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INCLUSIVE DIGITAL ENVIRONMENTS TO ENABLE HIGH-QUALITY EDUCATION FOR DISADVANTAGED AND DISABLED LEARNERS

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Social inclusion and common values: the contribution in the field of education and training

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ATS ADVANCED TECHNOLOGY SYSTEMS

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Statement of originality

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EXECUTIVE SUMMARY

The sustainability plan for Project INCLUDEME is rooted in the recognition of the imperative to foster lasting change in inclusive education, particularly for learners with disabilities. Central to this plan is the integration of digital innovation into educational practices. By creating customizable, user-centred learning environments infused with digital technologies and gaming approaches, INCLUDEME aims to not only enhance accessibility but also to engage and motivate disadvantaged and disabled learners. This integration ensures that education is not only accessible but also tailored to meet the diverse needs of learners, thus laying the foundation for sustained impact.

An essential aspect of INCLUDEME's sustainability plan is its advocacy for an informed society. The project recognizes that lasting change in inclusive education requires a societal shift in attitudes and values. To this end, INCLUDEME seeks to leverage access to information and knowledge to promote common inclusion values. By raising awareness and fostering understanding of the importance of inclusive education, the project aims to create an environment conducive to sustainable change, wherein inclusive practices are embraced and upheld by all stakeholders.

Furthermore, the sustainability plan addresses the challenge of making mainstream content and applications accessible to individuals with disabilities. INCLUDEME tackles this issue by providing alternative methods of access, thereby breaking down barriers that hinder the participation of learners with disabilities or disadvantaged. By ensuring the accessibility of mainstream content, the project maximizes the pool of available information for all individuals, thus promoting equality and inclusion in education.

A critical component of the sustainability plan is INCLUDEME's dissemination strategy. The project recognizes the importance of reaching broad audiences to effectively communicate its objectives, activities, and results. By analysing the interests of direct and indirect stakeholders, INCLUDEME deploys diverse media to convey its message. Through targeted outreach efforts, the project seeks to raise awareness, garner support, and sustain momentum for its inclusive education initiatives.

Ultimately, the sustainability plan for INCLUDEME is designed to yield long-term impact. By embedding inclusive practices within educational, economic, social, and cultural contexts, the project aims to create lasting change that extends beyond its lifespan. Through strategic partnerships, advocacy efforts, and ongoing monitoring and evaluation, INCLUDEME endeavours to build a sustainable framework for inclusive education that benefits individuals of all abilities for years to come.

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1. INCLUDEME SUSTAINABILITY GOALS AND TARGET SECTOR NEEDS ANALYSIS

1.1 INCLUDEME SUSTAINABILITY GOALS

The INCLUDEME project aims to achieve several sustainability goals to ensure the long-term impact and effectiveness of its initiatives. These sustainability goals include:

1. **Capacity building**. To empower educators and stakeholders with the knowledge, skills, and resources necessary to continue implementing inclusive education practices beyond the project's duration.
2. **Institutional integration**. To embed inclusive education principles and digital learning interventions within educational institutions, ensuring their integration into institutional policies, practices, and curricula.
3. **Community engagement**. To foster collaboration and engagement among diverse stakeholders, including educators, policymakers, parents, and advocacy groups, to promote awareness and support for inclusive education initiatives.
4. **Knowledge sharing**. To facilitate the dissemination of project outcomes, best practices, and resources through various channels, such as workshops, training sessions, online platforms, and publications, to ensure widespread access and adoption.
5. **Policy advocacy**. To advocate for the incorporation of inclusive education policies and practices at regional, national, and international levels, promoting systemic change and support for marginalized learners.
6. **Monitoring and evaluation**. To establish mechanisms for monitoring and evaluating the effectiveness and impact of inclusive education interventions, enabling continuous improvement and refinement of practices.

By prioritizing these sustainability goals, the INCLUDEME project aims to create lasting change in the education landscape, advancing the inclusion and support of disabled and disadvantaged learners across Europe and beyond.

1.2 INCLUDEME PROJECT OUTCOMES

The main outcomes of the INCLUDEME project include:

- **Digital learning platform**. A customizable and user-centered digital learning environment tailored to the needs of disabled and disadvantaged learners.
- **Training materials and resources**. A comprehensive range of training materials and resources designed for educators and stakeholders interested in implementing inclusive education practices.
- **Guidelines and best practices**. Insights and recommendations for fostering inclusive education environments, providing guidance on effective strategies and approaches.
- **Assistive technologies**. Various assistive technologies developed to support people with disabilities in accessing educational content and participating fully in learning activities.

These outcomes collectively aim to promote inclusive education practices across educational, economic, social, and cultural contexts, ensuring that all learners have equal opportunities to access quality education and thrive in learning environments.

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1.3 TARGET SECTOR NEEDS ANALYSIS

The target sector needs analysis for project INCLUDEME encompasses a detailed examination of the interests, challenges, and requirements of various stakeholder groups involved in inclusive education. These groups can be broadly categorized into direct and indirect target groups, each with specific needs and priorities.

1.3.1 Direct target groups

The following target groups are actively engaged and directly benefit from the INCLUDEME digital learning intervention:

Students

Students with disabilities and those from disadvantaged backgrounds can benefit from the digital learning platform, which offers personalized and accessible learning experiences. They can use assistive technologies to overcome barriers to learning and actively engage with educational content.

Educators

Educators can utilize the digital learning platform and training materials to enhance their capacity in implementing inclusive education practices. They can access guidelines and best practices to tailor their teaching approaches and create inclusive learning environments that cater to the diverse needs of disabled and disadvantaged learners.

Educational Organizations

Educational institutions can integrate the guidelines and best practices into their policies and curricula to promote inclusive education across all levels. They can also utilize the training materials to provide professional development opportunities for their staff and educators.

1.3.2 Indirect target groups

The following target groups indirectly benefit from the INCLUDEME digital learning solution:

Primary, secondary, and higher education organizations

These organizations require resources and support to modernize their practices and embrace inclusive education. INCLUDEME offers access to information and resources on inclusive education practices, as well as support for curriculum changes and cross-institutional collaborations. By integrating ICT-supported learning services, primary, secondary, and higher education organizations can adapt to the evolving educational landscape and better meet the needs of all students.

Families

Families of disadvantaged and disabled learners benefit from increased awareness and engagement in the educational process. INCLUDEME provides digital monitoring and evaluation tools to support these families, along with awareness campaigns and financial resources to promote active involvement in their children's education.

Policy makers

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Policy makers are interested in understanding the benefits of inclusive education and adapting policies to address the needs of vulnerable student populations. INCLUDEME provides analysis, research results, and evaluation reports to inform policy decisions and initiatives. By highlighting the benefits of student-centred and personalized approaches to inclusive education, the project aims to influence policy changes that promote equality and inclusion in education.

In summary, the target sector needs analysis identifies the specific requirements and interests of diverse stakeholder groups involved in inclusive education. By addressing these needs through targeted interventions and collaborations, Project INCLUDEME aims to create a more inclusive educational landscape that benefits all students, regardless of their background or abilities.

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2. THE INCLUDEME SOLUTION

INCLUDEME takes a holistic approach for addressing educational needs of diverse groups of disabled or disadvantaged individuals. The INCLUDEME solution addresses the following:

Digital infrastructures for supporting the learning of disabled and disadvantaged learners

INCLUDEME developed a digital learning platform that supports the learning process for individuals at risk of exclusion. The platform targets both students and educators.

For students, the platform offers:

- Access to highly interactive educational activities and a library of rich educational content.
- Playful and engaging presentations of educational material that addresses both formal knowledge, such as mathematics and language, and soft skills, such as analytical and critical thinking.
- Educator feedback.
- Gamification elements for fostering student motivation to engage in the learning process.
- A sense of achievement through activities tailored in terms of difficulty to students' individual knowledge level.
- A sense of community developed through the engagement of wide student groups.
- Accessibility elements for individuals with impairments.

For educators, the platform offers:

- Services for structuring rich and interactive educational content for supporting students.
- A rich library of openly available educational content that can be directly used in the classroom or be referred to for inspiration towards structuring additional learning material.
- Services for sharing learning activities with peers.
- Tracking of student progress and engagement.
- Feedback generation towards students for scaffolding knowledge.

Rich digital learning content

The INCLUDEME digital learning platform allows access to a rich collection of educational activities openly available to all interested parties, including students, educators, families, and others, which can be used to support educational progress by developing skills useful in industry and society.

The platform hosts over 1,400 interactive resources, out of which 700 are in English, 660 are in Romanian, and 50 are in Greek. The resources cover a wide range of subjects, such as mathematics, science, and foreign languages, and disabilities, such as autism, cognitive disabilities, blindness, and deafness. The resources feature different levels of complexity to fit the specific needs of the INCLUDEME target groups. The resources have been used in kindergartens, primary and secondary schools, high schools, universities, and for adult

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education, showcasing the high flexibility of the INCLUDEME solution, as well as an extensive potential for reuse, in line with the good practices that were identified.

