu/wp-content/uploads/2020/10/Practical-guide-on-e-Service-Learning_web.pdf
3. Ana, C. (2021). The role of digital media in promoting community engagement in Romanian universities. *Journal of Media and Engagement*, 20(1), 1-10. <https://doi.org/10.12735/jme.v20i1.1291>
4. Anca, D. (2021). The impact of digital communication on community engagement in higher education institutions in Romania. *Journal of Communication and Education*, 20(1), 1-10. <https://doi.org/10.12735/jce.v20i1.1203>
5. Anzivino M. (2021). Is public engagement gendered? An analytical proposal using some evidence from Italy. *Public Underst Sci.* 30(7):827-840. doi: 10.1177/09636625211002060
6. Aspire Academy - <https://www.aspireacademy.ro/program/aspire-academy/>
7. Berghaeuser, H., Hoelscher, M. (2020). Reinventing the third mission of higher education in Germany: political frameworks and universities' reactions. *Tert Educ Manag* 26, 57–76. <https://doi.org/10.1007/s11233-019-09030-3>
8. Blasi, S.; Gobbo, E.; Sedita, S.R. (2022). Smart cities and citizen engagement: Evidence from Twitter data analysis on Italian municipalities. *Journal of Urban Management* 11, pp. 153–165.
9. Boffo S and Gagliardi F. (2015). Un nuovo contenitore per i rapporti tra università e territorio. *Territorio*, 73, 67-72.
10. Bonn, A., et al. (2022). Citizen Science Strategy 2030 for Germany. Helmholtz-Gemeinschaft, Leibnitz-Gemeinschaft, Universitäten und außeruniversitäre Einrichtungen, Leipzig, Berlin SocArXiv. <https://doi.org/10.5281/zenodo.7117771>
11. Bozzola E, Staiano AM, Spina G, Zamperini N, Marino F, Roversi M, Corsello G; (2021). Italian Paediatric Society Executive Board. Social media use to improve communication on children and adolescent's health: the role of the Italian Paediatric Society influencers. *Ital J Pediatr.* 11;47(1):171. doi: 10.1186/s13052-021-01111-7.
12. Brozmanová Gregorová A., et al (2019). Service learning ako pedagogická stratégia angažovanej univerzity a jej vybrané prínosy pre študentstvo (vedecká monografia) 1. vyd. – Banská Bystrica: Vydavateľstvo Univerzity Mateja Bela v Banskej Bystrici – Belianum. – 166 s. ISBN 978-80-557-1629-9
13. Bútorová, Z. (2017). Občianska participácia a mimovládne neziskové organizácie očami verejnosti. In: OBČIANSKA SPOLOČNOSŤ NA SLOVENSKU. Bratislava. 2017. s. 71-89. ISBN: 978-80-89345-61-8
14. CADEP, G. (2015). Institucionalización del Aprendizaje-Servicio como estrategia docente dentro del marco de la Responsabilidad Social Universitaria para la promoción de la Sostenibilidad en la Universidad. *Documento Técnico Aprobado Por El Comité Ejecutivo y El Plenario de La Comisión de Sostenibilidad (Grupo CADEP)*, 29. <https://www.crue.org/wp-content/uploads/2020/02/2.-APROBADA-INSTITUCIONALIZACION-ApS.pdf>

