

Interreg



Co-funded by
the European Union

Alpine Space

SmartCommUnity

D.3.2.1 | Report on the expansion of the Smart Villages platform



**The INTERREG Alpine Space SmartCommUnity project |
OCTOBER 2023**

University of Ljubljana (Lead partner)
Poliedra - research and consultancy centre of Milan's
Polytechnic University on environmental
Development Agency GAL Genovese
Standortagentur Tirol GmbH
Regionalverband Südlicher Oberrhein
ITC – Innovation Technology Cluster Murska Sobota
Association for the networked development of territories and
services
Autonomous Region of Valle d'Aosta
Swiss Center for mountain regions SAB
Energy and Environment Agency of Lower Austria
Software Competence Center Hagenberg GmbH
Region Lucerne West

Expansion of the Smart Villages platform



List of content

Abstract	4
Introduction	5
Smart Villages: A Retrospective	6
Antecedents	6
The transition to a new platform	8
The new goals	8
Long-term sustainability and Eusalp integration	9
The Need for a Digital Civic Engagement Platform	10
Introduction	10
SmartCommUnity and Civic Engagement	11
The new platform for civic engagement in rural areas	11
The Test areas	12
Blog	13
Forums	14
Gamification	15
Chatbot	17
Smart Apps	19
Conclusions	20
References	20



List of figures

Figure 1. View of the previously developed DEP.....	6
Figure 2. View of the previously developed Toolbox.....	7
Figure 3. Homepage of the newly created platform.....	11
Figure 4. View of the different communities in the platform	12
Figure 5. View of the homepage with information	13
Figure 6. View of the Blog in the newly created platform	14
Figure 7. View of the diverse groups in which the forums are organized	15
Figure 8. Example of Gamification notice	16
Figure 9: Chatbot integration to website	18
Figure 10. View of the TA Analyzer for the automatic calculation of smartness	19



Abstract

This report explores the evolution and expansion of the Smart Villages platform into a comprehensive civic engagement platform. The SmartCommUnity project envisions the goal of addressing rural development challenges. To do that, a previously developed Digital Exchange Platform (DEP) and a Digital Toolbox (Toolbox) have undergone a profound transformation to meet the growing demands of civic participation and community empowerment. In fact, we have worked towards improving such aspect as collaboration, engagement, and gamification. Our goal is to attract stakeholders from the rural world to help them work collaboratively in the pressing challenges that they must deal with in their daily activities. Our initial efforts are focused on the Test Areas of the project, which are in the Alpine Space, although there are no restrictions for the use of other more distant regions.

Introduction

This deliverable reports the development of the new platform that augments the capabilities of the **Digital Exchange Platform** (DEP) and the **Digital Toolbox** (Toolbox) developed in the frame of our parent project Smart Villages [1, 2]. The idea is to improve and augment all the capabilities, integrating and transforming these two platforms in a fully integrated system being able to facilitate civic engagement.

To do that, this report begins by tracing the origins of the Smart Villages platform, highlighting its original objectives, key stakeholders, and notable achievements in **rural development** [3]. It then goes deeper into the changing landscape of **community engagement**, demonstrating the need for a more inclusive, adaptable, and responsive approach in today's digital era. These goals are of particular importance in the rural areas, whereby the access to the newest technologies is not always guaranteed.

This deliverable also goes into details about the far-reaching benefits of the envisioned **civic engagement platform**, including aspects such as increased **transparency, accountability, and efficiency** in governance processes, as well as improved **community empowerment and resilience**. It offers recommendations for scaling the platform, building a **supportive ecosystem**, and facilitating user adoption.

Therefore, the rest of this deliverable is structured in the following way: Section 2 offers a retrospective regarding our former project Smart Villages and the results that we are now augmenting. Then, we explain the ever-growing demand of solutions that can really engage people to collaborate to face some of the problems that the rural areas in the Alpine Space are currently facing. Then, we report the work done in relation to the platform, we highlight the new functionality regarding collaboration, engagement, and gamification. Finally, we conclude this deliverable with the major conclusions that can be extracted from the work done.



Smart Villages: A Retrospective

SmartCommUnity represents an exciting evolution of the **Smart Villages** project as it transitions from a tool mostly oriented to local authorities to a dynamic civic engagement platform. Building upon the foundation laid by the Smart Villages project, our aim now is to empower not only the local governments, but also the entire community to make their villages smarter.

Antecedents

In the initial phase of the Smart Villages project, there were two platforms: the DEP and the Toolbox. The DEP was primarily designed to assess and quantify the level of **smartness** in various villages of the Alpine Space, helping local authorities and stakeholders gain insights into their smartness status, and putting them in contact with other stakeholder having similar characteristics [4]. However, we are taking a significant step forward in this new project by turning this platform into a hub for **civic participation** and **smartness enhancement**. Figure 1 shows us an example of the previously developed DEP.

