Hypothetical Research Impact Case Studies

One Example Per School Across TU Dublin's Five Faculties

Prepared by the Research Engagement & Impact Office

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IMPORTANT: These case studies are entirely hypothetical. They have been created to illustrate what a completed Research Impact Case Study might look like for each of TU Dublin's 26 schools. All researcher names are fictional placeholders (Dr Jane Smith & Dr John Smith). All examples in this document are meant to be fictional, created solely for training purposes. The researcher names, project descriptions, organisations, quotations, data, and outcomes are invented. Any resemblance to real persons (living or deceased), actual research projects, genuine organisations, or real events is purely coincidental and unintentional. No example should be cited, reproduced, or presented as a record of actual research or its impact.". These examples are training aids and conversation starters, not records of actual research. Use them alongside the TU Dublin Research Impact Framework to develop your own genuine case studies.

Purpose: To provide discipline-specific examples that help researchers across all faculties and schools visualise what research impact looks like in their field, how to frame it, what evidence to collect, and how to link outputs to outcomes and longer-term change. Each example follows the official TU Dublin Research Impact Case Study template and includes hypothetical testimonials, media references, and policy citations to illustrate the range of evidence types that can strengthen a case study.

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Faculty of Arts & Humanities

Accessible Exhibition Design for Visitors with Dementia

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Arts & Humanities
School	School of Art & Design
Research Hub	Inclusive Design Research Hub
Keywords	Dementia-friendly design, museum accessibility, sensory environments, inclusive culture, co-design
New or Updated	New (Hypothetical Example)

Summary of the Impact

A co-design project with people living with dementia and their carers produced a set of exhibition design guidelines for Irish museums and galleries. Adopted by the Heritage Council and piloted across eight cultural venues, the guidelines led to a 45% increase in visits by dementia-friendly groups and were cited in the National Dementia Strategy implementation plan.

Research Description

Between 2021 and 2024, the research team worked alongside 64 people living with dementia and 38 family carers in Dublin and Galway to co-design exhibition environments that reduce sensory overload while maintaining aesthetic integrity. The methodology combined environmental psychology assessments (lighting, acoustics, spatial flow, colour contrast) with participatory design workshops. Prototypes were tested in two gallery settings using observational measures of visitor engagement, validated wellbeing scales (DEMQOL), and carer-reported ease-of-visit questionnaires. The project was funded by the IRC New Foundations scheme and the Alzheimer Society of Ireland.

Description of the Impact

The Heritage Council adopted the guidelines in 2024 as part of its Heritage for All programme, distributing them to 120 affiliated venues. Eight museums and galleries piloted the guidelines, reporting a combined 45% increase in dementia-friendly group visits over 12 months. The National Dementia Strategy Implementation Plan (2025 update) cited the research as evidence supporting investment in cultural accessibility. The Irish Museums Association incorporated the guidelines into its professional development programme. RTE's Morning Ireland broadcast a seven-minute feature on the project in March 2025, and The Irish Times published a full-page profile in its Health supplement. The Alzheimer Society of Ireland endorsed the guidelines in its activity programming handbook.

Testimonials

> *"These guidelines transformed how we think about our visitors. We redesigned two galleries and the feedback from families has been overwhelmingly positive. People who had stopped visiting museums are coming back."*
>
> **Fictional Curator, National Museum of Ireland (hypothetical testimonial)**

> *"My mother loved galleries before her diagnosis. This project gave us somewhere we could go together again without the anxiety. She was calm, engaged, and happy for the first time in months."*
>
> **Fictional Family Carer, Dublin (hypothetical testimonial, consent obtained)**

UNSDG Contributions

SDG 3 (Good Health and Wellbeing): Target 3.4 - promoting mental health and wellbeing through prevention.

SDG 10 (Reduced Inequalities): Target 10.2 - empowering and promoting the social inclusion of all, irrespective of disability.

SDG 11 (Sustainable Cities and Communities): Target 11.7 - providing universal access to safe, inclusive public spaces.

Evidence/Sources to Corroborate Research Impact

Heritage Council adoption documentation and Heritage for All programme materials. National Dementia Strategy Implementation Plan (2025) citation. Visitor data from eight pilot venues (12-month comparison). DEMQOL wellbeing scores and carer questionnaires (n=64 dyads). Irish Museums Association CPD programme materials. RTE Morning Ireland broadcast (March 2025). Irish Times Health supplement feature. Alzheimer Society of Ireland endorsement letter. Participant testimonials (consent obtained and recorded).

Research References

[1] Smith, J. & Smith, J. (2023). "Co-designing dementia-friendly exhibition spaces: a participatory framework." Museum Management and Curatorship, 38(2), 145-162.

[2] Smith, J. et al. (2024). "Wellbeing outcomes of dementia-friendly gallery visits: a controlled study." Dementia, 23(5), 890-906.

