

THE DEMOCRACY GAP

(Short version)

Citizen Science, Digital Skills, and Ireland's Missing Innovation
Pathway

A Policy Dossier for Ireland's EU Council Presidency 2026

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The Brief

The Democracy Gap

Ireland has no institutional pathway for citizen (incl. postgraduate) originated knowledge, data, or innovation to be recognised, evaluated, tested, funded, or integrated into public systems. This represents a gap in democratic participation that leaves emerging & proven platforms unsupported while public funds flow to inferior alternatives who fail to innovate and facilitate no citizen participation.

The Evidence

OpenLitterMap—a UN-recognised Digital Public Good built by an Irish citizen over 17 years—has 500k+ geotagged observations, 98+ peer-reviewed citations, and adoption in 110 countries. It has received €0 in state support. The founder wanted to do a PhD in citizen science 10+ years ago but there is not a single opportunity to this day. The National Litter Monitoring System has operated for 26 years with no publication of geospatial coordinates, photographic evidence, brand identification, or methodology.

The Core Ask

Create a national SBIR funding opportunity to enable Ireland to lead on citizen science digital skills training ahead of our EU Presidency (€2-5M) and become a global leader in the emerging participatory geospatial market.

The Opportunity

Ireland's EU Council Presidency (July–December 2026) offers a strategic window to lead Europe with Irish innovation. Germany used its 2020 Presidency to champion citizen science with €2M EU support to sponsor the Plastic Pirates programme. Ireland already has more advanced UN-recognised infrastructure.

Decision Required

Ministerial acknowledgment and assignment of departmental lead to coordinate citizen science policy development in Q1-Q2 2026.

Executive Summary

Citizen science is democratic infrastructure

This determines who gets to participate in society and generate knowledge that can shape policy.

The Democracy Gap

Ireland has no institutional pathway for citizen-originated (incl. postgraduate) knowledge, data, or innovation to be evaluated, recognised, funded, or integrated into public decision-making—despite having the technology, fiscal capacity, and international obligations to do so.

OpenLitterMap is a UN-recognised Digital Public Good built by an Irish citizen over 17 years starting pre-iPhone in 2008. As of 28 December 2025, the platform has 505,859 geotagged observations with 838,834 individual tags, which has been crowdsourced from more than 8,875 participants across 110 countries. So far, OpenLitterMap has been cited in more than 98+ peer-reviewed academic citations including three Nature publications and the World Bank putting it in the top 5% of papers reviewed on Altmetric (N=26m)¹. It has received €0 in state support and had 0 postgraduate opportunities despite 200+ funding applications.

The state instead funds the National Litter Monitoring System — 26 years of clipboard monitoring that produces no geospatial coordinates, facilitates no citizen participation and encourages no technological innovation or digital skills development.

¹ <https://springeropen.altmetric.com/details/43580718#score>

Part I: The Gap

Chapter 1: What Is the Democracy Gap?

A vote every 4 years is democracy in its minimalist sense. Contemporary mid-21st century democracy requires continuous participation in public life—the ongoing generation, contestation, and integration of knowledge that shapes collective decisions. Yet the ability to participate and produce knowledge is often held by institutions who claim a monopoly on the production of knowledge and require IP transfer for employment contracts which is incompatible with the open source code that makes up 95% of the web and is an increasing global economic and national-security cornerstone, driver of innovation, and accelerant of sustainability.

Consider these questions:

- **Who can generate data?** Whose observations count as evidence?
- **Whose knowledge counts?** Who is recognised as a legitimate contributor to public understanding?
- **Who gets access to infrastructure or opportunity?** Who can participate in building the systems that shape society?

Ireland is a Republic where the fundamental unit of governance is the citizen. Yet citizen-originated infrastructure and data have no pathway to be recognised by official systems. No mechanism exists to identify, evaluate, test or support the development of citizen-built digital public infrastructure.

The question is not whether citizen science is valuable—the OECD, European Commission, and UN have all confirmed this. The question is why Ireland has no mechanism to identify, validate, or support with citizen and postgraduate-level innovation.

Chapter 2: Why This Matters Now

Ireland's EU Council Presidency (July–December 2026) creates an opportunity for domestic innovation.

The EU Presidency Window

During its presidency, Ireland will chair Council meetings across various policy areas, set agendas, broker agreements, and shape the EU's direction with a reflection of its values. What Ireland chooses to do or not do will define its legacy and shape the direction of the EU.