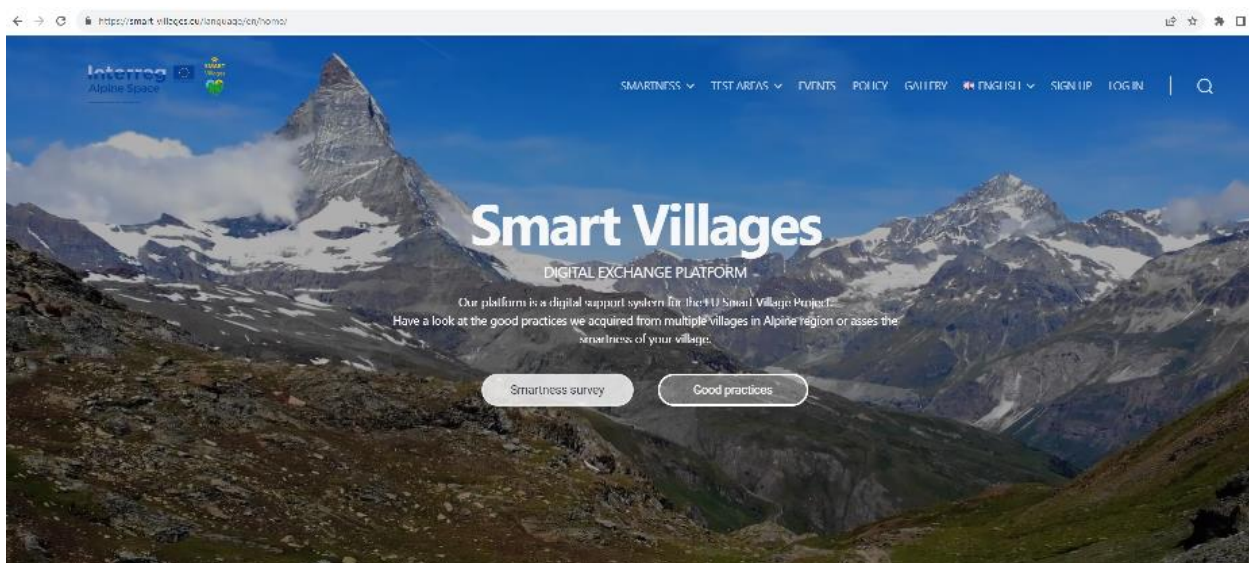


Figure 1. View of the previously developed DEP



The key focus of this new **SmartCommUnity** project is to create a structured process for selecting, implementing, and defining specific collaboration, engagement, and gamification actions in all Test Areas (TAs). These actions will not only cover the original pillars of economic development, environmental sustainability, effective governance, improved livelihoods, enhanced mobility, and better quality of life for people but also emphasize the transition towards smartness in these domains.

Additionally, another component that was developed was the Toolbox. This component collected a set of methods and **best practices** and was set to an audience of practitioners. In this project, we believe that expanding and refining the previously developed Toolbox will involve engaging the community at every step of the way. True smartness can only be achieved when everyone actively participates, from local authorities to people. And this is the main reason on which our project is based. Figure 2 shows us an example of the previously developed Toolbox.

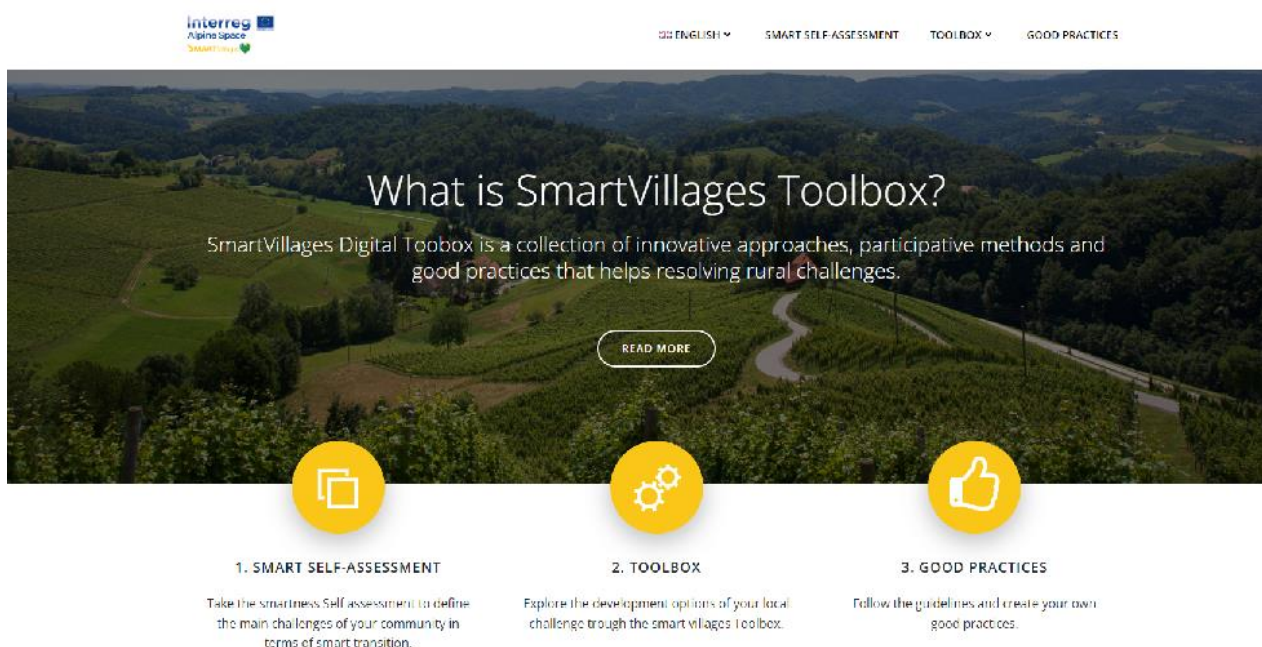


Figure 2. View of the previously developed Toolbox



The remainder of this document will focus on the improvements to these previously developed components and how the community can make use of and benefit from these new aspects.