[3] RTE Morning Ireland, "Opening Doors: Museums Redesign for Dementia," broadcast 14 March 2025.

[4] Irish Times Health supplement, "When Art Becomes Medicine," 22 March 2025.

Community Opera as a Vehicle for Social Prescribing in Disadvantaged Areas*

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Arts & Humanities
School	Conservatoire
Research Hub	Music and Health Research Hub
Keywords	Social prescribing, community opera, mental health, arts participation, disadvantaged communities
New or Updated	New (Hypothetical Example)

Summary of the Impact

A community opera programme designed as a social prescribing intervention for adults experiencing loneliness and mild-to-moderate depression was piloted in four disadvantaged communities. Participants showed clinically meaningful reductions in depression scores (PHQ-9), and the model was adopted by Slainte Care's social prescribing pilot framework.

Research Description

The research (2021-2024) developed a structured 16-week community opera programme where participants created and performed an original short opera, with professional mentoring in singing, stagecraft, and composition. Referral came through GP social prescribing links in four areas designated as disadvantaged under the Pobal HP Deprivation Index. A mixed-methods evaluation tracked depression (PHQ-9), loneliness (UCLA Loneliness Scale), social connectedness, and qualitative experience across 128 participants over two programme cycles. A waiting-list control design was used. The project was funded by the HSE and the Arts Council.

Description of the Impact

Mean PHQ-9 depression scores among participants fell by 4.8 points (clinically meaningful improvement), compared to 0.9 points in the waiting-list control group ($p<0.001$). UCLA Loneliness Scale scores improved significantly. The Slainte Care Social Prescribing Framework (2025) adopted the opera programme as a recommended arts-based intervention. The HSE's National Office for Suicide Prevention cited the research in its community mental health strategy. The programme was featured on RTE's Nationwide and in a Guardian long-read on social prescribing innovations across Europe. Four community organisations continued the programme independently after the research period, securing local authority arts funding.

Testimonials

> *"I had not left my flat for more than the shops in three years. The opera programme gave me a reason to get dressed, meet people, and do something that felt genuinely worthwhile. My GP noticed the difference before I did."*
>
> **Fictional Participant, Limerick (hypothetical testimonial, consent obtained)**

> *"As a GP in a disadvantaged area, I see patients for whom medication alone is not sufficient. This programme gave me something concrete and evidence-based to prescribe. The clinical outcomes speak for themselves."*
>
> **Fictional GP, HSE Primary Care (hypothetical testimonial, consent obtained)**

UNSDG Contributions

SDG 3 (Good Health and Wellbeing): Target 3.4 - reducing premature mortality from non-communicable diseases and promoting mental health.

SDG 10 (Reduced Inequalities): Target 10.2 - empowering and promoting social inclusion.

Evidence/Sources to Corroborate Research Impact

Slainte Care Social Prescribing Framework (2025) referencing the programme. HSE National Office for Suicide Prevention community strategy citation. PHQ-9 and UCLA Loneliness Scale data (n=128, two cycles, waiting-list control). RTE Nationwide broadcast (October 2024). Guardian long-read feature (January 2025). Local authority arts funding records for four continuing programmes. GP referral and participant testimonials (consent obtained). Arts Council project evaluation report.

Research References

[1] Smith, J. & Smith, J. (2023). "Community opera as social prescribing: protocol for a waiting-list controlled evaluation." BMC Public Health, 23, 1456.

[2] Smith, J. et al. (2024). "Clinical and social outcomes of an arts-based social prescribing programme: a mixed-methods study." Social Science & Medicine, 342, 116523.

[3] The Guardian, "The Opera Cure: How Singing is Being Prescribed for Loneliness," 18 January 2025.

[4] RTE Nationwide, "Community Opera in Limerick," broadcast 9 October 2024.

*See the Planning for Impact: Worked Examples document for the completed template for this hypothetical Research Impact Case Study

Fermented Plant-Based Proteins: Improving Taste and Texture for Consumer Acceptance

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Arts & Humanities
School	Culinary Arts & Food Technology
Research Hub	Plant-Based Food Innovation Hub
Keywords	Fermentation, plant-based protein, consumer acceptance, sensory science, sustainable diets
New or Updated	New (Hypothetical Example)

Summary of the Impact

Novel fermentation techniques applied to pea and faba bean protein isolates overcame common off-flavour and texture barriers, achieving consumer acceptance scores comparable to dairy equivalents. Two Irish food companies adopted the processes, launching products that captured 3.2% of the Irish yoghurt alternative market within 12 months. Bord Bia cited the research in its plant-based protein market development strategy.