Instructor training and community building

Recognizing the importance of support educators in enriching their learning practices for disabled and disadvantaged individuals, INCLUDEME organized and will continue to organize in the future educator training sessions. These sessions built instructional capacity through:

- Building awareness on the benefits of digital technologies for supporting disabled and disadvantaged individuals.
- Building educator understanding and experience on emerging, innovative learning design, such as active and problem-based approaches, that help build student foundational knowledge and soft skills.
- Build educator capacity to address diverse student learning styles by using digital technologies to develop adapted educational activities.
- Build educator capacity to act as mentors to families, further supporting the academic progress of disabled and disadvantaged learners.
- Building educator capacity to use the INCLUDEME digital learning platform to structure and deviver in the classroom digitally enabled learning activities addressing disabled and disadvantaged indivudals.

Student engagement

INCLUDEME directly engages disabled and disadvantaged students in digitally enabled rich educational activities in the context of piloting practices. Students benefit by:

- Building foundational knowledge.
- Building soft skills, such as ability to explore and discover information, critical thinking, analytical thinking, entrepreneurial thinking, collaboration capacity, ability for individual work, and others.
- Engaging in social learning.
- Building confidence through exercises that are achievable and gradually increase in difficulty as student skills evolve.

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3. REVIEW OF COMPETITIVE AND SUBSTITUTE PRODUCTS AND SERVICES

The options available in the educational market for individuals with disabilities or at risk of exclusion are unfortunately limited in comparison to learning offerings at large.

Efforts are made in the area of assistive technology, which is an umbrella term that refers to a wide range of technologies that assist individuals with disabilities. Assistive technologies are not a new concept, neither do they need to be high-tech. For example, glasses constitute assistive tools for individuals with vision difficulties. Despite the fact that these tools have been available for centuries, digital technology in recent times has introduced a new assistive learning avenue. Efforts focus in different directions, such as:

Accessibility, helping individuals perform better specific tasks, such as:

- Reading and writing.
- Hearing and speaking.
- Seeing.
- Moving.
- Discovering or finding information.

Addressing a wide range of disorders or disabilities:

- Autism spectrum disorders.
- Blindness and low vision.
- Cognitive disorders and disabilities.
- Communication disorders.
- Deafness and hearing impairment
- Learning disabilities.
- Mobility impairment.
- Neurological disorders like ADD/ADHD.

The review of competitive and substitute products and services provides valuable insights into the existing landscape of offerings similar to those provided by the INCLUDEME project. The analysis of these alternatives highlights the value proposition and competitive advantage of INCLUDEME's solution. Additionally, identifying potential substitutes allows the INCLUDEME consortium to refine strategies for market positioning, differentiation, and innovation.

3.1 REVIEW OF DIGITAL SOLUTIONS FOR ACCESSIBILITY

Following is an analysis of tools that support accessibility:

Text to speech software

The review of digital solutions for accessibility highlights a range of innovative technologies designed to address the needs of individuals with disabilities. These solutions, spanning various domains and functionalities, play a crucial role in enhancing accessibility and inclusivity in the digital age. Here's an overview of the key findings from the review:

- **Text-to-speech software**. Text-to-speech technology converts digital text into synthesized speech, offering a critical tool for individuals with visual impairments or reading challenges. The sophistication of these solutions, driven by advancements in deep learning, enables natural and human-like speech synthesis.

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- **Braille smartwatch**. The development of the braille smartwatch represents a significant advancement in wearable technology tailored for individuals with visual impairments. This device not only provides timekeeping functionality but also offers features such as messaging, notifications, and access to braille dictionaries, enhancing communication and information access.
- **Voice assistants**. Voice assistants, such as Amazon Echo and Siri, offer diverse functionalities that benefit individuals with disabilities. By leveraging voice commands, users can perform tasks such as making calls, setting reminders, and controlling smart home devices, promoting independence and accessibility.
- **Augmentative and alternative communication (AAC) technologies**. AAC technologies encompass a range of assistive tools designed to support individuals with speech and communication disabilities. These solutions, including apps like Proloquo4Text and Speak for Yourself, facilitate communication through text-based interfaces, empowering nonverbal individuals to express themselves effectively.
- **Video-conferencing tools**. Video-conferencing platforms like Zoom prioritize accessibility features, including live transcriptions, screen reader support, and captioning options. These features enhance communication accessibility for individuals with hearing or visual impairments, promoting inclusive remote collaboration.
- **Sound amplification apps**. Sound amplification apps, such as ExSilent HearYouNow, address the needs of individuals with hearing loss by enhancing auditory experiences. These apps amplify sounds and offer customizable settings to accommodate various hearing needs, facilitating improved communication and engagement.
- **Screen readers and magnifiers**. Screen readers and magnifiers play a crucial role in enabling access to digital content for individuals with visual impairments. These software solutions convert text into speech or enlarge screen elements, making digital information accessible to users with low vision or blindness.
- **Smart canes**. AI-powered smart canes equipped with sensors and speech recognition technology assist visually impaired individuals in navigation and hazard detection. These devices enhance mobility and independence, empowering users to navigate their surroundings with confidence.

Overall, the review underscores the transformative impact of digital solutions in promoting accessibility and inclusivity for individuals with disabilities. These innovative technologies empower users to overcome barriers, participate more fully in daily activities, and enhance their overall quality of life in the digital age.

3.2 REVIEW OF DIGITAL SERVICES FOR ADDRESSING DISORDERS OR DISABILITIES

The review of digital services addressing disorders or disabilities underscores the remarkable diversity and efficacy of contemporary solutions tailored to support individuals facing various health challenges. From mental health apps offering nuanced tools for anxiety and depression management to speech therapy platforms providing personalized exercises, the landscape is rich with innovations designed to empower users in navigating their unique conditions. Furthermore, digital tools targeting autism spectrum disorder (ASD) management, ADHD symptom tracking, and physical rehabilitation exemplify the breadth of assistance available across different health domains. These solutions not only offer practical support but also foster a sense of agency and autonomy among users, facilitating greater independence and well-being.

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Moreover, the advent of vision enhancement apps, chronic disease management platforms, and an array of accessibility tools and assistive technologies signifies a paradigm shift towards inclusivity and accessibility in digital health. By harnessing the capabilities of technology, these services bridge gaps in accessibility, enabling individuals with disabilities to engage fully in daily activities and access vital resources with ease. As the digital landscape continues to evolve, there is vast potential for further innovation and refinement of these solutions, ensuring that individuals with disorders or disabilities receive the tailored support they need to lead fulfilling and empowered lives.

The review of competitive and substitute products and services was conducted through a comprehensive analysis of the current market landscape in the field of inclusive education and assistive technologies. This analysis was carried out recently, using a combination of market research, industry reports, online databases, and stakeholder consultations. Criteria used in the evaluation included features and functionalities, target demographics, accessibility, pricing, user feedback, and market trends.

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4. INCLUDEME COMPARATIVE ADVANTAGES

The INCLUDEME project offers several comparative advantages that distinguish it from other initiatives in the field of inclusive education. Some of these advantages include:

- In contrast to existing fragmented solutions for addressing specific and narrow needs of individuals with disabilities, INCLUDEME offers a comprehensive solution that allows students and educators to have open access to rich and interactive learning experiences with assistive technology. Rather than focusing only of accessibility services, INCLUDEME focuses on educational content that benefits disabled and disadvantaged individuals, including individuals at risk of exclusion.
- INCLUDEME adopts a forward-thinking and innovative approach to inclusive education by integrating digital innovation, customizable learning environments, and user-centred methodologies. This approach allows for the development of cutting-edge solutions tailored to the diverse needs of learners.
- INCLUDEME takes a holistic perspective on inclusive education, addressing not only educational but also economic, social, and cultural factors that impact learners' experiences. By considering the broader context of inclusion, the project aims to create more comprehensive and sustainable solutions.
- INCLUDEME offers customizable solutions that can be adapted to meet the specific needs of different learners and educational contexts. By providing flexibility in design and implementation, the project empowers educators and stakeholders to tailor interventions to their unique circumstances.
- INCLUDEME fosters collaboration and partnerships among diverse stakeholders, including educators, policymakers, NGOs, and community members. By leveraging the collective expertise and resources of these partners, the project aims to create synergies and maximize impact.
- INCLUDEME is grounded in evidence-based practices and rigorous research, ensuring that interventions are informed by the latest research and best practices in the field of inclusive education. This commitment to evidence-based approaches enhances the credibility and effectiveness of the project's interventions.
- INCLUDEME prioritizes capacity building among educators and stakeholders, equipping them with the skills, knowledge, and resources needed to implement inclusive education practices effectively. By investing in professional development and training, the project aims to create a sustainable impact that extends beyond its duration.
- INCLUDEME is committed to sustainability, aiming to create lasting changes in inclusive education practices and accessibility. By promoting scalable and replicable solutions and fostering local ownership, the project seeks to ensure that its impact endures long after its completion.

Overall, the INCLUDEME project offers a unique combination of innovation, collaboration, and evidence-based practices that position it as a leader in the field of inclusive education. Through its comparative advantages, the project aims to drive positive change and create more equitable and inclusive educational opportunities for all learners.