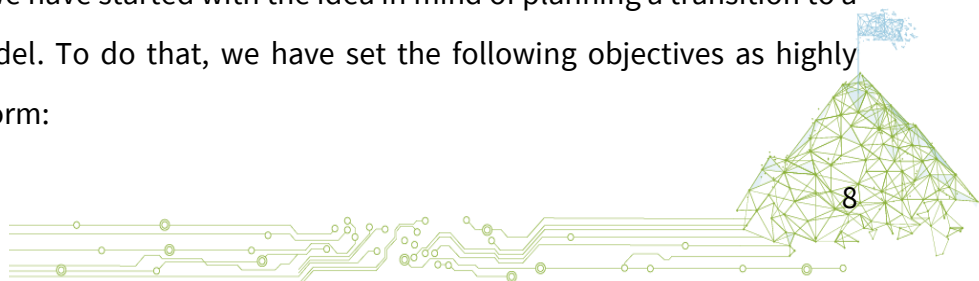
The transition to a new platform

The project SmartCommUnity aims to pilot a transition into a civic engagement platform. The goals of our transition can be summarized as follows:

- **Community Involvement:** We will encourage active participation from the residents of each village in defining their smartness goals and priorities. This will ensure that the actions taken are aligned with the actual needs and aspirations of the community.
- **Data-Driven Decision Making:** We will continue to utilize data and technology to facilitate decision-making. The platform will provide data and analytics to track progress and assess the impact of smartness actions.
- **Education and Awareness:** An essential aspect of this project will be raising awareness and educating the community about the benefits of smartness actions. We want everyone to understand how these actions can improve their quality of life and contribute to sustainable development.
- **Collaboration and Partnerships:** We will foster collaboration between local governments, businesses, non-profit organizations, and educational institutions to leverage resources, expertise, and innovative solutions for smartness transitions.
- **Measurable Impact:** Our goal is not just to implement smartness actions but to measure their impact on the key domains (e.g., mobility, governance, environment, economy, etc). This will ensure accountability and transparency in the process.

The new goals

As a result of the components, we have started with the idea in mind of planning a transition to a civic engagement platform model. To do that, we have set the following objectives as highly desirable for our new web platform:



- Enhanced **knowledge dissemination** for TAs regarding the implementation of smart approaches and methodologies
- Facilitation of a **toolbox and data collection** tools presentation
- Facilitation of **interactivity** between various countries and regions
- Provision of **distinct spaces** tailored to the unique needs of each country or group, with each page presented in the respective local language
- Inclusion of a link to **Eusalp**¹ and the establishment of the Smart Alps Network, with the ultimate objective of encouraging territorial participation in the network
- Incorporation of **gamified elements** to incentivize individuals to actively utilize and engage with the platform.

Next, we will go into detail about the advantages of transforming our platform into a meeting point for civic engagement and how this can impact the stakeholder community we focus on.

Long-term sustainability and Eusalp integration

With the idea of sustainability of the platform once the project ends, we have agreed to have a cooperation with the Eusalp network. This organization is the **European Union Strategy for the Alpine Region** and seeks to foster economic and social development while preserving the natural and cultural heritage of the Alps.

By aligning our project with the Eusalp network, we are committed to achieve our project's goals and ensuring the platform's long-term sustainability. Eusalp's focus mirrors our values and objectives (e.g., sustainability, cooperation, and innovation in the frame of the Alpine Space). This cooperation allows us to tap into a network of like-minded organizations and leverage their expertise in promoting sustainable practices. Together, we aim to create a lasting impact that extends beyond the project's lifespan, contributing to the protection and enhancement of the **Alpine region**.

¹ <https://www.alpine-region.eu/>



The Need for a Digital Civic Engagement Platform

Civic engagement is about people who actively make changes in their communities that they think will make things better. While it is true that there are many platforms for civic engagement, their use in **rural communities** has yet to be deeply studied; in our experience, this type of tool can be beneficial to implement a participatory process of a collaborative nature to help revitalize rural communities that suffer from problems, such as depopulation or the cutback of public services.

Introduction

People have been increasingly using technology in their daily lives in recent years. One area where technology has the potential to make a significant impact is in the realm of civic engagement. Civic engagement refers to how individuals can participate in their communities, and technology has the potential to make civic engagement more accessible and practical [5]. One area that has been overlooked is the development of civic engagement technology in **rural areas**. Despite the vital role that rural areas play in our communities; they often need more access to technology and may face unique challenges in terms of civic engagement.

One of the critical features of civic engagement platforms is that they are designed to **be inclusive and accessible**. They allow the people from diverse backgrounds to participate, regardless of their location or socioeconomic status. This can increase their political representation and ensure that the voices of marginalized communities are heard in the public sphere [6].

Furthermore, by providing a space for open and honest discussions, these platforms can shed light on the **decision-making processes** and help to hold local authorities accountable. Moreover, integrating technology into civic engagement platforms can bridge the digital divide, ensuring that even rural areas can participate in the decision-making processes that affect their communities [7].



SmartCommUnity and Civic Engagement

On the other hand, Smart Communities can include access to **digital services** such as internet connectivity and automation of processes, among others. The goal is to create sustainable and self-sufficient communities that can leverage technology to address shared challenges and drive economic growth.

The new platform for civic engagement in rural areas

In this second period of the project, we have worked to build and deploy our web platform, around which key project activities will revolve in subsequent periods. This newly created platform is accessible through the URL <https://smart-alps.eu>

There are various aspects that have been newly introduced. For example, the visual aspect, the logo, the colors, etc. As well as some new concepts: For example, the indexation of smart apps, or the concept of gamification to engage our stakeholders.