Research Description

The study (2021-2024) investigated how controlled lactic acid and fungal fermentation could modify the flavour and textural properties of Irish-grown pea and faba bean protein isolates. Sensory panels (n=320 consumers) evaluated fermented and unfermented products across multiple formulations. Gas chromatography-olfactometry identified volatile compounds responsible for off-flavours, and the research team optimised fermentation parameters to minimise these while enhancing desirable dairy-like characteristics. Rheological testing characterised texture properties. A techno-economic assessment confirmed commercial viability at production scale. The project was co-funded by the Department of Agriculture, Food and the Marine and two industry partners.

Description of the Impact

Two Irish food companies adopted the fermentation processes, launching plant-based yoghurt alternatives that achieved 3.2% market share within 12 months (Nielsen data). Consumer acceptance scores for the fermented products matched dairy yoghurt benchmarks for the first time in published Irish sensory studies. Bord Bia referenced the research in its 2025 Plant-Based Protein Market Development Strategy, identifying fermentation-enhanced legume products as a priority export category. The work was reported in the Irish Farmers Journal and Food Navigator Europe. Teagasc invited a joint project extending the approach to other Irish-grown legume varieties. One industry partner created six new production roles.

Testimonials

> *"We had trialled plant-based yoghurt alternatives before but consumers rejected them on taste. The fermentation research solved our biggest product development challenge. We went from prototype to shelf in eight months."*
>
> **Fictional Head of Innovation, Irish Food Company (hypothetical testimonial, consent obtained)**

"This research demonstrates exactly the kind of university-industry collaboration that can strengthen Ireland's position in the growing global plant-based market."

Fictional Director of Market Development, Bord Bia (hypothetical testimonial)

UNSDG Contributions

SDG 2 (Zero Hunger): Target 2.4 - ensuring sustainable food production systems.

SDG 12 (Responsible Consumption and Production): Target 12.2 - achieving sustainable management and efficient use of natural resources.

SDG 13 (Climate Action): Target 13.2 - integrating climate change measures into national policies and strategies.

Evidence/Sources to Corroborate Research Impact

Bord Bia Plant-Based Protein Market Development Strategy (2025) citation. Nielsen market share data for two adopted products (12-month sales). Consumer sensory panel data (n=320). Techno-economic assessment report. Irish Farmers Journal feature article (April 2024). Food Navigator Europe report (June 2024). Teagasc joint project agreement. DAFM project completion report. Industry partner testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2023). "Lactic acid fermentation of pea protein: off-flavour reduction and sensory optimisation." LWT - Food Science and Technology, 176, 114523.

[2] Smith, J. et al. (2024). "Consumer acceptance of fermented legume-based dairy alternatives: a cross-sectional sensory study." Food Quality and Preference, 113, 105067.

[3] Irish Farmers Journal, "Irish Beans Get a Taste Makeover," 12 April 2024.

[4] Food Navigator Europe, "Fermentation Breakthrough Lifts Plant Yoghurt Scores to Dairy Levels," 3 June 2024.

Restorative Justice Circles in Irish Secondary Schools: Reducing Suspensions and Early Leaving

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Arts & Humanities
School	School of Social Sciences, Law & Education
Research Hub	Justice and Education Research Hub
Keywords	Restorative justice, secondary schools, school suspension, early school leaving, youth justice
New or Updated	New (Hypothetical Example)

Summary of the Impact

A three-year study developed and evaluated a restorative justice circle programme in 18 secondary schools, resulting in a 36% reduction in suspensions and a 22% decline in early school leaving referrals. The Probation Service adopted the model for its young persons' programmes, and the Department of Education referenced it in updated school discipline guidance.

Research Description

The research (2021-2024) adapted restorative justice circle practices from criminal justice to the secondary school context, developing a structured programme of weekly circles, conflict resolution protocols, and peer facilitation training. Eighteen schools across Dublin, Donegal, and Waterford participated (9 intervention, 9 matched controls). Data collection spanned suspension records, early school leaving referrals (Tusla EWS data), student belonging surveys (PSSM scale), and qualitative interviews with students, teachers, and parents. The project was co-funded by the Irish Research Council and the Probation Service.

Description of the Impact

Suspensions in intervention schools fell by 36% compared to a 4% decline in controls over three years. Early school leaving referrals dropped by 22%. Student sense of belonging scores rose significantly ($p<0.01$). The Probation Service adopted the circle model in 2025 for its young persons' supervision programmes in six districts. The Department of Education's updated Guidelines on Codes of Behaviour (2025) referenced the research as evidence for restorative approaches. The study was covered in the Irish Examiner and on Newstalk's Lunchtime Live. The National Anti-Bullying Research and Resource Centre cited the work in its annual review.

