



## EMERGREEN New Scenarios Report

Potential service areas where the EMERGREEN  
approach to providing sustainable public  
services could be applied

March 2022



Northern Periphery and Arctic Programme  
2014-2020



EUROPEAN UNION  
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European Regional Development Fund

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## 1) EMERGREEN Project Background

EMERGREEN or “Emerging Technologies for Greener Communities” is an interregional project funded under the Northern Periphery and Arctic Programme 2014-2020.

Commencing in October 2018, six partners from Ireland, Northern Ireland, Sweden, Finland, and Faroe Islands are working together to overcome the common territorial challenge of how to deliver quality and sustainable public services in remote areas, addressing factors such as long distances, high service delivery costs due to low demand aggregation, shortages in human and material resources, and lack of access to the latest innovations.

The new services being provided through this project are a Coastal Stories App, which uses crowdsourced images to monitor marine erosion, a Recycling App and Chatbot providing 24/7 information on recycling and waste management to citizens, a Chatbot providing customised solar energy information and advice, an online idea generation and citizen participation platform addressing food waste and recycling, and a website providing data and user experience stories on alternative heating solutions.

## 2) Purpose of the new scenarios report

One of the goals of the EMERGREEN project was to apply specific technologies and methodologies to effectively provide public services in remote areas and to identify potential other potential service areas where the same approach could be used effectively. The new scenarios report identifies these potential service areas and supplements the information about the technologies and methodologies with the lessons learned by the EMERGREEN partners through the selection, design, prototyping, piloting and launch of their services.

## 3) Potential new scenarios

Activities were conducted to identify new scenarios where the EMERGREEN approach could be applied. The main objective was to identify all possibilities and added value that the approach can bring to public service provision in remote areas. The lessons learned during the EMERGREEN experience are an invaluable resource and were used to help identify potential service areas and to inform those potentially using them of the lessons learned through the process.

At the methodology level, the process used by the EMERGREEN partners is recommended to those undertaking any potential new scenario to addressed by one of these technologies. The process involved the potential technologies to be used to provide public services being identified, researched, documented and discussed. The individual partners then worked with the experts within the project to identify the technology that best matched their intended objectives, based on their own criteria. The specifics of the technology to be used were then adapted to meet the partners’ objectives, prototyped, tested with focus groups and then piloted in the partner regions. The participation technology identified for use in the EMERGREEN project were selected based on meeting the following criteria:

- web-based
- open access and therefore freely available
- highly modifiable to suit various participation needs

- low cost in terms of technical support in developing, launching, updating and maintaining the service and
- easy to use from the user's perspective

The following are some potential new scenarios where the EMERGREEN approach and tested technologies could be used to provide public services in remote and sparsely populated areas.

#### a) Gathering citizen input and/or increasing their participation

Local or regional authorities, cities or municipalities attempting to engage citizens and capture their input on wide-ranging topics, for example, crowdsourcing inputs for a regional roadmap towards carbon neutrality, could benefit greatly from the digital participation platform created by University of Helsinki in their OMAidea service. OMAidea (own idea in English) is based on Decidim open-source technology, and was developed to address the overall aim of promoting greener communities in remote areas and specifically to address the following objectives:

- Promote innovative and versatile citizen participation in the city and region, especially in remote and sparsely populated areas
- Raise awareness on sustainability issues, the circular economy and climate change
- Engage citizens in actively contributing to and promoting everyday sustainability solutions and green lifestyles
- Involve citizens in the digital platform's further development.

UH reported that the service provided the following value for the public:

- The participation platform offers a non-commercial medium to engage people on different agendas.
- Digital participation services can be utilised in reaching and engaging citizens in remote locations and rural areas, but with certain limitations (digital connectivity, suitable devices, know-how to operate devices and services, and most notably, awareness about the service's existence and personal willingness to participate).
- Digital participation tools need support from traditional participation methods and "participation ambassadors" to be successful.
- OMAidea and other Decidim-based applications are versatile platforms with various built-in participatory processes ranging from mini-surveys launched just in minutes to heavy participatory activities such as idea collection, voting and evaluation activities, so these platforms can be used in a wide range of participatory activities targeted at general public or well-defined groups of people.
- The platform has contributed to increased awareness on sustainability issues in the City of Mikkeli and beyond.
- The platform has highlighted and sparked thinking and action around circular economy, climate change, food systems and food waste as well as novel foods such as cellular agriculture.

Overall feedback from UH on the potential of the service supporting future initiatives was as follows:

- The participation platform serves as a tool for any context to crowdsource ideas or collect the views of citizen on any topical issue.
- The platform has worked as a conversation-starter in building new collaborations

- Citizen participation can give hints to public sector actors about gradual changes and hidden trends within the population that academic research may find later due to heavier research processes.
- The global community developing Decidim is growing. Major cities in Europe have utilised Decidim-based application is participatory budgeting with positive experiences.
- Open access participation tools may be clearly more advanced in the near future and attract therefore increasing amounts of young people to try these solutions.
- Including technologies such as AR and VR applications may transform radically citizen participation in remote and rural areas in the future.

## b) Providing 24/7 access to customised information

Some of the information that local or regional authorities, cities or municipalities need to make available to their citizens is more effectively transferred in a question-and-answer format, which would traditionally require access to personnel at any given time, which is time-, cost- and resource-prohibitive. Providing this type of information online can be confusing or overwhelming to the user. A chatbot that can respond to questions with customised answers may be the most appropriate technical response to providing this type of service. For example, authority-provided services that experience a high level of incoming queries, such as where and when leisure/fitness/health activities are taking place and how citizens can avail of them, have been identified as potential candidates for a chatbot services.