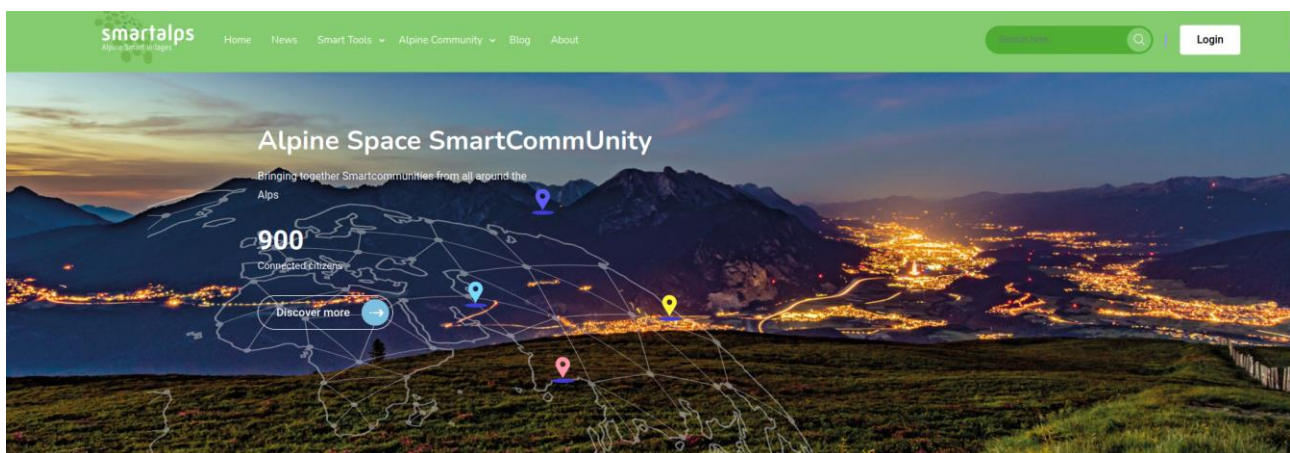


Figure 3. Homepage of the newly created platform

Figure 3 shows us how one of the most noticeable changes during this phase has been the transformation of the platform's visual identity. We have crafted a modern and **appealing visual aspect** that reflects the essence of our project.



This includes the design of our logo, which now serves as the emblem of our platform, and a carefully selected color palette that not only enhances the overall aesthetics but also conveys our brand's personality and values. These visual elements provide a cohesive and memorable user experience, reinforcing our project's identity.

The Test areas

The different TAs have a specific place on our platform. We envision these specific places from a dual perspective. Firstly, a **static information point** with relevant data about the TAs, and secondly, a **local language community** that allows stakeholders interested in the TAs to exchange information.

Combining these two perspectives allows us to create a dynamic ecosystem that connects users with the right TAs and nurtures a supportive community where learning and growth thrive. Figure 4 shows a screenshot of the different communities that we have deployed in the first instance within our web platform.

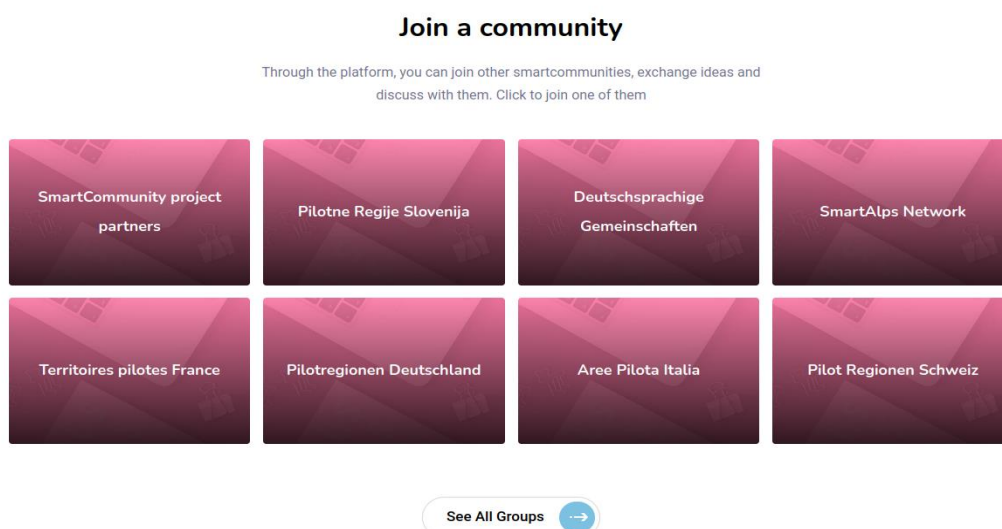
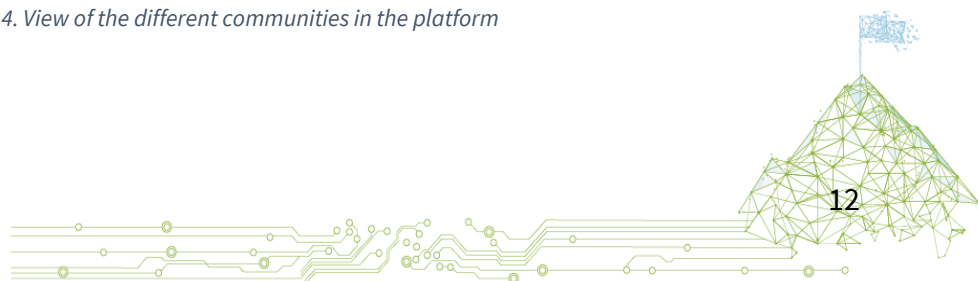


Figure 4. View of the different communities in the platform



In addition to **specific information about the TAs** that comprise our project, this first version of the web platform also includes general purpose information for all stakeholders who want to know a little more about aspects such as civic engagement, gamification, or smartness assessment. Figure 5 shows a screenshot with general information focused on this general-purpose audience that wishes to engage with the use of our platform.