Germany used its 2020 presidency to champion citizen science. The Federal Ministry of Education and Research scaled the Plastic Pirates – Go Europe! programme with €2m support, engaging schools across 13 countries. Ireland has the opportunity to demonstrate similar leadership—as it possesses some of the world's leading data collection infrastructure.

The Global Plastics Treaty

In March 2022, the United Nations Environment Assembly agreed to develop a legally binding international instrument to end plastic pollution. INC-5.3 is scheduled for February 2026—overlapping directly with Ireland's EU Presidency preparations.

Ireland has joined the High Ambition Coalition to End Plastic Pollution—60+ countries advocating for a strong treaty addressing the full plastic lifecycle. The treaty explicitly calls for improved monitoring and reporting of plastic pollution.

OpenLitterMap has 505,859 geotagged observations with 838,834 tags from 110 countries—**exactly the kind of citizen-generated monitoring data the treaty requires.**

International Frameworks Endorsing Citizen Science

- **Copenhagen Framework on Citizen Data (March 2025):** The UN Statistical Commission officially recognised citizen-generated data within national statistical systems.
- **OECD Report (April 2025):** Embedding Citizen Science into Research Policy identifies six success factors and emphasises dedicated funding mechanisms.
- **EU Democracy Shield (November 2025):** Calls for a whole-of-society approach to democratic resilience, encouraging grassroots initiatives.
- **UNESCO Recommendation on Open Science (November 2021):** First global framework adopted by 193 member states, explicitly recognising citizen science as a key pillar of open science and calling for investment in participatory methods and validation techniques.

Ireland has participated in these negotiations and endorsed these principles. The question is whether it implements them.

Ireland's Fiscal Capacity

Ireland is not a poor country struggling to fund innovation. Combined spending for x2 departments of education in 2025 was approximately €16.4 billion, increasing to €18 billion in 2026.

Part II: The Evidence

Chapter 3: What Ireland Already Has

OpenLitterMap

OpenLitterMap (OLM) is an open-source citizen science platform enabling anyone to map litter and plastic pollution (and anything else) anywhere, globally, for free, in real-time. Inspired by OpenStreetMap—the most comprehensive map of the world ever created—OpenLitterMap was conceived as its real-time data collection overlay of verifiable, geotemporal, impactful, and categorical detail. Litter is the first application of this real-time data collection, citizen engagement and reporting experience. *It's like Pokémon Go meets TidyTowns combined with FixMyStreet on steroids.*

The idea for OpenLitterMap was first conceived in 2013 during a Masters in GIS & Remote Sensing at UCC. After completing a second Masters (Coastal & Marine Environments, NUIG) to review the literature and complete the development of the methodology, founder Seán Lynch then began self-teaching himself how to code before launching the v1 in April 2017 which began accepting uploads globally immediately. OLM is currently going through a major AI-driven transformation which is expected to launch in Q1-Q2 2026².

Platform Metrics (as of 28 December 2025, 22:30 GMT)

Metric	Value
Total geotagged observations	505,859
Individual tags applied	838,834
Registered participants	8,875
Countries with contributions	110
Brands identified	1,500+
Peer-reviewed academic citations	98+
UN Digital Public Good status	Recognised 2020
Ireland-specific: photos / tags / contributors	19,797 / 59,749 / 201

LitterWeek: The Training Programme

LitterWeek extends the OpenLitterMap data collection platform with a structured digital skills training programme that teaches responsible smartphone use through data collection—transforming citizens from passive scrollers to active data producers.

Resources Contributed

Resource	Amount
Personal funds	€100,000+
Years of development	17+
Funding applications	200+
State funding received	€0
Minister & oireachtas support	Nil

² <https://github.com/OpenLitterMap/openlittermap-web/pull/668/>

Chapter 4: What the State Funds Instead

The National Litter Pollution Monitoring System has operated for 26 years starting in 1999. Every year, 31 local authorities conduct thousands of clipboard surveys. The system produces no maps and facilitates no citizen engagement, data, or smartphone innovation.

26 Years of Operation: The Results

- Citizen participation: **None**
- Smartphone technology: **None**
- Recognition of citizen-data: **None**
- Digital maps to educate society: **None**
- Brands identified: **None**

National Litter Monitoring vs OpenLitterMap: A Comparison

Metric	NLPMS	OpenLitterMap
Years of operation	26 (1999–2025)	8 live + 17 R&D
State funding	26 years continuous (Last contract ~€50,000)	€0
Geospatial coordinates published	None	Every observation
Photographic evidence published	None	Every observation
Brand identification reported	None	1,500+ brands
Raw data accessible to public	No	Yes (ODbL)
Methodology & source code publicly available	No	Yes (GitHub)
Citizen participation	None	201 contributors (Ireland)

Chapter 5: Litter Data on Public & Democratic Health

Litter is a public health diagnostic. Walk any street and you can read the pathology: tobacco products, single use packaging, vapes, dog foul, chewing gum, broken glass, etc. This is the physical residue of addictive ultra-processed consumerism—a public health crisis made visible on our pavements.