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5. OUTCOMES TO BE SUSTAINED AFTER PROJECT COMPLETION

After the completion of the INCLUDEME project, several outcomes are expected to be sustained to ensure the continued advancement of inclusive education practices and accessibility for disadvantaged learners and individuals with disabilities. These outcomes include:

- **Guidelines and best practices:** The project produced comprehensive guidelines and best practices for inclusive education, drawing from the lessons learned and successful methodologies developed during its implementation. These guidelines will serve as valuable resources for educators, policymakers, and stakeholders seeking to promote inclusivity in educational settings.
- **Digital learning platforms and tools:** INCLUDEME developed digital a learning platform and accessibility tools tailored to the needs of diverse learners, particularly those with disabilities or at risk of exclusion. The platforms and tools will be supported and will be available as inclusive learning environments beyond the project's lifespan, facilitating access to education for all.
- **Pilot initiatives**: The piloting activities conducted as part of INCLUDEME will leave a lasting impact by demonstrating the effectiveness of inclusive education practices in real-world settings. The successful implementation of these pilots serves as a model for future initiatives, inspiring replication and scalability in various educational contexts.
- **Awareness and advocacy**: The project's efforts to raise awareness of inclusion and accessibility issues within European society are expected to have a lasting impact on public perception and policy discourse. By promoting dialogue and advocacy around these issues, INCLUDEME aims to foster a culture of inclusivity and social responsibility that extends beyond the project's duration.
- **Community engagement and collaboration**: INCLUDEME built networks and fostered collaboration among stakeholders invested in inclusive education, including educators, policymakers, NGOs, and community members. The sustained engagement of these stakeholders will be crucial for continuing to drive progress and innovation in the field of inclusive education.
- **Capacity building:** Through instructor training and community building events, INCLUDEME developed the capacity of educators and stakeholders to implement inclusive education practices effectively. The skills and knowledge gained through these capacity-building activities are expected to endure, enabling sustained improvements in inclusive education outcomes. In addition, training activities will continue after the completion of the project to expand the existing professional and academic network for inclusive education and to promote the benefits of INCLUDEME in wider communities.
- **Research and evaluation**: INCLUDEME's emphasis on research and evaluation will contribute to the body of knowledge on inclusive education and accessibility. By documenting project outcomes and evaluating the effectiveness of interventions, the project will provide valuable insights for future research and policymaking in this area.

Overall, the sustained outcomes of the INCLUDEME project are expected to contribute to lasting improvements in inclusive education practices and accessibility, ultimately fostering a more equitable and inclusive educational landscape for all learners.

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6. EXPECTED IMPACT

This section analyzes positive impact of the INCLUDEME to direct and indirect stakeholders.

6.1 IMPACT ON STUDENTS

The following positive impact is expected for students:

- **Increased access to education**. By implementing inclusive education practices, students, especially those with disabilities or socio-economic disadvantages, will have improved access to educational opportunities.
- **Enhanced learning opportunities**. The project aims to provide diverse and adaptable learning environments, offering students opportunities to thrive academically and explore their full potential.
- **Improved academic performance**. Through personalized learning approaches and accessible resources, students are expected to experience improvements in their academic achievements.
- **Enhanced social inclusion**. INCLUDEME seeks to create inclusive environments where all students feel valued and included, fostering a sense of belonging and social cohesion.
- **Increased self-efficacy and confidence**. By receiving support tailored to their needs, students are likely to develop greater confidence in their abilities and a stronger belief in their capacity to succeed.
- **Greater participation and engagement**. The project's focus on engaging, interactive learning experiences is anticipated to increase student participation and engagement in educational activities.
- **Long-term benefits**. It is expected that these improvements will lead to long-term benefits for students, including higher educational attainment and increased employability, equipping them with the skills and confidence needed for future success.

6.2 IMPACT ON EDUCATORS

The following positive impact is expected for educators:

- **Enhanced capacity to implement inclusive education practices**. Educators will receive training and support to effectively implement inclusive education practices, enabling them to accommodate diverse learning needs within their classrooms.
- **Improved skills and knowledge**. Through professional development opportunities provided by INCLUDEME, educators will gain a deeper understanding of how to support diverse learners, including those with disabilities or socio-economic disadvantages.
- **Increased confidence**. Educators will develop greater confidence in their ability to address barriers to learning and create inclusive learning environments that cater to the needs of all students.
- **Greater ability to create inclusive environments**. INCLUDEME will equip educators with the tools and strategies needed to create inclusive environments where every student feels valued, respected, and supported in their learning journey.
- **Enhanced collaboration and networking**: The project will provide opportunities for educators to collaborate with peers, share best practices, and learn from each other's experiences, fostering a supportive network of professionals committed to inclusive education.

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- **Access to valuable resources**: Educators will have access to a wealth of resources, including guidelines, toolkits, and best practices, to support them in implementing inclusive education practices effectively.
- **Improved job satisfaction**: By equipping educators with the skills and resources needed to support diverse learners, INCLUDEME aims to enhance job satisfaction and professional fulfilment among educators, ultimately leading to a more positive teaching experience.

6.3 IMPACT ON EDUCATIONAL ORGANIZATIONS

The following positive impact is expected for educators:

- **Strengthened capacity for inclusive education**. Educators will develop a stronger ability to implement inclusive education policies and practices, enabling them to create learning environments that cater to the diverse needs of all students.
- **Enhanced creation of inclusive learning environments**. INCLUDEME will empower educators to create inclusive learning environments where every student feels supported and valued, fostering a sense of belonging and inclusion.
- **Improved support for diverse learners**. Through training and resources provided by INCLUDEME, educators will be better equipped to support diverse learners, including those with disabilities and socio-economic disadvantages, ensuring that all students receive the assistance they need to succeed.
- **Increased collaboration**. The project will encourage educators to collaborate with stakeholders and community partners, facilitating the exchange of ideas, resources, and best practices in inclusive education.
- **Access to resources and best practices**. Educators will have access to a wide range of resources and best practices in inclusive education, providing them with valuable tools and guidance to enhance their teaching practices.
- **Greater recognition as inclusivity advocates**. By actively promoting inclusivity and accessibility in education, educators involved in the INCLUDEME project will be recognized as leaders in their field, contributing to positive change within the education community.
- **Improved reputation**. Through their involvement in inclusive education initiatives, educators will enhance their reputation and standing within the education community, positioning themselves as advocates for inclusivity and accessibility in education.

6.4 IMPACT ON SOCIETY

The following positive impact is expected for society:

- **Greater awareness and understanding**. INCLUDEME aims to raise awareness and understanding of inclusion and accessibility issues within society, fostering empathy and support for marginalized groups.
- **Recognition of inclusive education**. Through the project's efforts, there will be increased recognition of the importance of inclusive education in promoting social cohesion and fostering a more inclusive society.

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- **Enhanced support for marginalized groups**. INCLUDEME seeks to enhance support for marginalized groups, including individuals with disabilities and socio-economic disadvantages, by advocating for inclusive education practices and policies.
- **Reduced stigma and discrimination**. By promoting inclusivity and accessibility, the project aims to reduce stigma and discrimination against individuals with disabilities, fostering a more inclusive and accepting society.
- **Commitment to diversity and equity**. INCLUDEME aims to strengthen society's commitment to diversity, equity, and social justice by promoting inclusive education practices that prioritize the needs of all learners.
- **Improved social inclusion**. Through the promotion of inclusive education, INCLUDEME seeks to improve social inclusion and integration of marginalized communities, fostering a more cohesive and harmonious society.
- **Overall societal well-being**. The project's efforts are expected to contribute to overall improvement in societal well-being and cohesion, creating a more inclusive and supportive environment for all members of society.

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7. PROJECT RESULT SUSTAINABILITY GOALS

The INCLUDEME sustainability strategy aims at the promotion of the adoption of project outcomes both within and beyond partner organizations for the benefit of the higher education sector. Following is a discussion of project long-term sustainability objectives.

7.1 PROJECT RESULT SUSTAINABILITY GOALS WITHIN PARTNER ORGANIZATIONS

The sustainability goals within partner organizations for the INCLUDEME project's results encompass various aspects aimed at ensuring the longevity and continued impact of the project outcomes. These goals include:

- Embedding project outcomes into organizational policies to ensure a lasting commitment to inclusive education.
- Providing ongoing training to staff to maintain skills and knowledge in supporting inclusive practices.
- Allocating funding and infrastructure to sustain project initiatives, ensuring continued accessibility.
- Establishing systems to track progress and assess the effectiveness of inclusive education practices.
- Actively involving students, parents, and policymakers to ensure ongoing support and collaboration.
- Disseminating project findings and best practices to encourage broader adoption within the education community.
- Developing strategies for sustained impact beyond the project lifespan, setting goals and milestones for continued progress.

7.2 PROJECT RESULT SUSTAINABILITY GOALS BEYOND THE CONSORTIUM

Beyond the consortium, INCLUDEME aims to sustain its impact by disseminating findings widely, offering capacity-building programs, engaging with stakeholders, advocating for policy changes, facilitating scaling, and planning for long-term sustainability. Through these concerted efforts, the project seeks to extend its influence, fostering a more inclusive and accessible educational environment for all learners beyond its immediate scope. By leveraging partnerships, sharing expertise, and advocating for systemic change, INCLUDEME strives to create lasting positive change in inclusive education practices, ensuring that its impact endures well into the future.