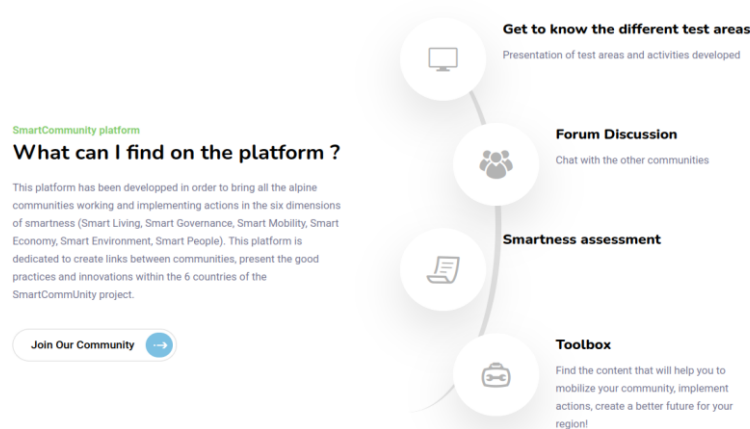


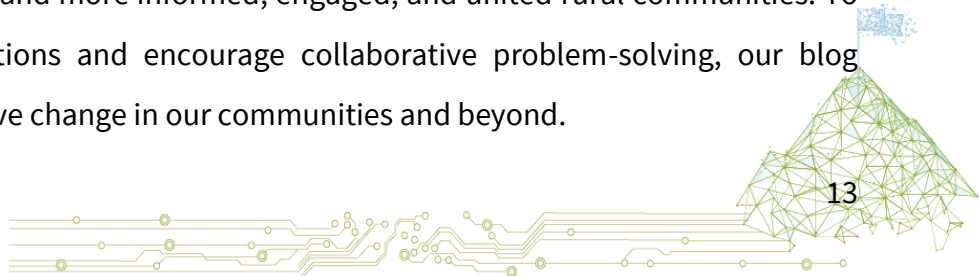
Figure 5. View of the homepage with information

Blog

Our blog should foster informed and **active participation** by providing a space for sharing diverse perspectives, discussing important community issues, and promoting dialogue and participation among our stakeholders.

Figure 6 shows a us a view of the Blog section. This blog is designed to be an inviting space where users can discover articles, stories, and multimedia content. These pieces cover various subjects, from **local news** and **individual experiences** to **educational insights**. The layout is user-friendly, ensuring easy navigation and accessibility for all.

We aim to create a thriving online community where exchanging ideas and information helps building **stronger connections** and more informed, engaged, and united rural communities. To facilitate meaningful conversations and encourage collaborative problem-solving, our blog platform aims to catalyze positive change in our communities and beyond.



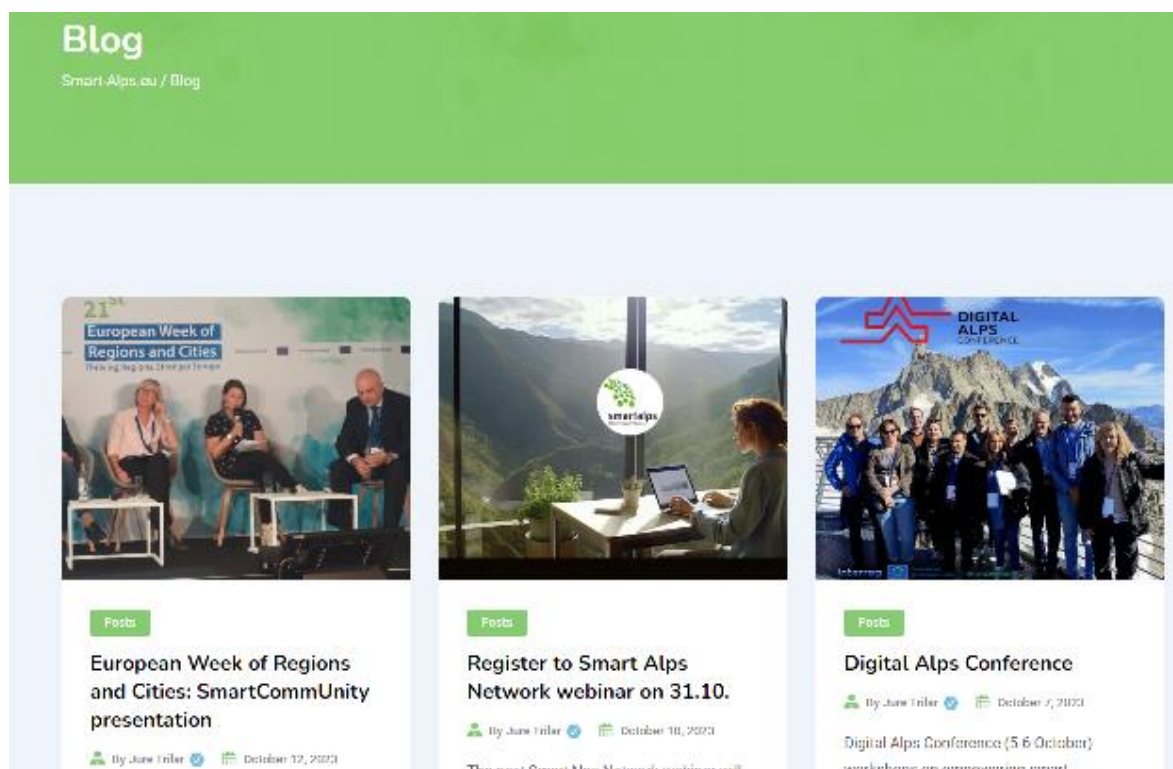


Figure 6. View of the Blog in the newly created platform

Forums

Our forum facilitates the **exchange of ideas**, information, and resources among rural residents, enabling them to address specific local challenges and opportunities while fostering a sense of community and collective problem-solving.

Additionally, it can bridge geographical distances, building smart communities and/or connect isolated communities, and empower rural residents to have a stronger voice in decision-making processes that impact their unique needs and priorities.

Figure 7 gives us a view of the Forums within our newly created platform. These forums serve as hubs of interaction, where users from the TAs come together to exchange ideas, seek advice, and



engage in meaningful discussions. As it is possible to see in the screenshot, the Forums section is designed to encourage active participation and collaboration.