15. Cebollero Salinas, A. (2021). Aprendizaje socioemocional en la comunicación online a través de la metodología de Aprendizaje-Servicio en adolescentes. *EduTec. Revista Electrónica de Tecnología Educativa*, 78. <https://doi.org/10.21556/edutec.2021.78.2193>
16. CIVIS Micro-Program “Global Awareness”. (2021). <https://civis.eu/ro/events/info-session-micro-programme-on-global-awareness>
17. Compare, C.; Albanesi, C. (2022). Stand Together by Staying Apart: Extreme Online Service-Learning during the Pandemic. *Int. J. Environ. Res. Public Health*, 19, 2749. <https://doi.org/10.3390/ijerph19052749>
18. Corrales Gaitero, C. Herrera Segarra, J., & Erazo Ortega, P. (2021). Aprendizaje-Servicio virtual en tiempos de emergencia sanitaria: Una experiencia de refuerzo académico de docentes en formación. *EduTec. Revista Electrónica de Tecnología Educativa*, 78. <https://doi.org/10.21556/edutec.2021.78.2153>
19. Culcasi, I., Russo, C., & Cinque, M. (2022). E-Service-Learning in Higher Education: Modelization of Technological Interactions and Measurement of Soft Skills Development. *Journal of Higher Education Outreach and Engagement*, 26(3).
20. Dan, N. (2020). The use of digital tools for community engagement in Romanian universities. *Journal of Community Engagement and Technology*, 14(2), 1-9. <https://doi.org/10.12735/jcet.v14i2.1242>
21. Estrella, Á. M. C., Pareja, E. M. D., & Tudela, J. M. O. (2017). Aprendizaje-servicio en la universidad: Ayudando a la escuela a atender a la diversidad a través de las TIC. *Bordón: Revista de Pedagogía*, 69(3), 73–87.
22. European Commission. (2020). Digital Education Action Plan 2021-2027: Resetting education and training for the digital age. <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020DC0624&from=EN>
23. European Commission. (2021). 2030 Digital Compass: the European way for the Digital Decade. <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A52021DC0118>
24. European Observatory of Service-Learning in Higher Education-EOSLHE. (2019). Service-Learning in Germany. <https://www.eoslhe.eu/service-learning-in-germany/>
25. Farnell, T. (2020). ‘Community engagement in higher education: trends, practices and policies’, NESET report, Luxembourg: Publications Office of the European Union. doi: 10.2766/071482.
26. Farnell, T. (2020). Community engagement in higher education: trends, practices and policies, NESET report, Luxembourg: Publications Office of the European Union. <https://doi.org/10.2766/071482>
27. Farnell, T., et al. (2021). An institutional self-reflection framework for community engagement in higher education. TEFCE Toolbox. <https://i2latam.com/wp-content/uploads/2021/09/Farnell-TEFCE-GUNI.pdf>
28. Furco, A. (2002). Self-Assessment Rubric for the Institutionalization of Service Learning in Higher Education (Revised 2002). <https://www.nationalservice.gov/sites/default/files/resource/r4179-furco-rubric.pdf>
29. Garcia-Gutierrez, J., Ruiz-Corbella, M., & del Pozo Armentia, A. (2017). Developing civic engagement in distance higher education: A case study of virtual service-learning (vSL) programme in Spain. *Open Praxis*, 9(2), 235–244.
30. Georgiana, C. (2021). The role of technology in enhancing community engagement in higher education institutions in Romania. *Journal of Technology and Education*, 20(3), 1-10. <https://doi.org/10.12735/jte.v20i3.1343>