Through collaborative efforts with educational institutions, policymakers, NGOs, and community organizations, INCLUDEME endeavours to mainstream inclusive education principles and methodologies, embedding them into educational policies and practices. By fostering dialogue, building capacity, and promoting awareness, the project aims to create a culture of inclusivity and accessibility that transcends its own duration. Ultimately, INCLUDEME seeks to leave a lasting legacy of empowerment and equity, ensuring that individuals of all backgrounds and abilities have equal opportunities to learn, grow, and thrive in educational settings.

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8. TRANSFERABILITY AND EXPLOITATION OF RESULTS

Based on the above analysis, the INCLUDEME sustainability plan for the post project completion adoption of project outcomes is presented in this section.

8.1 USE OF PROJECT RESULTS WITHIN PARTNER ORGANIZATIONS

INCLUDEME benefits project participants through innovative digital learning design that can be integrated into organizational missions. Following is a discussion of how project outcomes are integrated into regular, day-to-day learning and training operations of project partners.

8.1.1 Advanced Technology Systems – ATS

The INCLUDEME project provides a wide range of resources that were and will be further used internally by the organisation. Since ATS is a company that develops IT solutions for the public and private sectors, the digital accessibility research and training materials have helped all employees improve company collective competences and expertise to ensure the software products they develop provide an enhanced user experience, as the training helped ensure digital content and software applications are usable by everyone, including people with disabilities, thereby improving the overall user experience. It further provides compliance with standards, as the training provided knowledge on how to meet international W3C standards for web accessibility. It ensures increased market reach, by making digital assets accessible, the company is able reach a wider audience, including the disabled and elderly. It promotes risk mitigation, as accessibility training informed and prepared employees on the legal risks associated with non-compliance to accessibility laws. And finally, it promotes innovation drive, as the training improved employees' ability to create accessible design and to develop innovative product features that benefit all users.

Overall, digital accessibility training improved the organization's commitment to diversity, equity, and inclusion (DEI), demonstrating its social responsibility towards creating accessibility-aware software.

Considering the high dynamic of the IT field, ATS employees require constant training to support skilling and upskilling to acquire new and relevant competencies. The H5P templates were used to create more engaging and more inclusive digital spaces for the in-house training. H5P resources were used by the ATS Training Centre to support onboarding activities.

Several employees were trained to create, use, and reuse H5P resources and H5P templates will be used for to create resources for client training, as well as for workshops and other events to engage participants.

The INCLUDEME consortium reunited expertise in various fields raging from gaming and production, to accessible gaming and sociology. This enabled ATS to widen its expertise and collaborations, as well as its capacity to submit new project proposals that continue the INCLUDEME concept and approach.

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8.1.2 Hand Free Computing - HFC

The INCLUDEME project introduced very useful interactive learning activity templates, for example based on H5P technology. The templates were used in the project for simple cause and effect activities as well as more educational based teaching.

However, the concept of these H5P templates is very transferrable and can be utilised within our organisation for training purposes, onboarding and induction processes. They lend themselves to be created for role play exercises, quizzes, how to guides, and employment training, which Hand Free Computing will benefit from. The H5P can be integrated to the organization's website or hosting facility therefore helping with the running costs of human resources by not having to outsource alternative means.

The accessible games created within the project give Hand Free Computing additional content to offer to employees and their families of organisations taking our disability awareness and mental health training courses. These games can be offered free of charge to help those with special needs and neurodivergent conditions giving added benefit to the services we offer.

AccessAngel, the accessibility toolbar was integrated into the both the INCLUDEME website and Moodle platform. This added a feature rich layer of accessibility for users enabling them to customise the content to their needs and better read, digest and process the information using the tools provided.

HFC created this toolbar and therefore can utilise it within our own organisation websites and online portals for users to benefit, creating further exposure to our services. The toolbar has also been offered to the partners of the project so their visitors, students and users can all reap the advantages in their respective organisations.

Finally, Hand Free Computing has benefited from the partner collaboration during the project to further extend our expertise in the area of accessibility and digital gamification. Hand Free Computing gained new contacts and friendships which hopefully will lead to further collaborations in future projects.

8.1.3 Bremer Institut für Produktion und Logistik – BIBA

The tools in developed within the project as well as the knowledge gained by the research team is of relevance for every new researcher joining BIBA. The insight on how to better develop material for disadvantaged groups will help us in reaching the target group of many activities in the BIBAGamingLab, namely employees from the production and logistics industries.

The workshops and pilot activities organized in BIBA has been documented in various articles and increased the collective knowledge of BIBA's researchers in the area. The recommendations on how to design good learning materials for different user needs has been integrated as a part of our offer to the industry and in future research projects.

Furthermore, integrating project results into various workshops and events could be an opportunity for BIBA to develop collaborations and partnerships. Involving participants in the exploration of findings and results derived from INCLUDEME project can foster an environment for knowledge exchange and dialogue among diverse stakeholders. This collaborative approach could not only enhance the learning experience for participants but also serve to strengthen our network within the education community.

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8.1.4 University of Thessaly – UTH

The University of Thessaly implementation team, namely the Creative Technologies Learning Lab, integrates emerging design, pedagogies, and ICT for generating innovative, rewarding, and effective learning experiences that build the knowledge and skills needed by industry and society in today's world. The team is highly engaged in research and development for enriching educational practices of educators, promoting student progress, and achieving educational goals.

In this context, the University of Thessaly aims to use the knowledge, skills, and experience built through the project for developing additional research and development activities that address diverse groups through the INCLUDE active, project, and problem-based learning approach. This knowledge will support the implementation team in applying project experiences, such as the use of H5P, in broader lifelong learning contexts addressing the needs of primary, secondary, vocational, higher, professional, and adult education.

Furthermore, the University of Thessaly will benefit from the extension of the network of educational providers developed through project INCLUDEME for engaging in future collaboration for technology-enhanced learning.

The implementation team will further make project outcomes openly available to the University's Special Education Department for use with disabled and disadvantaged learners in piloting initiatives as well as for use as reference material for department student that are in training for becoming special education instructors. The department's students can benefit from the project interactive learning solution by referring to it as a good practice.

Finally, the University of Thessaly will exploit project outcomes for fostering and further developing professional relationships with educational organizations in Greece, Europe, and beyond, public authorities, such as the Secondary Education Authorities of the areas of Magnesia, Thessaly, and Sterea Ellada, and industry. The university will collaborate with schools and educational providers for promoting educator professional development, promoting the digital transformation of learning, and enriching student experiences.

8.1.5 P.A. College – PAC

The INCLUDEME project results will continue to inform and improve the teaching and research practice as well as development of educational resources within PAC. The project has designed and developed an array of digital educational resources. These will be further utilized in collaboration with special education schools in Cyprus. The guidelines and design methods employed will continue to inform future developments towards inclusive education, both in special education and in general education schools. The knowledge and experience gained through interviews with special educators in different specialisations has strongly enhanced the understanding of the human factors that need to be embedded in the design and development of seamless, inclusive, and accessible digital learning resources.

The workshops and training sessions for special educators as well as the school visits enhanced the relationships between key stakeholders. These relationships have promoted the commitment to equality, diversity, and inclusion (EDI) both at an institutional level and an individual level. The projects acted as a beacon for rethinking accessibility, inclusivity, and equal access to teaching and learning resources hence enhancing our social, ethical, and professional

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responsibility towards all learners, breaking all barriers to quality education for all. This is aligned with broader EU goals as well as the UN's 2030 Agenda which envisions a world with equal opportunities for learning and quality education for all (Sustainable Development Goal 4: Quality Education, https://sdgs.un.org/goals/goal4).

The project has and will continue to encourage ongoing learning and development of all members of the team. Given the increasing focus on upskilling and reskilling, as well as the emphasis placed on equality, diversity, and inclusion (EDI), the knowledge and experiences gained will frame future research and developments in educational technology, focusing on the human factors. Beyond the core team, the academic members of staff were involved in the trainings to special educators, and this helped everyone reflect on their teaching practice and the quality of the resources used for teaching and learning. The guidelines were also shared to help guide the development of inclusive and accessible learning materials, ranging from accessible presentations to gamified H5P activities. This enrichment of teaching practice was well received and very rewarding.

8.1.6 South-West University "Neofit Rilski" – SWU

Integrating project results related to developed tools into the mission and practices of South-West University involves a structured approach to ensure effective utilization and maximization of benefits. The INCLUDEME platform developed and created within the project is of relevance to all researchers that have been part of the South-West University team. Moreover, the knowledge gained by team members will be of a great relevance not only to them but also with young researchers, PhD students, and even bachelor students, who use the developed tools and material for disabled and disadvantaged groups.

The South-West University team presented the outcomes of the projects to the Faculty of Pedagogy, including the Departments of Education and Special Pedagogy. This faculty, where one of the project's training sessions was delivered, trains and provides diplomas to future teachers who will work with children with special educational needs. In the future, through these students the project's tools and materials will reach its main target groups, namely disabled and disadvantaged individuals.

The training activities and round tables targeting educators organized by South-West University team, and especially the stakeholders that participated in the round table, is an effective approach for ensuring the dissemination and uptake of project results. These activities will continue in the future and are expected to further support the direct engagement and collaboration of key stakeholders in the fields of education and inclusive education.