Within the EMERGREEN project, one of the chatbots created using Rasa open-source conversational AI, is RIA (Recycling Information Assistant), which was generated for Derry City and Strabane District Council (DCSDC) to allow citizens to more easily access recycling and waste management information to help them live more sustainably. The primary stakeholders involved in validating RIA were the residents of the city and district, with the following specific subgroups also included to ensure their input was incorporated: 1. Older citizens 2. Disability groups 3. Younger citizens 4. Migrant groups 5. Students.

DCSDC has evaluated the value of the chatbot as follows:

- The chatbot provides instantaneous answers to users outside of normal office hours, and importantly, during holidays.
- It improves connectivity with citizens and eliminates the need for them to search through the website or call the helpdesk for information
- The content not only answers queries but in some instances gives educational tips/advice and “behavioural nudging” that may improve the user’s waste management practices.
- The service helps the council monitor and review key areas of interest to citizens
- The service frees up some staff to carry out other responsibilities
- The chatbot will allow for content to be manage and regularly updated

In terms of continued management of the services, DCSDC has made the following provisions:

- A management/governance structure has been put in place with updates being managed in-house by the Marketing and Digital Services teams.
- Marketing Officers have been trained in updating the data

- User satisfaction is being monitored through anecdotal evidence in focus groups and surveys during these sessions.
- The Marketing Team will be monitoring feedback from users and will adapt content/format to improve user experience where necessary.
- Chatbot engagement will be logged on the backend of the system and the number of email queries/phone calls to the helpdesk are expected to decrease.
- A Marketing and Community Engagement Campaign is planned to make local citizens aware of the services, including a focused social media campaign to spark interest and engagement.

### c) Providing localised data and stories to promote change

The Faroe Islands has 53,000 inhabitants living in approx. 17,000 homes, most of which are single-family houses. The vast majority of these (90%) are heated with oil burners. The decarbonised future for heating the islands' buildings is likely to be electric driven heat pumps as well as district heating networks in densely populated areas. The switch from oil-fired burners to heat pumps requires a massive change right across the islands. And aside from technical issues, the main challenges are cost, industry skill levels and customer acceptance.

The "Heat Pump and Solar Power Info Portal", which is the main focus of the EMERGREEN project for the Faroese Environment Agency, is a platform where people can find localised, practical information on issues related to all sort of heat pumps to increase understanding and therefore acceptance. The portal is designed to inform, stimulate and promote greater utilisation of renewable heating from ground source and air source heat pumps among the Faroe Islands' citizens. It assists local people on the islands with choosing an alternative heating solution for their homes, guiding them to choose a smart heating solution with better efficiency and a reduced carbon footprint. For an ordinary family, it is important to clarify how much it costs to heat their home with different heating systems, so a user-friendly calculator allows the homeowner to enter details about their house and get cost comparisons between an oil burner and a heat pump based on ground source, air to water or ventilation air.

Animations, figures, videos and photo sequences of the heat pump installation process ensure a better understanding. Homeowners are given the opportunity to share their experiences once they have installed or switched over to using heat pumps. This type of storytelling gives those who have not yet made the switch the ability to hear from neighbours who have experiences they can learn from.

This localised information, in the citizens' language, with the addition of the cost calculator and enhanced by the storytelling of citizens who already have heat pumps installed provides a formula for promoting and encouraging environmental or other changes that require a costly commitment from citizens. This same method can also be used to encourage solar or other renewable energies or in any scenario where people need local, relatable data and stories to encourage change.

### d) Crowdsourcing data through citizen scientist participation

Another of the EMERGREEN services is Donegal Coastal Stories, an app designed by NUIG in collaboration with Donegal County Council to engage public participation as 'citizen scientists' in the field of marine coastal erosion mapping through crowd-sourcing imagery. Findings from this study will help to control and manage coastal erosion to help with the coast-line development. This coastal erosion monitoring app will allow the public to participate by taking photos of a stretch of coastline

from a stand or plinth, which, over time, will form a database for comparative analysis of trends in seaward/landward migration of the coastline, telling the story of actual coastal change, alongside anecdotal stories of coastal change provided by locals.

These captured images will be used to monitor the coastal zone fluctuations and changes over time and will form a valuable resource as a baseline for any climate adaptation mitigation measures. Citizens are engaged in learning about the challenges of coastal dynamics and can view how their input has contributed to the coastal story via the coastal stories' website.

The coastal stories app has already generated interest among neighbouring councils and is expected to be rebranded by other counties to serve the same purpose along their coastlines. Additional potential uses of the service have been identified, which would see the app being adapted to provide insight on upland erosion, river bank changes, invasive species growth and other environmental issues the council is managing.

Other potential uses of this type of participatory app are:

- Monitoring grassland/wetland restoration from agricultural use
- Peatland Restoration
- Glacier monitoring
- Biodiversity observation
- River monitoring
- Litter reporting

## 4) Conclusions

The services created through the EMERGREEN project have successfully addressed the challenges of created participative, user-centred, quality and sustainable public services as laid out in the project's design. Having acknowledged that involving the community in the creation of public services is a very effective way of delivering more effective services that respond to real demands, the EMERGREEN team was challenged with addressing the additional factors identified as:

- The need to establish a wider range of user-friendly channels for the community to access and participate in the co-production process.
- The exploration of new models based on cooperation and open shared solutions to ensure quality and sustainable services.
- The opportunity to introduce new emerging technologies assisting the public services provision and test their impact and viability within this changing landscape.

Focus group testing, demo sessions and engagement meetings have confirmed that the services created to address the specific targets in each region have accomplished those goals, and the proof is in that these services are expected to be replicated in other regions/organisations for similar purposes, but also in that it is expected that these types of services will be used by organisations to fulfil other purposes, as outlined above.