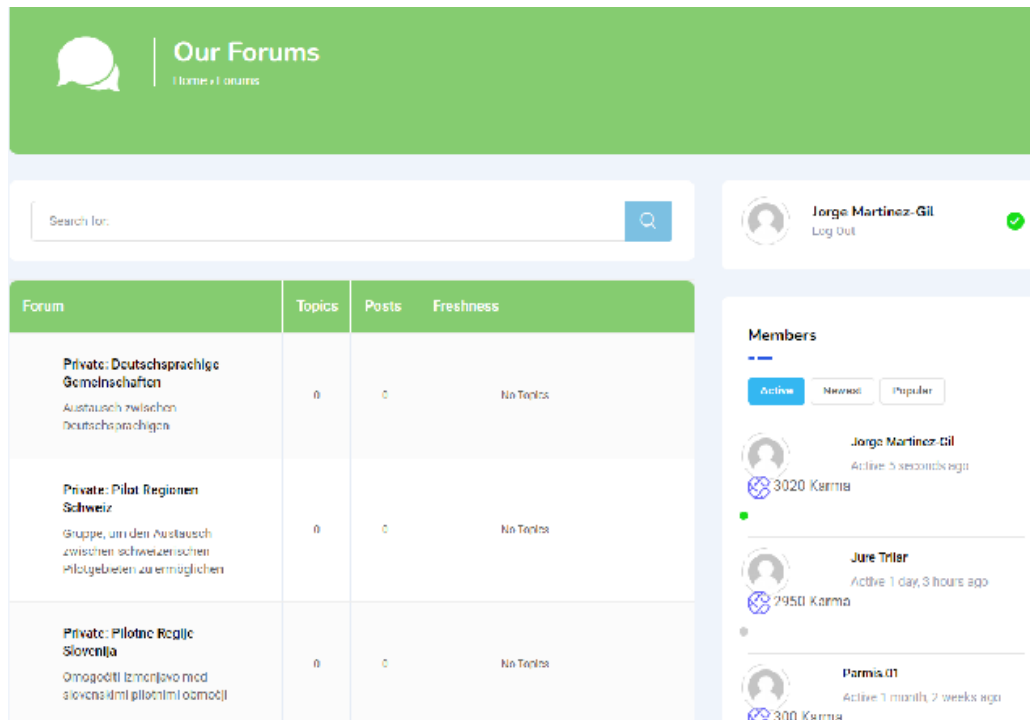


Figure 7. View of the diverse groups in which the forums are organized

The forums are also segmented by topics. This means that the users can explore several topics and engage with the community through comments and discussions, making it a dynamic and interactive platform for sharing ideas and perspectives.

Gamification

Gamification in a civic engagement platform for rural areas can **boost participation**, foster community cohesion, educate residents about civic issues, boost local initiatives, empower users, collect valuable data, encourage positive behaviors, enhance accessibility, track progress, and support local governance [8]. It leverages the power of **game-like elements** to make civic engagement more engaging, inclusive, and effective in rural communities.

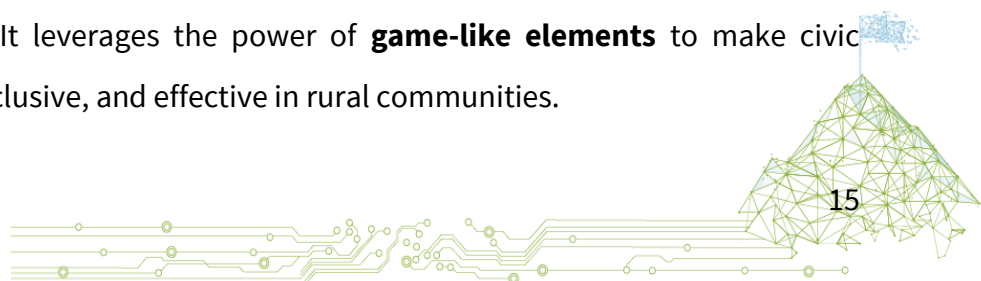


Figure 8 reveals how users can experience the new dimension of gamification when interacting with our platform. This graphical representation captures how gamification elements are incorporated into the **user experience**, adding fun and engagement to their interaction.

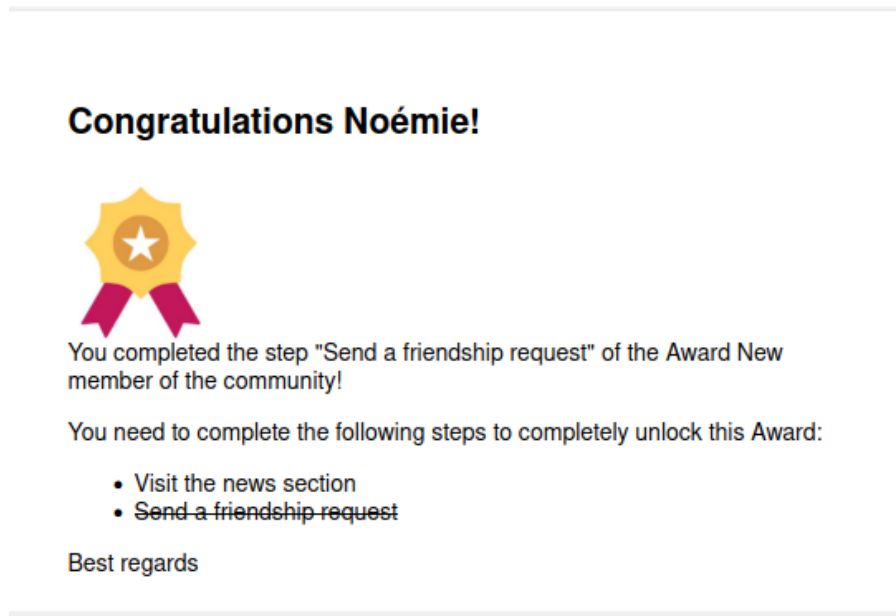


Figure 8. Example of Gamification notice

In subsequent project periods, we will examine the different possibilities that we have to successfully incorporate gamification. Although now we know that there will be challenges or tasks that must be fulfilled to reach an objective. For example:

- The players accumulate points as they accomplish tasks
- There are levels that the players can pass
- There is some type of reward for completing actions
- Players are ranked according to their achievements

In our system, we offer users three distinct possibilities for engagement and interaction: ranks, achievements, and points. These elements are designed to gamify the user experience, providing motivation and incentives for active participation.