8.2 USE OF PROJECT RESULTS BEYOND THE CONSORTIUM

INCLUDEME aims at the deployment of project outcomes not only within the consortium but, most importantly, beyond, addressing the learning needs of disabled and disadvantaged students, their educators, and their families.

An early plan was developed at the beginning of the project implementation period on effectively and widely reaching the target lifelong learning sector with an emphasis on organizations engaged in educational practices addressing disabled and disadvantaged individuals. The following potential target groups for transferability and exploitation of results were identified:

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- Government national platform on pre-employment initiatives and aptitude testing for recruitment. The INCLUDEME platform can support related initiatives through interactive learning content and accessibility features for wide reach, adaptability, and efficiency of learning.
- Educational equipment suppliers bundling the software to schools and educational establishments. The INCLUDEME platform can support personalized learning paths through adaptive content.
- Relevant accessibility, learning, and gaming partner resellers to add to their portfolio. INCLUDEME can contribute towards reaching wider groups through inclusivity, customized learning, awareness raising, and community building.
- Employment and course training providers. These organizations can enrich their learning and training practices through the INCLUDEME interactive learning content.
- Local publishers. INCLUDEME provides new avenues for creating and sharing interactive learning content that can benefit regional communities.
- Non-profit organisations and charities for families and children with disadvantaged children and disabilities. INCLUDEME content can be used by caretakers and family members to support the academic progress of disabled and disadvantaged individuals.
- Partnership with existing accessible learning provider platforms and companies to offer a premium product version or add-on services for learning and collaboration.

This initial analysis of stakeholders that can benefit from INCLUDEME outcomes and can further contribute to the wide adoption of results was used by each partner as a reference for designing and delivering transferability activities for reaching the lifelong learning market. By engaging diverse stakeholders, the consortium plans to reach the sector in a bottom-up manner. The bottom-up approach is based on creating a network of affiliated organizations that will project results directly while also spreading them broadly to the community.

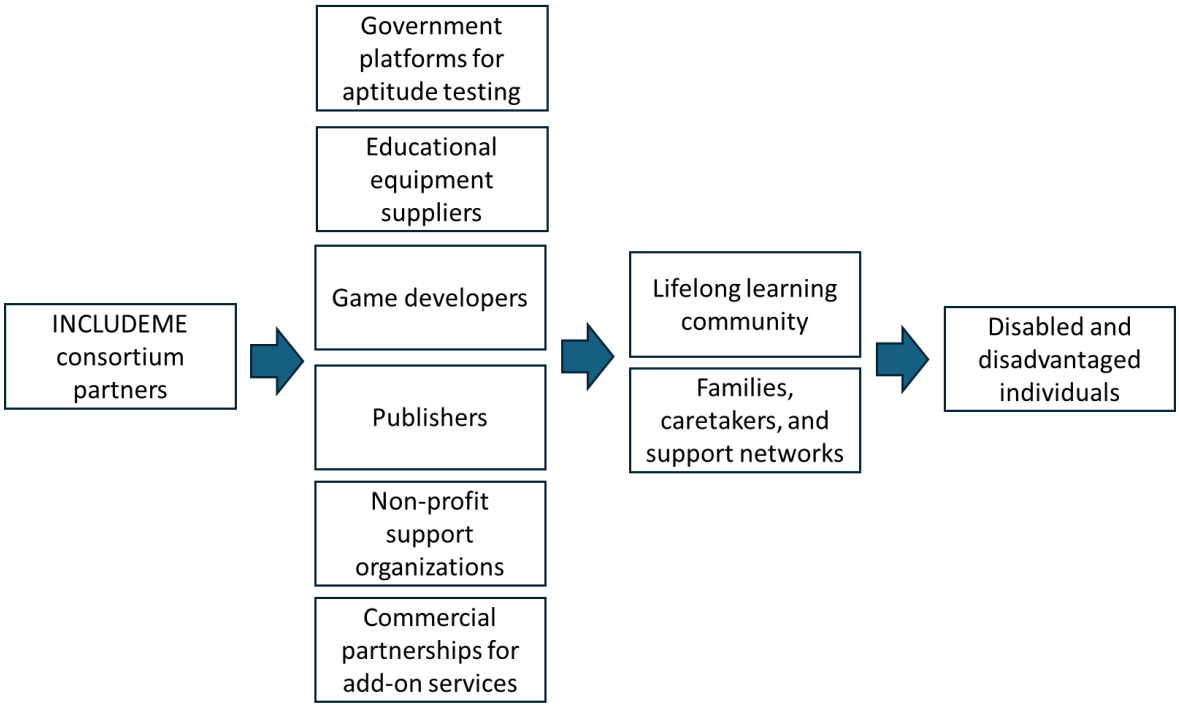

Figure 1. Engaging diverse stakeholders for reaching lifelong learning providers supporting disabled and disadvantaged individuals.

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Following is a description of activities organized by project partners for promoting the uptake of project results beyond the consortium.

8.2.1 Advanced Technology Systems – ATS

ATS has reached out to key educational organizations that could support the transferability and multiplication of the project resources. The project benefited of the support of the Romanian Ministry of Education, of school inspectorates, universities, high schools, primary and secondary schools that actively engaged with the project throughout its implementation. The H5P-based solution was considered to be user-friendly and easy to use, making it accessible for non-programmers, such as teachers interested in creating dynamic learning content. It was further cost-effective, being free to use has reduced the costs for eLearning content creation. It was diverse, as the wide range of interactive content types that are available enables the creation of a large variety of content types. It is engaging, as H5P helps transform traditional lessons into interactive and engaging experiences. Moreover, the solution is open-source, benefiting from a community that actively contributes to its development and provides support. All these were features that supported the conclusion of partnership agreements and transferability efforts to various organizations in Romania, such as:

- The Valahia University of Târgoviște.
- The Dâmbovița School Inspectorate.
- The School for Special Education in Târgoviște
- The Ioana Alexandru Brătescu Voinești School in Târgoviște.
- The Vasile Cârlova School in Târgoviște.

The INCLUDEME resources were used by one school in Ukraine, the Odessa Lyceum Number 12, with the help of professor Arina Ivanova and in Uganda with the support of the Mission Hope NGO.

The transferability initiatives include the uptake of the INCLUDEME solutions for digital accessibility and training within the Danube4SEecosystem Project (“Enhancing the development of Social Economy by engaging Local Public Authorities in the Social Enterprises supporting Ecosystem for a more inclusive Labor Market in the Danube Region”). The Danube4SEecosystem consortium consists of 10 partners: South Muntenia Regional Development Agency (RO), Central Danube Development Agency Nonprofit Ltd. (HU), Slovak Business Agency (SK), Public Institution for the Development of the Međimurje County REDEA (HR), Regional Development Agency of South Bohemia RERA (CZ), Centre for Social Innovation ZSI (AT), Chamber of Commerce and Industry of Serbia CCIS (RS), Development Agency of the Republic of Srpska RARS (BA), Advanced Technology Systems ATS (RO), and University of Maribor (SI).

The Association of Communes of Romania (ACOR) is an Associated Partner of the Danube4SEecosystem Project. The association consists of more than 2200 communes and more than 5000 public servants. ACOR’s president, Emil Drăghici, has supported the transferability efforts of the INCLUDEME Project and participated in the working session on digital accessibility organized by ATS with 35 public servants from 5 city halls (Directia fiscala Timisoara, DGVBL Sector 2 Bucharest, Pitesti, Bailești, Campulung, Targoviste, Mioveni) and 2 town halls from rural regions of Romania (Moșoaia, Șotânga).

To increase sustainability, the INCLUDEME Platform and all the INCLUDEME resources will be hosted by ATS for the next 10 years. ATS together with key INCLUDEME partners consider setting up an NGO or a company to take the INCLUDEME vision further.

8.2.2 Hand Free Computing (Ireland) - HFC

Transferability initiatives and activities by Hand Free Computing include:

Hand Free Computing brought on board educational equipment suppliers to bundle INCLUDEME software and portal on the computers that are sent out to thousands of families with disabled children each year. This has been possible through the Family Fund Charity Grant Scheme in the UK. The Family Fund https://www.familyfund.org.uk/ is a hugely supported charity with large sponsors and provide support to families with disabled and disadvantaged children. These families can obtain a grant for help with many aspects of life, but one is to purchase a computer with assistive and educational software already pre-installed onto it for the children to benefit from. Hands Free Computing provides the software that goes onto these computers. INCLUDEME access has now been added to one of these pre-installed pieces of software that gives access to a range of educational resources as well as the ability to log in and fully interact with the INCLUDEME Moodle portal without restrictions. This opens up INCLUDEME to thousands of children in our target audience each year who receive a computer with accessible software and games pre-installed onto it.

Hand Free Computing further created a standalone website that features games and activities, as well as software downloads that have been created within the Moodle INCLUDEME platform. This was created for a couple of reasons. Firstly, to allow those who don't have access to mainstream education through schooling to easily access the site without the need for teacher assignment, as well as being able to play and use the features outside of a school setting. Secondly, it allows us to promote and exploit the platform on a wider scale on different platforms and mediums, which will be explained below.

This external website is also added to this software that will be distributed within thousands of computers each year with the Family Fund, thus further extending the playability and usage of the H5P activities and accessible games.