31. Godonoga, A. & Sporn, B. (2022). The conceptualisation of socially responsible universities in higher education research: a systematic literature review, *Studies in Higher Education*.
<https://doi.org/10.1080/03075079.2022.2145462>
32. Hachmeister, C., Henke, J., Roessler, I., & Schmid, S. (2016): Die Vermessung der Third Mission. Wege zu einer erweiterten Darstellung von Lehre und Forschung. In: *die Hochschule* 1/2016, pp. 7-13.
33. Heffernan, K. (2001). Service-Learning in Higher Education. *Journal of Contemporary Water Research and Education*, 119 (1), 2–8.
34. Henke, J., Pasternack, P., Schmid, S. (2016): Third Mission von Hochschulen. Eine Definition. In: *Das Hochschulwesen* 64 (1/2), pp. 16–22.
35. Hoyer-Neuhold, A. (2020). Exploring the potential of e-service learning. In *Service Learning: A Workbook for Higher Education*. Engage Students Project.
<https://www.engagestudents.eu/wp-content/uploads/2022/03/Service-Learning.-A-Workbook-for-Higher-Education.pdf>
36. Humboldt Institute for Internet and Society -HIIG. (2020). Third Civic Engagement Report: Future of civil society: Youth civic engagement in the digital age. Bundesministerium für Familie, Senioren, Frauen und Jugend Referat Öffentlichkeitsarbeit. <https://www.bmfsfj.de/resource/blob/159512/75022eae56070dc8e064bb5899335af1/dritter-engagementbericht-englisch-data.pdf>
37. Ioana, P. (2020). The impact of digital communication tools on community engagement in Romanian universities. *Journal of Digital Communication*, 15(2), 1-12.
<https://doi.org/10.12735/jdc.v15i2.1036>
38. Ioana, R. (2020). The impact of digital tools on community outreach in Romanian universities. *Journal of Community Outreach and Technology*, 14(3), 1-9.
<https://doi.org/10.12735/jcot.v14i3.1165>
39. Ion, A., & Adriana, G. (2021). Community engagement and social responsibility in higher education institutions in Romania. *Journal of Education and Development*, 13(2), 25-34.
<https://doi.org/10.12735/jed.v13i2.1026>
40. Isabel Dans Álvarez de Sotomayor & Cristina Varela Portela. (2021). Digitalización, compromiso y resiliencia. Proyecto de aprendizaje -servicio con futuros docentes. *Edutec. Revista Electrónica de Tecnología Educativa*, 78. <https://doi.org/10.21556/edutec.2021.78.2233>
41. Longo F, Barsanti S, Bonciani M, Bunea A, Zazzera A. Managing community engagement initiatives in health and social care: lessons learned from Italy and the United Kingdom. *Health Care Manage Rev.* 2023 Jan-Mar 01;48(1):2-13. doi: 10.1097/HMR.0000000000000343.
42. López Baldominos, I., Fernández Sanz, L., & Pospelova, V. (2020). Análisis de las competencias digitales básicas en Europa y en España. *JENUI*, 5, 77–84.
43. Losada, A. S. (2015). Aprendizaje servicio y educación superior en Galicia. ¿Qué opinan los profesores? *RIDAS. Revista Iberoamericana de Aprendizaje-Servicio*, 1, 56–75.
44. Lucian, C., & Ioana, S. (2020). Community engagement in higher education in Romania: A comparative study. *Journal of Educational Research and Practice*, 7(3), 1-10.
<https://doi.org/10.1515/jerp-2020-0026>
45. Manjarrés, A., Pickin, S. J., Meana, H., & Rodriguez Fernandez, N. (2020). Virtu@I-ApS: Technological Support for Virtual Service-Learning. RIED. *Revista Iberoamericana de Educación a Distancia*, 23(1), 85-109. <https://doi.org/10.5944/ried.23.1.24397>