- **Ranks:** Users can strive to climb the ranks within our community, highlighting their dedication and expertise.
- **Achievements:** Users can earn achievements as they accomplish specific milestones and goals within the platform. These achievements recognize users' accomplishments.
- **Points:** Users accumulate points based on their activities and contributions, providing tangible rewards for their efforts.

Some examples of actions leading to rewards are :

- Registration
- Comments (add comments, consult comments)
- Publishing a post, a page
- Get added/assigned to a role
- Daily visits
- Changes on the profile
- Friendship request (accept one or send one)
- Join a group / create one

Chatbot

With the advent of Large Language Models (LLMs) in machine learning, Open.AI **Chat GPT3/4 derivatives** can be integrated into other external sources and platforms. Integration with Wordpress CMS² can be achieved through plugin provider **ChatBase**. The knowledge base on specific topics is built by importing all project deliverables, documentation, and other material that the Consortium estimates can provide valuable public information. The improved LLM GPT-3 model can **interact with users** in all partners' countries languages and can also be trained with future website social platform data along with all upcoming documentation of the project. Eventually it can be updated with new, more efficient, models (GPT-4...).

² <https://wordpress.com/>



Our consortium estimates that having a chatbot on a website **fed with deliverables** from the SmartCommUnity project could be helpful for the community since it allows users to quickly access information, updates, and resources related to the project, enhancing their overall experience. This **real-time assistance** can improve communication, streamline support, and provide valuable insights, increasing user satisfaction and platform engagement.

Important aspect of this functionality is not only the usage of the new AI/ML innovative technology and delivering relevant and detailed information about topics addressed in the SmartCommUnity project, but it is also important from the perspective of emerging **interaction patterns** between user and machine – as some users might prioritize the use of such interaction and presentation of information instead of using structured website navigation or website search fields.

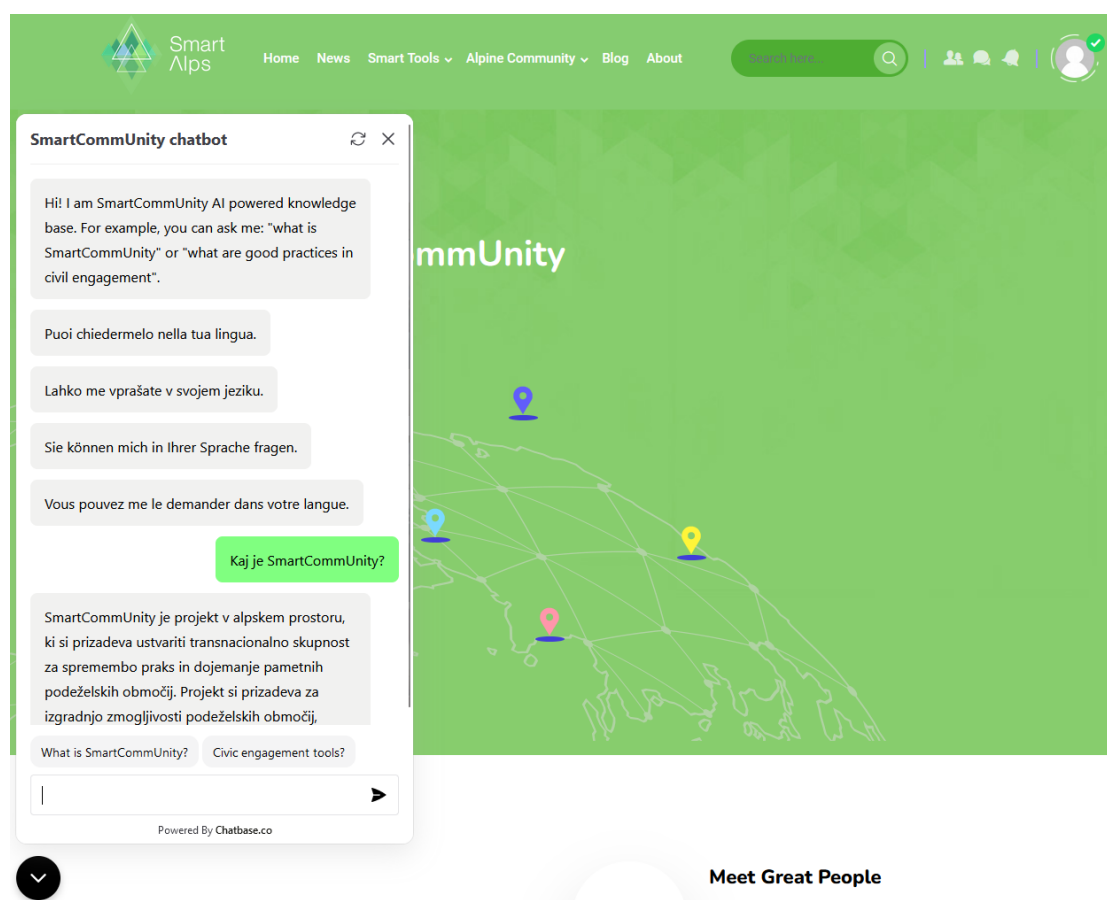


Figure 9: Chatbot integration to website

Smart Apps

Our platform also includes a series of Smart Apps that will be protagonists in future periods of the project. For the moment, we have only included a few **demonstrators**. The idea is that with all the data that can be collected, we will be able to make analyses, visualizations, etc. that will help to better understand the overall situation in relation to the degrees of smartness of the Tas Alpine Space. For example, Figure 10 shows the **TA Analyzer**.