More importantly, it opens the ability to feature INCLUDEME games and activities as well as the main platform to relevant online educational resource providers, educational gaming providers and games for special needs.

An aim of the exploitation for all of the consortium is to get the INCLUDEME portal log in access and downloadable software onto the most popular and widely used teacher resource sites in respective partner countries. These teacher resource sites provide downloadable content for teachers on all subject matters and for children with special needs. They can also be monetised if required either by downloads or subscription based on the site itself.

Finally, it would be beneficial to setup a new INCLUDEME company to host as a consortium effort and take the proposed digital learning solution to market.

Some of the sites that are currently being targeted by Hand Free Computing in the UK are:

- Primary Resources, https://www.primaryresources.co.uk/.

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- TeachITPrimary, https://www.teachitprimary.co.uk/.
- TES, https://www.tes.com/en-gb.
- Sparklebox: https://www.sparklebox.co.uk/.
- STEM Learning: https://www.stem.org.uk/resources.

8.2.3 Bremer Institut für Produktion und Logistik – BIBA

Transferability initiatives and activities by BIBA involve using project results in different ways in broad learning contexts. Specifically:

BIBA used the learning material developed to reach students at bachelor and master levels at the University of Bremen as well as for other partner universities with whom the organization co-operates in various projects.

BIBA aims to reuse and further develop the material developed during the project for delivering workshops targeting students and teachers from K12 for similar usage for future events. Therefore, while project results may not be integrated into every aspect of the BIBA research institute, they play a pivotal role in shaping the content and outcomes of various events and workshops in which BIBA (Gaming Lab) participates. During these workshops and events, students are given the chance to interact with the findings and results derived from the project. This provides them with an opportunity to gain insights into good practices aimed at creating inclusive and accessible learning environments. For instance, as students engage in activities, workshops, or events at BIBA (Gaming Lab), incorporating project results focused on accessible and inclusive learning provides them with valuable insights into developing learning activities that cater to diverse learners. This hands-on experience not only enhances their understanding of inclusive education but also equips them with practical skills for developing accessible learning materials.

The last BIBA transferability initiative is related to how the organization will use the knowledge and the tools developed within the project main target groups in terms of training and lifelong education, addressing employees and managers coming from production and logistics industrial workspaces. As a continuation of INCLUDEME work, BIBA will design and implement training material for the Mittelstand-Digita Zentrum Bremen-Oldenburg, namely Startseite - Mittelstand-Digital Zentrum Bremen-Oldenburg, http://digitalzentrum-hb-ol.de.

8.2.4 University of Thessaly – UTH

The INCLUDEME active learning design offers advantages not only to disabled and disadvantaged individuals but wider groups. Beyond the target sector, the University of Thessaly aims to use project results to enrich learning experiences by reusing or adapting INCLUDEME learning activities to address the needs of diverse learners as well as by developing new learning activities based on the highly interactive and engaging project digitally enabled approach. The organization aims to extend project activities to the following:

- In pre-school and primary education, through adaptation and creation of new learning content in the INCLUDEME platform.
- In secondary education, both lower high school enrolling students 12 – 15 and upper high school enrolling students 16 – 18, through the creation of new learning content in the INCLUDEME platform. This can include both schools in urban centers as well as

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schools in rural areas, such as mount Pelion and the villages of the geographical area of Thessaly, where students have fewer educational opportunities.

- In primary and secondary special education, targeting students aged 7 – 18, private educational support providers that support students with learning difficulties through activities such as speech therapy, addressing ADHD, and more.
- In vocational secondary education, targeting students 16 – 18 with a vocational focus, through the creation of new learning content in the INCLUDEME platform.
- In post-secondary vocational education, targeting students 28 – 21 with a vocational focus, through the creation of new learning content in the INCLUDEME platform.
- In adult life-long learning, targeting professionals aged 21 and up, through the creation of new learning content in the INCLUDEME platform.
- In learning for senior citizens that face cognitive challenges, through adaptation and creation of new learning content in the INCLUDEME platform.

Finally, the implementation team will make project outcomes available to secondary and special education schools and the Secondary Education Authorities of Magnesia, Sterea Ellada, and Thessaly, which have the power to foster the use of innovative learning design in all schools of their jurisdiction. Indicatively, the geographical region of Thessaly has 700k inhabitants. Following is a list of organizations in the University of Thessaly's network that can benefit from project outcomes:

- Preschools in the area of Volos.
- Saint-Joseph primary school located in Volos.
- 2nd Evening Vocational High School of Volos.
- 5th Gynmasium (lower high school) of Volos.
- 1st Gymnasium of Nea Ionia, Volos.
- Special Education School of Volos (both lower and upper high-school).
- Second Chance School of Volos.
- 2nd Lyceum (upper high school) of Volos.
- 6th Lyceum of Volos.
- Lyceum of Argalasti on mount Pelion, Volos (rural area).
- Vocational High School of Agria, Volos (rural area).
- Aristotle Univesity of Thessaloniki.
- Hellenic Open University.
- University of the Aegean.
- University of Crete.
- Regional educational authorities (listed above).

8.2.5 P.A. College – PAC

The PAC team will utilise the INCLUDEME project results beyond the university and consortium to continue promoting inclusive education. The project has designed and developed an array of digital educational resources. These will be further utilized in collaboration with special education schools in Cyprus. The guidelines and design methods employed will continue to inform future developments towards inclusive education, both in special education and in general education schools.

The training sessions and the workshops with the special educators acted as a thinking and reflection space where the INCLUDEME team shared the technological capabilities of H5P activities, how they can customise and gamify their lesson plans, and how to create personalised versions of educational games for different learners. At the same time, the researchers/developers in the team were able to reflect on their design and development approaches and identify the theoretical underpinnings of digital game-based learning (DGBL) for special education.

The PAC Team created a range of games, and these were customised based on the special educators' needs. They were created in Greek to accommodate for the gap that exists in findings games in the students' native language. These were shared to special educators as well as academics along with instructions on how to adjust them to fit the learning needs of their students.

PAC has benefited from the collaboration with special education schools and teachers from secondary general education. The PAC team will continue to promote the positive uses of educational technologies for the betterment of education and the promotion of EDI values, at all levels. Additionally, PAC will maintain its strong bonds and mutual collaborations with special education schools, secondary schools, and other stakeholders envisioning quality education for all.

8.2.6 South-West University "Neofit Rilski" – SWU

South-West University plans to use the learning material produced in the project primarily with students enrolled in the university, and in particular in pedagogy and special pedagogy departments. The on-line instructor training material created during the piloting sessions support teachers will also be reused. The organization aims to reuse both categories of training and learning material in future seminars and classes. The long-term goal of South-West University is the continued access and use of material by anyone who is interested in the resources for supporting learning efforts addressing vulnerable and disadvantaged pupils.

The implementation team has already reached approximately 100 undergraduate students enrolled in Pedagogy, Sociology, and Special Pedagogy degree programs through the use of the INCLUDEME interactive learning platform. Of those, 5 students were Ukrainian refugees. South-West University team members plan to deploy the developed interactive learning material on a regular basis in future academic years, reaching 50 – 60 students yearly through the use of the INCLUDEME interactive learning platform.

At the same time, a total of 30 teachers have been reached at South-West University through piloting sessions. This training was organized at the university's Department of Sociology. The aim of this training was to present the INCLUDEME interactive learning platform and to develop teacher skills and competencies on creating and integrating into learning their own H5P activities. The training address, in addition to other educators, representatives of the DTG 3 special education teachers.

On the other hand, the implementation team from South-West University presented the INCLUDEME platform in a round table with stakeholders in October 2023.

South-West University aims to present the outcomes of the INCLUDEME platform in future workshops and events. The forecast for the next 5 years is to reach another 20 teachers engaged in

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support and special educators, 5 - 10 researchers, and 20 - 30 students from the university community.

The following list with organizations will cover the numbers from the target groups that South-West University team is planning to reach in the next 5 years:

- Regional Education Directorate in Blagoevgrad.
- The Directorate of Education in the Municipality of Blagoevgrad.
- South-West University “Neofit Rilski”.
- University of National and World economy, Sofia.

8.3 PROVIDING ACCESS TO THE INCLUDEME DIGITAL LEARNING PLATFORM

Access to the INCLUDEME digital learning platform can be provided through the project portal. It can further be provided through additional thematic portals that are typically accessed by educators, families, and support networks of disadvantaged and disabled students. Examples of such networks include:

- Learning management systems, such as Moodle, which can help reach widely the target sector of lifelong learning. Other learning management systems that support H5P technology used by INCLUDEME are Canvas, BrightSpace, and Blackboard. This approach offers significant opportunities because learning management systems are already used in schools. Considering the busy schedules of teachers, adoption of project outcomes needs to be as easy as possible.
- Educational games, which are particularly useful for addressing the needs of special education students.
- Educational networks, such as SCIENTIX and European Schoolnet.
- Special education networks, such as:
    - SenAssist, http://www.senassist.com/index.html.
    - SenTeacher, https://www.senteacher.org/.
    - Family Fund, https://www.familyfund.org.uk/.
- Special education resources, provided on-line through special education providers and other organizations.
- School education portals, such as:
    - Purple Mash, https://www.purplemash.com/login.
    - White Rose Maths, https://whiteroseeducation.com/resources.
    - Cool Math Games, https://www.coolmathgames.com/.
- Educational websites, such as the Panhellenic School Network that is accessed by all primary and secondary education teachers in Greece.
- Downloadable courses provided by higher education institutions and other educational providers targeting special education teachers as well as disabled and disadvantaged students, such as courses by the Special Education Department of the University of Thessaly and the Department of Special Pedagogy of South-West University.
- Email campaigns, which can be created and offered to schools as free resources.
- School website builders, to which the INCLUDEME resources can be added.
- Existing relationships with educational providers, associations, and networks, as this is discussed in section 8.2 USE OF PROJECT RESULTS BEYOND THE CONSORTIUM.

