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GIS crowdsourcing for local knowledge and heritage preservation

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Northern Periphery and Arctic

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1 Good practice information

1.1 General Information

- Title of the Good Practice: GIS crowdsourcing for local knowledge and heritage preservation
- Region / City / Municipality: County Donegal
- Country: Ireland
- Contact Organisation: Donegal County Council
- Contact Person & Role: Daragh McDonough – Donegal County Council (IT Section)
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- Date of Implementation: 2018 – ongoing

1.2 Summary of the Good Practice

This good practice focuses on the use of Geographic Information Systems (GIS) as a tool for community-led knowledge capture and civic engagement, implemented by Donegal County Council in collaboration with local historical and community groups. The initiative was developed in response to the gradual loss of valuable local knowledge—such as traditional field names, place-based stories, and landscape information—held primarily by older members of rural communities and often undocumented in official records.

Through a web-based GIS crowdsourcing application, local residents are empowered to contribute directly to a shared geographic database by digitally recording knowledge relating to their own localities. The platform enables citizens to input, view, and validate information using interactive maps and aerial imagery, making the process intuitive even for participants with limited digital experience. All contributions are immediately visible online, creating a sense of ownership, transparency, and shared purpose.

The practice combines digital tools with strong community facilitation. Local champions and historical societies were engaged through workshops and one-to-one support sessions, helping to build trust, confidence, and digital skills among participants. Since its launch, the initiative has captured thousands of unique place names and records, preserving otherwise vulnerable oral heritage while fostering a culture of participation and co-creation.

By offering free, open access to digital mapping tools and eliminating the cost barriers associated with paper mapping, the initiative demonstrates how GIS technology can be repurposed to support inclusive civic engagement, cultural preservation, and long-term public value creation.

1.3 Context and Challenges Addressed

- What territorial challenge or opportunity did the region face?

Many rural areas in County Donegal rely on oral traditions to transmit local knowledge. This knowledge was at risk of permanent loss due to ageing populations, urbanisation, and the absence of affordable tools to document it systematically.

- Why was digital innovation relevant in this context?

GIS technology provides a cost-effective, accurate, and permanent method for recording geographically specific knowledge, while enabling immediate sharing and reuse of the information

- What specific community or stakeholder needs were identified?

Communities required accessible digital tools, tailored training, and continued support to enable them to document and preserve their heritage in a way that respected local ownership and identity.

1.4 Objectives

- Preserve vulnerable local and oral knowledge through a sustainable digital platform
- Empower local communities to actively contribute to and manage shared public datasets
- Build digital confidence and capacity among voluntary, rural, and ageing population groups
- Create a reusable and expandable geographic database supporting heritage, research, education, and planning uses

1.5 Description of the Practice

1.5.1 Activities Implemented

- Co-design and development of a web-based GIS crowdsourcing application tailored to non-expert users
- Identification of local champions within historical societies and community groups to act as facilitators
- Delivery of community-based workshops, demonstrations, and hands-on training sessions
- Provision of ongoing technical support, feedback mechanisms, and moderation to ensure data quality and participant confidence

1.5.2 Stakeholders Involved

- Local/regional authorities
- Civil society organisations
- Youth organisations
- Businesses / SMEs
- Universities / research centres
- Digital innovation hubs
- Other (please, name)

1.5.3 Resources Used

- Human resources

In-house GIS specialists, IT developers, and community facilitators providing training and support

- Technical resources

ESRI GIS platform, customised JavaScript web applications, and secure council-managed infrastructure

- Funding sources (EU, national, regional, private sector)

Internal local authority resources; citizen contributions provided on a voluntary basis, keeping overall financial costs moderate

1.6 Thematic Categorisation

A. Digital Technologies

- Digital platforms for participation
- Open data solutions
- Digital twins / GIS / mapping tools
- AI supported
- Immersive tech (VR/AR) for community engagement
- Gamification
- Other (please, name)

B. Co Creation Methodologies

- Digital platforms for participation
- Participatory design
- Living labs
- Citizen assemblies
- Hackathons
- Digital consultation tools
- Collaborative prototyping
- Other (please, name)

C. Youth / Minority Groups Engagement

- Digi Tailored outreach to youth
- Inclusion of minority or marginalized communities
- Capacity-building for underrepresented groups
- Mentorship or ambassador programmes
- Co creation activities specifically targeting these groups
- Other (please, name)

1.7 Results and Impact

1.7.1 Quantitative Results

- Digital tools deployed: 1
- Data/outputs generated: 3,782 unique local place names and records captured to date

1.7.2 Qualitative Results

Describe how the initiative improved territorial governance, participation, empowerment, or inclusiveness.