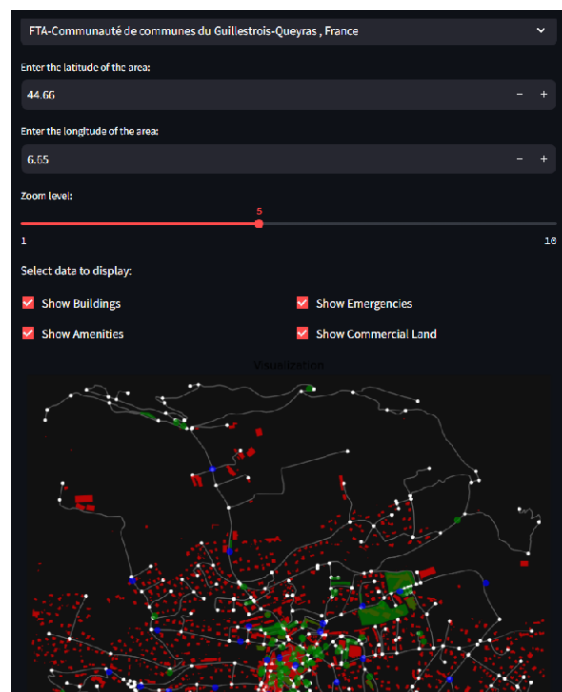


Figure 10. View of the TA Analyzer for the automatic calculation of smartness

In the coming periods, our primary focus will revolve around the continued development of smart applications tailored specifically for **data collection, analysis, and visualization**. We recognize the immense potential these applications hold in transforming the way information is gathered and processed, particularly in rural areas. As we move forward with our mission, we are committed to enhancing the functionality and appeal of these apps to cater to the unique needs and challenges faced by rural stakeholders.



Conclusions

In conclusion, this deliverable represents a significant milestone in transforming the DEP and the Toolbox. The goal is to pilot the transformation of the DEP and the Toolbox into a fully operational system designed to **enhance civic engagement**.

Through a retrospective examination of Smart Villages' origins and accomplishments, we have recognized the need for a more inclusive and adaptable approach to **community engagement**, particularly in rural areas where access to modern technologies can be limited. The proposed civic engagement platform holds immense promise, offering benefits such as transparency, accountability, efficiency in governance processes, and strengthened **community empowerment and resilience**.

Our upcoming priorities include the identification of specific components within the civic engagement platform that are suitable for testing. We plan to collaborate with a selected group of TAs that might be willing in participating in the beta testing phase. This **preliminary testing** will allow us to thoroughly evaluate and refine the platform's functionality before making it available to all our partners.

Our recommendations for scaling the platform and cultivating a supportive ecosystem are essential to realizing this vision. As we conclude this deliverable, we are excited about the potential impact of this platform in addressing the unique challenges rural communities face in the **Alpine Space and beyond**.

References

[1] Jorge Martínez Gil, Mario Pichler, Gianluca Lentini, Valerio Mazzeschi, Guillaume Doukhan, Claire Belet: A Digital Platform to Facilitate the Resilience of Rural Territories. J. Inf. Knowl. Manag. 21(3): 2250043:1-2250043:19 (2022)



- [2] Jorge Martínez Gil, Mario Pichler, Muhamed Turkanovic, Tina Beranic, Mitja Gradisnik, Gianluca Lentini, Alessandro Lué, Alberto Colorni Vitale, Guillaume Doukhan, Claire Belet: Framework for Data Analysis in the Context of the Smart Villages. EGOVIS 2020: 31-45
- [3] Jorge Martínez Gil, Mario Pichler, Tina Beranic, Lucija Brezocnik, Muhamed Turkanovic, Gianluca Lentini, Francesca Poletini, Alessandro Lué, Alberto Colorni Vitale, Guillaume Doukhan, Claire Belet: Framework for Assessing the Smartness Maturity Level of Villages. ADBIS (Short Papers and Workshops) 2019: 501-512
- [4] Beranič, T., Zamuda, A., Brezočnik, L., Turkanović, M., Lentini, G., Poletini, F., ... & Pichler, M. (2019). Facilitating the digital transformation of villages. In Central European Conference on Information and Intelligent Systems (pp. 281-288). Faculty of Organization and Informatics Varazdin.
- [5] Chen, N. N., Dong, F., Ball-Rokeach, S. J., Parks, M., & Huang, J. (2012). Building a new media platform for local storytelling and civic engagement in ethnically diverse neighborhoods. *New Media Soc.*, 14 , 931–950.
- [6] Datyev, I. O., Fedorov, A. M., & Shchur, A. L. (2020). Framework for civic engagement analysis based on open social media data. In R. Silhavy (Ed.), *Artificial Intelligence and Bioinspired Computational Methods - Proceedings of the 9th Computer Science On-line Conference 2020*, Vol. 2 (pp. 586–597). Springer volume 1225 of *Advances in Intelligent Systems and Computing*.
- [7] Escobar, J. E. C., & Vasquez-Urriago, A. R. (2014). Gamification: an effective mechanism to promote civic engagement and generate trust? In E. Estevez, M. Janssen, & L. S. Barbosa (Eds.), *Proceedings of the 8th International Conference on Theory and Practice of Electronic Governance, ICEGOV 2014*, Guimaraes, Portugal, October 27-30, 2014 (pp. 514– 515). ACM.
- [8] Hassan, L., & Hamari, J. (2020). Gameful civic engagement: A review of the literature on gamification of e-participation. *Gov. Inf. Q.*, 37 , 101461.