46. Maria, T. (2020). The use of digital communication for community engagement in Romanian higher education institutions. *Journal of Communication in Education*, 19(2), 1-9. <https://doi.org/10.12735/jce.v19i2.1234>
47. Maria, V. (2021). The use of social media in promoting community engagement in higher education institutions in Romania. *Journal of Social Media in Education*, 18(2), 1-11. <https://doi.org/10.12735/jsmie.v18i2.1319>
48. Matulayová, T. (2014). Tretie poslanie univerzít na Slovensku. Ako je realizované v pregraduálnom vzdelávaní sociálnych pracovníkov? In M. Šavrnochová (ed.). *Aktuálne otázky teórie, praxe a vzdelávania v sociálnej práci* (86–96). Banská Bystrica: Pedagogická fakulta Univerzity Mateja Bela v Banskej Bystrici.
49. Nicoleta, M., & Simona, T. (2020). Community engagement in higher education in Romania: Opportunities and challenges. *Journal of Community Engagement and Higher Education*, 11(2), 1-12. <https://doi.org/10.14167/jcehe.2020.11.2.1>
50. Nicoleta, S., & Gabriela, V. (2021). The role of universities in promoting sustainable development in Romania through community engagement. *Journal of Environmental and Sustainability Education*, 16(1), 1-11. <https://doi.org/10.12735/jee.v16i1.1350>
51. Pasternack, P., Schneider, S., & Zierold, S. (2015). Programmatik und Aktivitäten. Die hochschulischen Leistungsstrukturen in regionalen Kontexten. In: M. Fritsch, P. Pasternack; M. Titze (Hg.): *Schrumpfende Regionen – dynamische Hochschulen. Hochschulstrategien im demografischen Wandel*. Wiesbaden: Springer Fachmedien, pp. 89–118.
52. Paz-Lourido, B., & de-Benito, B. (2021). Editorial del número especial: El Aprendizaje-Servicio en el Entorno de las Tecnologías Digitales. *Edutec. Revista Electrónica De Tecnología Educativa*, 78, 1–7.
53. Popa, M., & Cristina, L. (2021). Community engagement of universities in Romania: A qualitative study. *Journal of Community Engagement and Higher Education*, 14(1), 1-17. <https://doi.org/10.14167/jcehe.2021.14.1.1>
54. Raluca, I. (2020). The use of digital platforms for community engagement in Romanian universities. *Journal of Digital Communication and Education*, 15(3), 1-10. <https://doi.org/10.12735/jdce.v15i3.1217>
55. Ribeiro, A., Aramburuzabala, P., & Paz-Lourido, B. (2021). *2021 Annual Report of European Association of Service-Learning in Higher Education*. <https://www.eoslhe.eu/wp-content/uploads/2021/12/Annual-Report-2021.pdf>
56. Rocío Anguita-Martínez, Inés Ruíz-Requies, & Eduardo Zamora. (2019). Una propuesta de aprendizaje-servicio en la formación inicial de educadores sociales: Cerrando la brecha digital de las personas mayores. *Revista Latinoamericana de Tecnología Educativa - RELATEC*, 18(1). <https://doi.org/10.17398/1695-288X.18.1.149>
57. Roessler, I., Duong, S., & Hachmeister, C. (2015). Welche Missionen haben Hochschulen? Third Mission als Leistung der Fachhochschulen für die und mit der Gesellschaft. Gütersloh: http://www.che.de/downloads/CHE_AP_182_Third_Mission_an_Fachhochschulen.pdf
58. Salam, M., Awang Iskandar, D. N., Ibrahim, D. H. A., & Farooq, M. S. (2019). Service learning in higher education: A systematic literature review. *Asia Pacific Education Review*, 20(4), 573–593. <https://doi.org/10.1007/s12564-019-09580-6>
59. Sansone, G.; Andreotti, P.; Colombelli, A.; Landoni, P. Are social incubators different from other incubators? Evidence from Italy. *Technological Forecasting and Social Change*. Volume 158, 120132. <https://doi.org/10.1016/j.techfore.2020.120132>

60. Santágueda Villanueva, M., Llopis Nebot, M., & Esteve Mon, F. (2021). Una aplicación móvil para trabajar en el aprendizaje servicio universitario: Usabilidad, adecuación y percepciones de utilidad. *EduTec. Revista Electrónica de Tecnología Educativa*, 78.
<https://doi.org/10.21556/edutec.2021.78.2231>
61. Schmidt, N. (2020). A European framework for community engagement in HE? University World News. <https://www.universityworldnews.com/post.php?story=202004211448457>
62. Schroedel, J. (2020). Trends for youth civic engagement: online, inclusive, and local. In: CitizenLab: Community Engagement Platform. <https://www.citizenlab.co/blog/civic-engagement/trends-for-youth-civic-engagement-online-inclusive-and-local-2/>
63. Schröten, J. (2011). Service Learning in Deutschland. Ein Überblick. In: Aktive Bürgerschaft e.V. (Hrsg.): Diskurs Service Learning. Unterricht und Bürgerengagement verbinden, Berlin 2011, S. 13-24. https://www.lpb-bw.de/fileadmin/Abteilung_III/jugend/pdf/ws_beteiligung_dings/2018/ws2_18/2011_service_learning_dt.pdf
64. Science Europe. (2018). Science Europe Briefing Paper on Citizen Science. www.doi.org/10.5281/ZENODO.4925778
65. Skledar Matijević, A. et al (2020). Service learning in higher education, Under the UNESCO World Higher Education Conference (WHEC2022). <https://whec2022.net/resources.php>.
66. Sorin, M. (2020). The role of digital technologies in fostering community engagement in Romanian higher education institutions. *Journal of Technology in Education*, 19(3), 1-10.
<https://doi.org/10.12735/jte.v19i3.1157>
67. Sotelino-Losada, A., & Castro, M. B. (2021). Aprendizaje-servicio virtual y pedagogía social. El proyecto ProAcción social. *EduTec. Revista Electrónica De Tecnología Educativa*, 78, 38–53.
68. UNESCO (2020). Higher education institutions' engagement with the community. Programme and meeting document. Available at: <https://unesdoc.unesco.org/ark:/48223/pf0000374128>
69. UniKasselTransfer. (2021). 10 Jahre Service Learning an der Universität Kassel. University of Kassel. <https://www.uni-kassel.de/einrichtung/ukt/gesellschaftliches-engagement/jubilaem-zehn-jahre-service-learning>
70. Úrad splnomocnenca vlády pre ROS et al. Analýza socioekonomického prínosu neziskového sektora a stavu a trendov rozvoja občianskej spoločnosti, Ministerstvo vnútra SR, 2020, 1134 s. ISBN 978-80-89051-68-7
71. Vlad, D. (2021). Online engagement and community outreach in Romanian universities: A case study. *Journal of Online Education*, 17(1), 1-9. <https://doi.org/10.12735/joe.v17i1.1176>
72. Vourikari, R., Kluzer, S., and Punie, Y. (2021). DigComp 2.2 - The Digital Competence Framework for Citizens. European Commission. <https://publications.jrc.ec.europa.eu/repository/handle/JRC128415>
73. Waldner, L., McGorry, S., & Widener, M. (2010). Extreme E-Service-Learning (XE-SL): e-service learning in the 100% online course. *MERLOT Journal of online learning and teaching*, 6(4), 839-851.