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The consortium will pursue the publication of the INCLUDEME project portal and digital learning platform links to related thematic portals, reaching widely the target community of disabled and disadvantaged learners and supporting educators.

8.4 OPEN AVAILABILITY OF RESULTS THROUGH CREATIVE COMMONS

INCLUDEME makes project deliverables available through Creative Commons licences, allowing for reuse of software, digital learning, and technical reports. The specific type of license under which project results are openly available is CC-BY-NC-ND.

This licence allows re-users to copy and distribute the material in unaltered form for non-commercial uses, with proper attribution to the creator. The licence has the following elements:

- BY: Credit must be given to the creator.
- NC: Only non-commercial uses of the work are permitted.
- ND: No derivatives or adaptations of the work are permitted.

Making project outcomes available through Creative Commons expands the reach of educational organisations, students, educators, and stakeholders, addressing diverse learning needs and achieving more widely the project's educational goals.

8.5 POTENTIAL COMMERCIAL EXPLOITATION OF ADDITIONAL SERVICES

INCLUDEME aims to deliver all project outcomes freely available to interested parties in the lifelong learning sector. However, it is possible to further introduce commercial exploitation of enriched versions of outcomes or of additional educational experiences developed through the project. Specifically:

- The INCLUDEME downloadable resources can be developed into separate worksheets published on the project portal. These resources may include educational worksheets but also instructional worksheets on how to create accessible documents.
- Alternatively, the consortium can offer the downloadable software which provides links to both the INCLUDEME portal and standalone activity website and log in details. With this, the whole resource centre and full potential of the INCLUDEME portal can be achieved. This method can be applied within all the partner countries for relevant teacher resource sites and downloadable resources.
- There is also an opportunity to approach existing gaming sites and portals that cater for children with special needs. These sites host a range of games which cover aspects such as cause and effect, language, and motor control.
- By approaching these established sites with INCLUDEME's accessible games, as well as some of the H5P activities, the consortium can achieve making project resources available to be added to their portfolio of games in the relevant categories or a new INCLUDEME category can be made up.

Courses with add-ons can further be sold through partner websites as a trusted Moodle Partner. Examples of such portals include:

- School Merchant, https://www.coursemerchant.com/index.
- Moodle, https://moodle.com/news/moodle-certified-integration-partner-course-merchant/.

- WisDMLabs, https://wisdmlabs.com/blog/sell-moodle-courses-woocommerce-store/.

Hands Free Computing already has some good relationships with companies who have their own portals and games for children with special needs. These include:

- Shiny Learning, https://www.shinylearning.co.uk/.
- Skotlavan, https://skoltavlan.nu/.
- Sensory App House, https://www.sensoryapphouse.com/.

Already the companies Shiny Learning and Skoltavlan have agreed to host the INCLUDEME accessible games on their platforms for maximum exposure.

Finally, Hand Free Computing works with large companies and organisations such as Unilever to deliver disability and awareness training courses. INCLUDEME can offer the developed accessible games and content to the participants and families to play and enjoy for their loyalty.

8.6 INCLUDEME AMBASSADORS

INCLUDEME has delivered broad instructor training in several countries. This training has resulted in the creation of a pool of educators that are familiar with the project digital learning intervention that addresses disabled and disadvantaged learners. These individuals form a core team at of educators at partner sites as well as external organizations that have the knowledge and skills to support the continuation of training of peers beyond project completion. They are the INCLUDEME project “ambassadors” that facilitate the post-project sustainability of project results within their organizations and beyond. Around 150 teachers who teach in kindergarten, primary and secondary school, high school, university, people employed in public institutions, NGOs and other stakeholders were involved in instructor training activities.

INCLUDEME aims to stay connected with these educators, utilizing various channels such as newsletters, and social media platforms. Through these channels, ambassadors will receive updates on best practices, resources, and upcoming opportunities for further professional development.

8.7 CONTINUOUS INSTRUCTOR TRAINING AND STUDENT ENGAGEMENT

Educator training will continue beyond project completion to broaden the network of instructors, trainers, care takers, and professionals that are familiarized with the INCLUDEME digital learning solution, ultimately benefitting disabled and disadvantaged students. Following is a presentation of achieved and future planned training and student engagement at each partner site.

8.7.1 Advanced Technology Systems – ATS

Statistics	Target group	In the next 3 years	In the next 5 years
How many students were reached through piloting activities during the project?	160		
How many students / children with disabilities and		320	480

neurodivergent conditions (via Family Fund and Online Games Portal) do you expect to reach in the next 3 and 5 years?			
How many teachers were reached through instructor training during the project?	250		
How many teachers do you expect to reach in the next 3 and 5 years?		500	750

Table 1. Statistics of past and planned instructor training and student engagement at ATS.

8.7.2 Hand Free Computing (Ireland) - HFC

Statistics	Target group	In the next 3 years	In the next 5 years
How many students were reached through piloting activities during the project?	25		
How many students / children with disabilities and neurodivergent conditions (via Family Fund and Online Games Portal) do you expect to reach in the next 3 and 5 years?		5,000	10,000
How many teachers were reached through instructor training during the project?	4		
How many teachers do you expect to reach in the next 3 and 5 years?		20	50

Table 2. Statistics of past and planned instructor training and student engagement at Hand Free Computing.

8.7.3 Bremer Institut für Produktion und Logistik – BIBA

BIBA has trained a significant number of students through the use of the INCLUDEME digital learning intervention. This activity will continue in the future.

In addition, BIBA Gaming Lab has previously participated in events and workshops where INCLUDEME was presented and plans to showcase the outcomes of the INCLUDEME in future workshops and events.

The organization plans to present INCLUDEME in the upcoming Girls' Day Event at the University of Bremen, which targets students in grades 5 to 10 from Bremen and Lower Saxony. The event serves as an opportunity to introduce young minds to scientific and technical subjects and careers. With an anticipated participation of approximately 10 students from secondary level II, our plan for the event includes providing an overview of inclusive design principles and guidelines. Additionally, we aim to explore inclusive learning with Virtual Reality (VR) with INCLUDEME platform.

Moreover, BIBA introduced the INCLUDEME Platform during an event organized by the Bildungszentrum der Wirtschaft im Unterwesergebiet (BWU), aimed at Bremen schools. This

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initiative offers school girls the chance to explore MINT careers (Mathematics, Computer Science, Natural Sciences, and Technology). BIBA Gaming Lab participated in this effort by showcasing INCLUDEME as part of the Exploitation Event, which welcomed a group of "16" high school students. The event aimed to demonstrate well-designed, inclusive, and accessible features, providing insights into how INCLUDEME results offer assistance in developing interactive accessible learning activities.

Statistics	Target group	In the next 3 years	In the next 5 years
How many students were reached through piloting activities during the project?	70		
How many students / children with disabilities and neurodivergent conditions you expect to reach in the next 3 and 5 years?		140	210
How many teachers were reached through instructor training during the project?	10		
How many teachers do you expect to reach in the next 3 and 5 years?		25	50

Table 3. Statistics of past and planned instructor training and student engagement at BIBA.

8.7.4 University of Thessaly – UTH

The University of Thessaly has been very active in the deployment of project outcomes within the target sector of disabled and disadvantaged learners and beyond. The organization directly engaged both students and teachers.

Specifically, the University of Thessaly engaged students in the Special High School of Volos. This school enrols students with disabilities that prohibit them to follow general education. The University of Thessaly delivered learning events addressing both the lower high school, where learners are aged 12 – 14, and the upper high school, where learners are aged 15 – 18 with over 100 students and over 25 teachers reached. The students visited the University of Thessaly Department of Electrical and Computer Engineering Computer Lab and engaged in INCLUDEME learning activities. Learners very positively reacted to the opportunity to participate in project activities and to be exposed to the higher education environment.

In addition, the University of Thessaly delivered learning activities to the Evening Vocational High School of Volos, which enrols disadvantaged individuals and specifically adults that have not finished high school, work during the day, and with to complete their studies through evening classes. This group is at risk of exclusion. Over 20 students and 14 teachers visited the University of Thessaly Department of Electrical and Computer Engineering Computer Lab and observed a learning session with the use of INCLUDEME outcomes as a good practice for enriching classroom engagement and interactivity.

Similar activities took place with the 2nd Chance School of Volos, that has a similar student body. More than 20 students and 8 teachers engaged in the activities.

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Finally, an event aiming directly on teacher training engaged 15 vocational education teachers from the 2nd Evening Vocational High School of Volos.