The initiative strengthened local identity and pride, preserved intangible cultural heritage, and demonstrated that digitally supported participation can be inclusive when combined with trust, facilitation, and patience. It also enhanced the local authority's understanding of community knowledge assets and strengthened relationships between citizens and public institutions.

1.8 Innovation and Added Value

- What is innovative about the approach or technology?

The innovation lies in repurposing GIS technology from a traditionally expert-driven planning tool into an inclusive, community-facing participation platform. Unlike conventional top-down data collection approaches, this practice promotes co-creation, reduces cost barriers, and creates long-term public value through a reusable and expandable dataset that serves multiple policy areas.

- How does it differ from traditional community engagement?

This practice differs from traditional community engagement by shifting participation from a short-term, event-based activity to an ongoing, contributor-led process supported by digital tools. Traditional approaches to community engagement in heritage and local knowledge preservation typically rely on public meetings, interviews, paper maps, or one-off workshops led by professionals. These methods are time-limited, resource-intensive, and often place citizens in a passive role, where knowledge is extracted rather than co-created.

In contrast, the GIS crowdsourcing approach enables communities to actively document, validate, and share their own locally held knowledge over time. Participation is not restricted by geography, meeting schedules, or institutional settings; instead, citizens can contribute when it suits them, using familiar locations, maps, and aerial imagery as reference points. This significantly lowers barriers to engagement, particularly for rural and ageing

populations who may find formal consultation settings intimidating or inaccessible.

The digital platform also creates a permanent, shared repository of community knowledge, rather than producing static reports or datasets that are rarely revisited. Contributions are immediately visible to others, reinforcing trust, transparency, and a sense of collective ownership. Unlike traditional engagement models, where feedback loops are often weak or absent, participants can see their input directly shaping a living public resource.

Overall, this approach represents a shift from consultation to co-creation, combining digital technology with community facilitation to create a more inclusive, sustained, and meaningful form of civic participation.

- What elements could inspire replication by other EU regions?

Several elements of this good practice are particularly well suited for replication by other EU regions, regardless of size, geography, or administrative capacity.

First, the initiative demonstrates how existing digital infrastructure can be repurposed for civic engagement at relatively low cost. By building on an established GIS platform already used by the local authority, the practice avoids the need for bespoke or expensive software solutions. This makes it especially relevant for regions with limited financial or technical resources, including rural or peripheral areas.

Second, the model places strong emphasis on community facilitation and local ownership, rather than relying solely on technology. The identification of local champions, the delivery of face-to-face workshops, and the provision of ongoing support were critical success factors. This human-centred approach can be easily adapted by other regions and helps address digital divides—a common challenge across the EU.

Third, the practice shows how digitally enabled co-creation can generate long-term public value, rather than one-off consultation outputs. The resulting geographic database is reusable across multiple policy domains, including heritage preservation, education, spatial planning, tourism, and research. This multi-purpose character strengthens the business case for replication.

Finally, the focus on locally relevant and culturally meaningful content—such as place names and landscapes familiar to participants—was a key driver of sustained engagement. Other EU regions can replicate this approach by tailoring the platform to locally significant themes, ensuring relevance while maintaining a common technical and methodological framework.

Overall, the combination of scalable digital tools, strong community facilitation, low implementation costs, and policy versatility makes this practice

an attractive and realistic model for replication across diverse European territorial contexts.

1.9 Lessons Learned

- What worked well?

- Building trust and local ownership is essential for sustained digital participation
- Training and personalised support are critical when engaging digitally hesitant groups
- Immediate visibility of contributions increases motivation and long-term engagement

1.10 Transferability and Scalability

- Which aspects can be replicated elsewhere?

This model is highly transferable to other EU regions seeking to preserve local knowledge, capture community input, or crowdsource geographically referenced information. Successful transfer requires access to digital mapping tools, committed community facilitators, and institutional support for open data principles and long-term maintenance.

- What conditions (resources, policy environment, partnerships) are needed for transfer?

Key conditions include local relevance, institutional buy-in, and a coordinated communication strategy.

1.11 Links and Supporting Materials

- Platform: <https://donegal.maps.arcgis.com/apps/webappviewer/index.html?id=77b17915313e415c9fc267f8a6d9f900>
- Video: <https://www.youtube.com/watch?v=b13nAzPoiyM>