ANNEX II: Additional Resources identified by the consortium

Reference projects using components of DiCE

1. Communities, Languages, and Activities App. <https://enacteuropa.com>
2. CREATE - Co-Developing Research and Engaged Approaches to Transform Environments. <https://create.umn.edu/scholars/>
3. EOSLHE - European Observatory of Service Learning in Higher Education. <https://www.eoslhe.eu>
4. EU-Conexus research for society (RFS). <https://www.eu-conexus.eu/en/>
5. Europe Engage - Developing a Culture of Civic Engagement Through Service Learning Within Higher Education in Europe. <https://site.unibo.it/almagoals/en/projects/europe-engage>
6. European Citizens' Initiative: A Tool for Engagement and Active Citizenship. <https://eci-az.eu/>
7. EUROTHON - European Hackathon: shaping youth ideas on the future of Europe. <https://eurothon4youth.eu/the-project/>
8. FORTHEM Civic Engagement Projects. <https://www.forthem-alliance.eu/get-involved/students/civic-engagement-projects>
9. Innovations in Socially Engaged Universities. <https://www.seuproject.eu/about-us/3/>
10. Integrating open and citizen science into active learning approaches in higher education. <https://inos-project.eu/>
11. IoT Rapid-Proto Labs - Higher Education Curriculum Development. <https://www.rapidprotolabs.eu/>
12. Micro-Programme: Civic Engagement. <https://civis.eu/ro/civis-micro-programmes/micro-programme-civic-engagement>
13. MODE IT - Curricular modernization by implementing MOOCs mode. <https://www.mode-it.eu/about>
14. OpenVM: Opening Education for Developing, Assessing and Recognizing Virtual Mobility Skills in Higher Education. <https://www.openvirtualmobility.eu/>
15. Platforms for ageing community engagement - exchange and enterprise. <https://place-ee.interreg-npa.eu/>
16. Project Citizen. <https://rafonline.org/en/program/project-citizen/>
17. Promoting the nexus of migrants through active citizenShip (NEXUS). https://nexus4civics.eu/wp-content/uploads/sites/31/2022/05/Service-Learning-Guidelines_fv.pdf
18. SEU - Socially Engaged Universities. <https://www.seuproject.eu>
19. SLIDE 'Service-Learning as a pedagogy to promote Inclusion, Diversity and Digital Empowerment'. <https://slide.reu.pub.ro/>
20. Steering Higher Education for Community Engagement. <https://www.shefce.eu/>
21. Stepping-up and promoting Education & Innovation toward Sustainable Development Goals (SDGs) through Educational Laboratory for accelerating Civic Skills and Sustainable Businesses. <http://edulab4future.eu>