The data from both NLPMS and OpenLitterMap recognise this. Rarely will you find litter on healthy goods. Litter is mostly made up of harmful material leftovers from the habitual consumption of processed, unhealthy, & addictive products.

Parallel Epidemics

Ireland faces two interconnected health crises: microplastics infiltrating humans and screens augmenting our relationship with reality. Both are consequences of technology deployed without adequate understanding of long-term effects.

In 2022 the WHO declared that Ireland's obesity rate has reached epidemic proportions with 60% of adults overweight or obese. In 2024, CyberSafeKids reported that 93% of Irish 8–12 year olds have their own smart device³.

We teach children "Don't litter. Eat healthy. Limit screens. Be active citizens". But the systems adults have built—industry-funded education, institutionally-gated research, outsourced monitoring—create structural barriers that block socio-economic development.

Institutions without citizens

Ireland is a republic where the fundamental unit of governance is supposed to be the citizen yet many of our systems are designed without their participation. The NLPMS is conducted by consultants. Research outputs are gated within universities. Research positions require IP transfer contracts. No research institutions are collaborating on open source digital public goods. Software development and *clipboard monitoring* is outsourced to contractors who don't release the code or methodology. Despite being publicly funded by the taxpayer, much of our publicly funded information and systems are locked away by central planners and gatekeepers. Citizens—the foundation of the republic—are absent from the systems built in their name. Ireland is a country where *who* you know matters a lot more than *what* you know.

Citizen science disrupts this equilibrium by enabling society to generate continuous, open, geographic data. It enables accountability—OpenLitterMap's citizen-collected data identifies 1,500+ brands; Germany used citizen-collected brand data to propose targeted levies: €1.23/kg for disposable plastic cups, €8.95/kg for cigarette filters. Ireland spends about €100m per year to clean up the waste of highly-profitable producers without knowing who is responsible for polluting nearly every street in the country.

The NLPMS reports "packaging items" as a category—it does not report that Coca-Cola products appear 756 times in citizen-collected Irish data, Heineken 180 times, McDonald's 163 times. Extended Producer Responsibility schemes cannot function without brand-level accountability. The data that would enable this is coming from citizens and ignored by institutions. Citizen science can facilitate public accountability—which is exactly why it remains significantly underdeveloped in Ireland.

³ <https://www.cybersafekids.ie/wp-content/uploads/2024/09/Full-CSK-TU-Report-23-24-Final.pdf>

Part III: The Systemic Failure

Chapter 6: The Closed Loop

The Democracy Gap is not a collection of isolated failures. It is a complete system that excludes citizens and their ability to share knowledge at multiple stages.

Stage 1: School Education

Most litter education programmes in schools are often funded by industry sponsors. Many of these have positive intent however they are more personal awareness-focused and not structured as applied civic data participatory digital skills education.

Stage 2: Research and Innovation

Research Ireland funds institutional research requiring IP transfer. But open source code—which underpins 95% of the web—cannot transfer IP making it incompatible with University and Institutional pathways. Independent researchers who have built proven platforms cannot participate regardless of what they have built or achieved. Even if IP transfer was possible, there are few PhDs that practice let alone develop citizen science. The launch of the iPhone was not recognised by Ireland's systems as a pivotal moment to invest in participatory civic digital infrastructure. Participation in global open source infrastructure is a strategic necessity for the modern digital economy and security of the state but remains largely unheard of across Ireland's institutions.

Stage 3: Institutional Monitoring

The state contracts clipboard monitoring to a private paper-analysis firm rather than engaging with citizens or building innovative digital capacity. The clipboard monitoring has done nothing to help the state reduce its €100M annual litter cleanup expenditure.

Stage 4: Policy Development

Extended Producer Responsibility schemes are developed through negotiated agreements with industry. No equivalent mechanisms exist for citizens to contribute better systems, code, or data.

Stage 5: Innovation Recognition

When a citizen builds a platform that achieves UN Digital Public Good status, 98+ citations, and adoption in 110 countries—no pathway exists to recognise, evaluate, test, or fund it.