Future training initiatives include:

- Training of University of Thessaly staff at the Department of Electrical and Computer Engineering on the positive effects of technogy-enhanced learning and on the possibilities presented for enriching student and educator learning experiences.
- Training of University of Thessaly staff at the Department of Primary Education, Department of Pre-school Education, and Department of Special Education on the positive effects of the INCLUDEME digital learning intervention and the practical use of the proposed solution in learning.
- Training additional secondary school educators on using the INCLUDEME digital learning intervention in the area of Thessaly and beyond. Example of schools include the 2nd Lyceum of Volos, the Music School of Volos, the 6th Lyceum of Volos, the 5th Gynmasium of Volos, the Lyceum of Argalasti on mount Pelion, and more.
- Training additional vocational educators, both at the secondary and post-secondary level, on using the INCLUDEME digital learning intervention in the area of Thessaly and beyond. Examples of schools to be addressed include Demetra post-secondary vocational education organization, vocational high schools in the area of Volos, Nea Ionia (Volos), and Agria (Volos).

Statistics	Target group	In the next 3 years	In the next 5 years
How many students were reached through piloting activities during the project?	140		
How many students / children with disabilities and neurodivergent conditions (via Family Fund and Online Games Portal) do you expect to reach in the next 3 and 5 years?		300	500
How many teachers were reached through instructor training during the project?	50		
How many teachers do you expect to reach in the next 3 and 5 years?		80	120

Table 4. Statistics of past and planned instructor training and student engagement at the University of Thessaly.

8.7.5 P.A. College – PAC

Statistics:

Statistics	Target group	In the next 3 years	In the next 5 years
How many students were reached through piloting activities during the project?	20		

How many students / children with disabilities and neurodivergent conditions (via Family Fund and Online Games Portal) do you expect to reach in the next 3 and 5 years?		30	50
How many teachers were reached through instructor training during the project?	10		
How many teachers do you expect to reach in the next 3 and 5 years?		20	30

Table 5. Statistics of past and planned instructor training and student engagement at P.A. College.

8.7.6 South-West University "Neofit Rilski" – SWU

During piloting sessions, the South-West University team focused on training teachers (DTG3) and school leaders. Teachers were engaged directly. Students benefitted through the upgrade of teacher skills in the use of digital technology for the support of disadvantaged and disabled individuals.

South-West University plans to continue educator training in the future in the context of regular academic activities. Specifically, the university aims to train students enrolled in the Special Pedagogy Department of the Faculty of Pedagogy. It further aims to extend training activities in order to reach and build the capacity of instructors in secondary special education in the south-west region of Bulgaria to deploy the INCLUDEME project solution. This activity is organized with the support of the Regional Education Inspectorate, one of the key stakeholders that participated in the round table organized by South-West University.

Statistics:

Statistics	Target group	In the next 3 years	In the next 5 years
How many students were reached through piloting activities during the project?	100	20	30
How many students / children with disabilities and neurodivergent conditions (via Family Fund and Online Games Portal) do you expect to reach in the next 3 and 5 years?			
How many teachers were reached through instructor training during the project?	30		
How many teachers do you expect to reach in the next 3 and 5 years?	20 - 30		

Table 6. Statistics of past and planned instructor training and student engagement at South-West University "Neofit Rilski" – SWU.

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8.7.7 Collective training and student engagement indicators

Following is a summary of the collective statistics and future expected reach for INCLDEME in terms of instructor training and student engagement.

Statistics:

Statistics	Target group	In the next 3 years	In the next 5 years
How many students were reached through piloting activities during the project?	515		
How many students / children with disabilities and neurodivergent conditions (via Family Fund and Online Games Portal) do you expect to reach in the next 3 and 5 years?		5,790	11,250
How many teachers were reached through instructor training during the project?	124		
How many teachers do you expect to reach in the next 3 and 5 years?	20 - 30	685	1,020

Table 7. Statistics of past and planned instructor training for the INCLUDEME consortium.

8.8 MAKE PRESENTATIONS TO EDUCATIONAL CONFERENCES

Presentations to academic conferences can help raise awareness on INCLUDEME project activities and outcomes. INCLUDEME partners use their collective networks to spread awareness and share positive feedback. Presentations at conferences can help reach the lifelong learning community, academia, and industry. They can be focused on shareable case studies on the design and deployment of educational resources based on the INCLUDEME interactive learning approach. Examples of academic conferences where project outcomes can be shared include:

- EdTech World Forum, https://edtechconferences.london/%E2%80%8B.
- EdTech Summit, https://edtech.schoolsandacademiesshow.co.uk/.
- Schools and Academies Show, https://www.schoolsandacademiesshow.co.uk/.
- BETT show, https://www.bettshow.com/.

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9. REACHING THE LIFELONG LEARNING MARKET

To effectively reach the higher education market, the INCLUDEME project will implement a comprehensive strategy tailored to engage universities, colleges, and other institutions within this sector. Central to this strategy is the establishment of partnerships and collaborations with higher education entities. Through these partnerships, the project aims to foster relationships with faculty, administrators, and student organizations, leveraging existing networks and resources to maximize outreach and impact.

In addition to partnership building, INCLUDEME will conduct targeted outreach and awareness campaigns within the higher education community. This effort will involve organizing workshops, seminars, and conferences aimed at raising awareness about the importance of inclusive education and the benefits of adopting innovative practices. By actively engaging stakeholders through these initiatives, the project seeks to generate interest and momentum for inclusive education within higher education settings.

Furthermore, INCLUDEME will develop tailored resources and training programs specifically designed for higher education professionals. These resources may include toolkits, guidelines, and online courses aimed at equipping faculty and staff with the knowledge and skills needed to create inclusive learning environments. By providing practical support and guidance, the project aims to empower higher education institutions to successfully implement inclusive education practices.

To demonstrate the effectiveness of inclusive education practices, INCLUDEME will implement pilot programs and demonstrations in collaboration with higher education institutions. These initiatives will serve as real-world examples of successful case studies and best practices, showcasing the tangible benefits of adopting inclusive approaches. Through these demonstrations, the project aims to inspire other institutions to follow suit and integrate inclusive education principles into their own practices.

Additionally, INCLUDEME will conduct research and evaluation studies to assess the impact of inclusive education practices within higher education settings. By generating evidence-based data and insights, the project aims to build a compelling case for the value of inclusive approaches and inform future decision-making within the higher education sector. Through policy advocacy efforts, the project will also work to promote the integration of inclusive education principles into higher education policies and regulations, advocating for supportive policy frameworks and incentives to facilitate widespread adoption.

Overall, by implementing this multifaceted strategy, INCLUDEME aims to effectively reach the higher education market and promote the adoption of inclusive education practices within universities, colleges, and other institutions. Through partnership building, outreach, resource development, demonstration projects, research, and policy advocacy, the project seeks to create an enabling environment for inclusive education to thrive within higher education settings.

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10. IMPACT INDICATORS FOR MONITORING SUSTAINABILITY IN THE SHORT AND MEDIUM TERM

Following are impact indicators with concrete targets on the adoption of project outcomes consortium-wide and beyond. The table includes:

- Proposal targets.
- Targets achieved upon project completion, which demonstrate that proposal targets have been exceeded.
- Projections of targets 3 years and 5 years after the completion of the implementation period based on current performance indicators.

Impact objective/Month	6	18	24	36	48	Beyond
Dissemination tools						
Newsletters	1	3	4	6	7	10
No. of people receiving the newsletter	100	150	200	250	400	1,000
Brochures distributed				500	1,000	
Flyers, leaflets, pamphlets distributed		150		500		1,200
Promotional videos (short clips)	1	2		10		10
Publications						
Conference papers		6	10	14	18	
Journal papers				2	4	
Newspaper articles	1		3			
Book					1	
Online presence						
Portal	1	1	1	1	1	1
Countries made aware	5		8		15	30
Portal page hits	500	1,000	5,000	10,000	15,000	30,000
No. of unique visitors	30	80	150	500	1,000	2,000
No. of return visitors	20	40	50	250	500	1,000
No. of links to the portal	14	20	25	35	45	65
No. of videos/audio podcasts and tutorials		4		8	12	
Social Media						
No. of posts in social networks	20	50	100	150	200	300
No. of supporters/ subscribers	28	50	80	100	120	180
Dissemination events						
No. of workshops		6		10		
No. of attendants to workshops (each region)		25		50		
Stakeholders – consortium + associates						
No. of public institutes, NGOs contacted		20		25	48	

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No of increase collaboration		15				30
No. of interviews (industry level)		10				
No. of focus groups	14	20	30			

Table 8. Impact indicators.

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CONCLUSIONS

This document presents the sustainability plan of project INCLUDEME. The plan identifies activities and outcomes that will be sustained after the completion of the implementation period. In addition, it provides a discussion of tailored steps that will ensure the medium to long term adoption of project outcomes within and beyond partner organizations.

The sustainability plan is based on providing open access to project outcomes for maximizing positive impact not only for partners but for interested external to the consortium organizations, fostering the institutionalization of project results among project participants, ensuring necessary instructor training, and developing a network of universities that will contribute to the sharing of experiences on student innovation skill development through emerging gamified design thinking digital learning approaches.

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