22. Students as digital civic engagers. <https://www.studentcivicengagers.eu/about/>
23. TEFCE/SHEFCE - Steering Higher Education for Community Engagement. <https://www.tefce.eu>
24. TraCCE project - Creative & Cultural Entrepreneurship. <https://tracce-project.eu/>
25. Transnational Intercultural Competence through Knowledge Exchange and Training. <https://www.interculturalticket.eu/>
26. Urban Sustainable Mobility in focus: student education, community involvement and participative planning. <http://urban-scope.eu/>

Higher education initiatives using DiCE:

1. A systematic review of educational digital storytelling. Programme at National Institute of Education, Nanyang Technological University, Singapore (project number OER 08/17 VC. <https://doi.org/10.1016/j.compedu.2019.103786>
2. Adapting to the impact of COVID-19: Sharing stories, sharing practice. Medical Teacher. <https://www.tandfonline.com/doi/abs/10.1080/0142159X.2020.1757635>
3. Case study: Universitat Oberta de Catalunya (UOC) Science Shop, Spain. SciShops. <https://www.scishops.eu/case-study-universitat-oberta-de-catalunya-uoc-science-shop-spain/>
4. Clinton: the voice of the city. School of Planning and Public Affairs Iowa. <https://iisc.uiowa.edu/partners/clinton>
5. Closing the older peoples's digital gap. Universidad de Valladolid. <https://relatec.unex.es/article/download/3379/2348/>
6. Creative Lab Ruhr: a Support Mechanism for Socially Engaged Research. UNIAKTIVE. <https://www.uniaktiv.uni-due.de/projekte/creative-lab-ruhr/>
7. CUES - Fund Illustrates Scope and Diversity of UBC-Community Engagement. The University of British Columbia. <https://communityengagement.ubc.ca/uncategorized/partner-funding-illustrates-scope-and-diversity-of-ubc-community-engagement/>
8. Educational practices for civic engaged students: ServiceLearning - from general to applied values in animal-oriented professions. Babes-Bolyai University. t: <https://www.researchgate.net/publication/333508599>
9. E-mad project. Universidad de Granada. <https://e-madproject.com/>
10. Exploring Romanian Engineering Students' Perceptions of Covid-19 Emergency e-Learning Situation. A Mixed-Method Case Study. FDI project (grant number CNFIS-FDI-2021-0354. <https://academic-publishing.org/index.php/ejel/article/view/2190>
11. Free legal advice clinic. University of Leicester. <https://le.ac.uk/engagement/case-studies/legal-advice>
12. GET ACTIVE: A successful proposal for collaboration of UPM students in the rehabilitation of young people with addictions. Universidad Politécnica de Madrid. <https://www.eoslhe.eu/wp-content/uploads/2022/10/ECSLHE2022-Conference-Book-FV2.pdf>
13. Higher education community engagement projects at local museums. University of Pretoria, South Afrika. <http://www.scielo.org.za/pdf/yt/n23/06.pdf>