The Complete System

Stage	Who Participates	Citizen Pathway
1. School Education	Awareness programmes (industry-sponsored)	No applied data education
2. Research Funding	Universities, Research Ireland	Requires IP transfer
3. Monitoring	Outsourced to contractors	None
4. Policy Development	Industry bodies consulted	None
5. Innovation Support	Enterprise Ireland, LEOs	None

The loop is closed. In this framework there are not citizens, only consumers.

Chapter 7: The Missing Function

Why does it take a 17-year independent effort and a comprehensive dossier to put this information on a decision-maker's desk?

Across four relevant departments (Education; Further and Higher Education, Research, Innovation and Science; Climate, Energy and Environment; Housing, Local Government and Heritage), there is: no published citizen science strategy, no dedicated unit, no open call, and no pathway for citizen-originated innovation.

Consider the agencies that might logically perform this function:

- **Research Ireland (Previously Science Foundation Ireland)** supports institutional researchers, rarely independent innovators. Provides some funding to support the development of citizen science but contracts require IP transfer which is incompatible with the open source code that makes up 95% of the web.
- **Enterprise Ireland** supports established companies, not pre-market academic innovators. Has SBIR but unlike the US which invites early stage innovation from the market, decisions are centrally planned and incredibly limited.
- **IDA Ireland** attracts foreign direct investment, not domestic citizen innovation.
- **Local Enterprise Offices / New Frontiers** support local businesses, does not know how to process globally-scalable transformative civic technology.
- **The Department of Environment** funds NGOs and longstanding companies, does not engage with postgraduate digital infrastructure builders despite the impact of plastic pollution on the climate, biodiversity, & life.
- **The Department of Further & Higher Education, Research, Innovation & Science** is a relatively new department that launched in 2020 with a €4.5b budget for 2025 but yet to do anything to support the development of fundamental category defining research and innovation in citizen science.

What Other Countries Have Built

- **Germany:** Citizen Science Strategy 2030 with 94 recommendations. BMBF funds citizen science directly.
- **Austria:** Sparkling Science funded 299 projects with €34.7 million (2007–2019).
- **UK:** UCL supported OpenStreetMap from 2004. Geovation UK helps geographic innovation scale.

Ireland has nothing comparable.

Part IV: Consequences

Chapter 8: What Exclusion Produces

The absence of citizen science strategy contributes to an inadequate response to a public health crisis.

No Smartphone Strategy

Since the launch of the iPhone in 2007, over 5–6 billion people have been connected with always-online data collection instruments despite having no training in the data collection purpose of these devices. Ireland could have supported the development of fundamental category defining research and innovation at University level following the launch of the iPhone but instead has no smartphone strategy, no citizen science strategy, no plan, no training, and no responsible demonstration of constructive technology use; instead focusing on smartphone polly-pockets for schoolchildren and increasing social media ID verification to access the internet for adults. Policy responses have ignored the root issue: society has not received training in the purposeful productive meaningful utility of these devices.

These Are Not Phones

The telephone is a Victorian-era concept invented by Alexander Graham Bell in 1876 for voice communication over distance. The devices of today are always-online mobile supercomputers containing more processing power than the Apollo guidance systems. They know your location, contacts, browsing history, purchases, sleep patterns, taps, swipes, facial recognition, fingerprint, and physical movements.

The Screen-Based Childhood Crisis

CyberSafeKids research on Irish children aged 8–14 reveals: 93% of 8–12 year olds have their own smart device; 48% acknowledge spending too much time online; only 27% believe being online is mostly good for them.

The Cost of a Single Missing Opportunity

A platform like OpenLitterMap required only a single opportunity to accelerate: one research grant, one PhD position, one institutional partnership, one paid pilot. A functioning innovation system would have recognised the launch of the iPhone as a transformation in society's data collection capacity and created pathways to harness it.

Other countries provided that opportunity:

Country	Investment	Outcome
New Zealand	NZ\$2.7M	National citizen science litter monitoring integrated into government reporting
United States	~US\$1.5M (NSF SBIR)	Litterati platform: computer vision, 60-city deployment
European Union	€2M	Plastic Pirates: 13-country schools programme
Ireland	€0	200+ funding rejections over 17 years

What Ireland Is Losing

The failure to provide a single opportunity to support fundamental category defining research and innovation in citizen science following a once-in-a-species event like the launch of the iPhone compounds across multiple dimensions:

Economic innovation cluster: The global geospatial sector is projected to reach USD \$1.4 trillion by 2030, growing at 14–20% annually⁴. Cork has the academic foundations to pioneer a civic technology cluster since the launch of the iPhone but has done nothing to support the development of this sector. The UK has Geovation; Germany has its Sovereign Tech Agency. Ireland has no geographic accelerator, no geospatial innovation programme, and no strategy to participate in this market.