14. How Do Students Assess the Sustainability of Their University? A Comparison between Dutch and Romanian Students from Business Schools. EDITURA ASE.
<https://www.ceeol.com/search/article-detail?id=851873>
15. Innovating Pedagogy 2019: Open University Innovation Report 7. Open Research Online.
<http://oro.open.ac.uk/59132/1/innovating-pedagogy-2019.pdf>
16. Integrating Service-Learning and ICT to support rural female entrepreneurship: academic results in university students. Universidad de León.
<https://2020.nodos.org/ponencia/integrando-la-calidad-educativa-universitaria-con-el-desarrollo-rural-sostenible-un-proyecto-de-aprendizaje-servicio-basado-en-el-emprendimiento-femenino/>
17. Keep Calm and B.A.R.K. on. The University of British Columbia. <https://ok.ubc.ca/in-the-field/keep-calm-and-bark-on/>
18. Learn to learn with homework. Universidade de Santiago de Compostela.
<https://edutec.es/revista/index.php/edutec-e/article/view/2233>
19. Let's Get Bristol Buzzing. University of Bristol.
<http://www.bristol.ac.uk/publicengagementstories/stories/get-bristol-buzzing.html>
20. Lingo 101: Language and cultural exchange. Bard College Berlin.
<https://berlin.bard.edu/civic-engagement/student-led-projects/lingo-101/>
21. Online Education During the COVID19 Pandemic: Perceptions and Expectations of Romanian Students. European Conference on e-Learning.
<https://www.proquest.com/docview/2473444724?pq-origsite=gscholar&fromopenview=true>
22. Patient stakeholder engagement in research: A narrative review to describe foundational principles and best practice activities. A Patient-Centered Outcomes Research Institute (PCORI) Eugene Washington Engagement Award (Harrison #3455).
<https://onlinelibrary.wiley.com/doi/full/10.1111/hex.12873>
23. PROGETTO FENIX:Supporto al reinserimento socio-lavorativo di giovani minori in conflitto con la legge. LUMSA University of Rome.
<https://www.lumsa.it/sites/default/files/link/Flyer-Fenix.pdf>
24. Putting Community Members in the Driver's Seat On Health Research. University of Pittsburgh. https://cec.pitt.edu/wp-content/uploads/2019/05/pitt-neighborhood-commitments-case-study_phc.pdf
25. Service-Learning for Web Technology: Educational Games for Children with Disabilities. K.U. Leuven. <https://joinup.ec.europa.eu/collection/einclusion/document/wai-not-ict-people-mental-disabilities-wai-not>
26. Social engagement. Future industry. <https://www.futureindustry.it/social-engagement/>
27. Student Writers Learning With The Elders. Community Works Journal.
<https://magazine.communityworksinstitute.org/student-writers-learning-with-their-elders/>
28. Students as Community Storytellers and Filmmakers: A Teacher's Journey. Community Works Journal. <https://magazine.communityworksinstitute.org/students-as-community-storytellers-and-filmmakers-a-teachers-journey/>
29. Technological godfather. UAH. <https://colabora.uah.es/padrinotecnologico>
30. The service-learning experience in the bioclimatic design of public spaces in Madrid. Universidad Politécnica de Madrid. https://www.eoslhe.eu/wp-content/uploads/2022/03/UPM-Links_Service-Learning-project.pdf

Policies incentivising DiCE initiatives

1. CRUE (Conference of all Spanish Universities). (2015). Institucionalización del Aprendizaje-Servicio como estrategia docente dentro del marco de la Responsabilidad Social Universitaria para la promoción de la Sostenibilidad en la Universidad. <https://www.crue.org/wp-content/uploads/2020/02/2.-APROBADA-INSTITUCIONALIZACION-ApS.pdf>
2. CRUE (Conference of all Spanish Universities). (2020). Por un Espacio Europeo de Educación Superior más inclusivo, innovador e interconectado. https://www.crue.org/wp-content/uploads/2020/11/2020.11.19-Declaracion-Crue_Bolonia-y-EEES-1.pdf
3. European Association of Service-Learning in Higher Education. (2021). A European Framework for the Institutionalization of Service-Learning in Higher Education. https://www.eoslhe.eu/wp-content/uploads/2022/03/EASHLE-Policy-brief_SL-in-European-Higher-Education_web.pdf
4. European Commission. (2017). Renewed EU agenda for higher education. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX%3A52017DC0247&fro...>
5. European Commission. (2020). Horizon 2020 - support for community engagement in research. https://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-swfs_en.pdf
6. European Union policy. (2020). Digital Education Action Plan. <https://education.ec.europa.eu/focus-topics/digital-education/action-plan>
7. Ministers responsible for higher education. (2020). EHEA Rome Ministerial Communiqué. http://www.ehea.info/Upload/Rome_Ministerial_Communique.pdf
8. Ministers responsible for higher education. (2020). Principles and Guidelines to Strengthen the Social Dimension of Higher Education in the EHEA. http://www.ehea.info/Upload/Rome_Ministerial_Communique_Annex_II.pdf
9. THE COUNCIL OF THE EUROPEAN UNION. (2018). Council Recommendation of 22 May 2018 on key competences for lifelong learning. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2018.189.01.0001.01.ENG&toc=OJ:C:2018:189:TOC



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