Public expenditure: Ireland spends approximately €100 million annually on litter-related costs: cleanup, enforcement, contracted monitoring, and downstream consequences of ineffective intervention. An investment in citizen science could transform the infrastructure and outcomes to improve services and reduce burden on taxpayers.

Research capacity: No Irish university offers PhD programmes in citizen science methodology. No professorships exist. No universities are collaborating on national citizen science programmes or open source digital public goods.

Reputation: Ireland has signed the Aarhus Convention, committed to the SDGs, and endorsed the Copenhagen Framework on citizen data. It participates in EU environmental directives and climate commitments. Irish officials attend these negotiations and endorse these principles—then return home to a state that does not build the infrastructure to deliver them. The gap between international positioning and domestic reality is now measurable. Ireland remains dependent on the US for its economy, on NATO for security, and despite record budget surpluses, is a major global outlier on housing, transport and general infrastructure. Total homelessness has increased from 3,000 to nearly 17,000 since Fine Gael took office in 2011 while child homelessness has risen more than eightfold from 641 to over 5,300 in the same period. A state that cannot provide the most fundamental services for its citizens while running the largest budget surplus in Europe—that cannot recognise or support their innovations—sends a clear signal about its priorities and ability.

These failures share a single origin: the absence of a recognised pathway for citizen-originated innovation.

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<https://geospatialworld.net/gw-market-insights/advancing-augmenting-usd-1-4-trillion-geospatial-market-by-2030/>

Part V: Recommendations

Chapter 9: Implementation Programme

Core Ask: Create a national citizen-generated data pathway by establishing an owning unit, funding an open-source track, running paired-method pilots, and modernising NLPMS procurement as an EU Presidency deliverable.

Recommendation 1: Establish a National Citizen Data Unit

- **Owner:** DFHERIS or DECC, with cross-departmental mandate
- **Budget:** €1–2 million annually
- **Governance:** Chaired by owning department; steering group with DECC, DFHERIS, Research Ireland, CSO, LGMA, and ETB representation
- **Year-One Outputs:** (1) registry of citizen-data assets; (2) QA standard; (3) pilot evaluation report; (4) procurement guidance; (5) annual state-of-play report

Recommendation 2: Create Open Source Public Infrastructure Funding Track

- **Owner:** Research Ireland
- **Instrument:** Grant call
- **Eligibility:** Independent maintainers and citizen-originated platforms with demonstrated adoption
- **IP model:** No forced IP transfer; open license compatibility required (GPL/ODbL). UN DPG status as evidence of validation.

Recommendation 3: Modernise NLPMS Procurement Requirements

- **Owner:** DECC
- **Instrument:** Specification change (contract renewal)
- **Cost:** Cost-neutral
- **Requirements:** Geospatial coordinates published; methodology published; open data release; photographic evidence; ability to ingest citizen evidence as supplementary layer

Recommendation 4: Validation Pilots

- **Owner:** DECC + 1-31 local authorities
- **Instrument:** Service contracts
- **Cost:** €50–100k per local authority
- **Design:** Official sampling + citizen geo-photo evidence; 12 months; compare coverage, accuracy, unit cost; publish evaluation.

Decision Required

Ministerial acknowledgment and assignment of departmental lead to coordinate citizen science policy development in Q1–Q2 2026.

Chapter 10: The Presidency Opportunity

EU Council Conclusions

- **Owner:** EU Presidency team
- **Content:** Recognise citizen science as complementary research infrastructure; encourage member states to develop national strategies; demonstrate Ireland's research and innovation capacity; mandate Commission to explore EU-wide research and innovation.

Cork Mayors Summit Integration (October 2026)

Feature Cork's world-leading citizen science innovation capacity in citizen science to launch pilot results and inspire coordination.

EU Citizen Data Challenge

Run an Irish-led EU-wide Citizen Data Challenge aligned to plastics monitoring and civic tech during the Presidency. Encourage pilots across European systems (schools, universities, local authorities). Give the Presidency team something visible, easy, popular and impactful to communicate.

The Stakes

Ireland can use its EU Presidency to demonstrate that citizen science works—that a citizen built a UN Digital Public Good, that Ireland's advanced innovation network extends beyond institutional boundaries, that democratic participation matters, and is inclusive of postgraduate innovation potential.

Or Ireland can demonstrate that 17 years of exclusion was not an oversight, but a policy design outcome that it chose not to correct.

The Presidency will make that choice visible to Europe.