Testimonials

> *"Before the circles, we were suspending the same students repeatedly and nothing changed. Now those students are mediating disputes themselves. It has fundamentally altered how our school handles conflict."*
>
> **Fictional School Principal, Waterford (hypothetical testimonial, consent obtained)**

> *"The structured approach made it possible for us to scale restorative practices beyond a single enthusiastic teacher. The training and resources gave our whole staff the confidence to try something different."*
>
> **Fictional Deputy Principal, Dublin (hypothetical testimonial, consent obtained)**

UNSDG Contributions

SDG 4 (Quality Education): Target 4.1 - ensuring all young people complete quality secondary education; Target 4.a - providing safe, non-violent, inclusive learning environments.

SDG 16 (Peace, Justice and Strong Institutions): Target 16.1 - significantly reducing all forms of violence.

Evidence/Sources to Corroborate Research Impact

Department of Education Guidelines on Codes of Behaviour (2025) citation. Probation Service adoption documentation for six districts. Suspension records from 18 schools (3-year dataset). Tusla EWS early leaving referral data. PSSM belonging survey results (n=2,100 students). National Anti-Bullying Research and Resource Centre annual review. Irish Examiner feature (September 2024). Newstalk Lunchtime Live interview (October 2024). Student, teacher, and parent testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2023). "Adapting restorative justice circles for Irish secondary schools: a programme theory and implementation study." Youth Justice, 23(2), 167-185.

[2] Smith, J. et al. (2024). "Impact of restorative circles on suspension rates and school belonging: a cluster controlled trial." Journal of School Psychology, 102, 101245.

[3] Irish Examiner, "Schools See Suspensions Plummet After Restorative Justice Programme," 17 September 2024.

[4] Department of Education, Guidelines on Codes of Behaviour for Schools, updated March 2025.

Podcast Journalism and Democratic Engagement Among Young Voters

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Arts & Humanities
School	School of Media
Research Hub	Digital Journalism Research Hub
Keywords	Podcast journalism, democratic engagement, young voters, political participation, media trust
New or Updated	New (Hypothetical Example)

Summary of the Impact

Research on how podcast-native journalism formats influence political knowledge and voting intention among 18-24 year olds informed the Broadcasting Authority of Ireland's funding criteria for youth-focused current affairs content. A pilot podcast series produced during the study reached 210,000 downloads and was associated with measurable gains in political knowledge among regular listeners.

Research Description

The research (2022-2025) examined how narrative-driven podcast journalism affects political engagement among young adults who have largely disengaged from traditional broadcast and print news. Phase 1 surveyed 1,800 18-24 year olds on media consumption, political knowledge, trust, and civic participation. Phase 2 produced a 12-episode explanatory podcast series on Irish policy issues, co-designed with student advisory panels. Phase 3 evaluated the series using a pre/post quasi-experimental design with 640 regular listeners and a matched comparison group. The project was funded by the BAI Sound & Vision scheme and the IRC.

Description of the Impact

Regular listeners scored 31% higher on a post-series political knowledge assessment compared to baseline, while the comparison group showed no significant change. Self-reported likelihood of voting rose by 18 percentage points among listeners. The BAI incorporated the findings into its 2025 funding criteria for the Sound & Vision scheme, adding a specific strand for youth-targeted explanatory audio journalism. The podcast series itself reached 210,000 downloads and was shortlisted for a Celtic Media Festival award. The Department of Children referenced the research in its updated National Strategy on Children and Young People's Participation in Decision-Making. The study was reported in the Business Post and by journalism.co.uk.

Testimonials

> *"This research gave us hard evidence that format matters. Young people are not apathetic about politics; they have switched off from legacy formats. The podcast model reached audiences our television programming simply could not."*
>
> **Fictional Head of Strategy, Broadcasting Authority of Ireland (hypothetical testimonial)**

> *"I started listening because it was recommended on a course. By the end I understood how the Dail works, what the budget actually means, and I voted for the first time."*
>
> **Fictional Listener, aged 21, Dublin (hypothetical testimonial, consent obtained)**

UNSDG Contributions

SDG 16 (Peace, Justice and Strong Institutions): Target 16.7 - ensuring responsive, inclusive, participatory and representative decision-making.

SDG 4 (Quality Education): Target 4.7 - ensuring all learners acquire knowledge to promote sustainable development, including through education for global citizenship.

Evidence/Sources to Corroborate Research Impact

BAI Sound & Vision funding criteria (2025) referencing the research. Podcast download analytics (210,000 total). Pre/post political knowledge assessment (n=640 listeners, matched comparison). Department of Children strategy document citation. Celtic Media Festival shortlisting. Business Post feature (November 2024). Journalism.co.uk report (December 2024). Student advisory panel records. Listener and broadcaster testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2023). "Media consumption and political disengagement among Irish young adults: a national survey." Irish Political Studies, 38(4), 501-520.

[2] Smith, J. et al. (2025). "Can podcasts rebuild democratic engagement? A quasi-experimental evaluation of narrative journalism." Digital Journalism, 13(1), 78-96.

[3] Business Post, "The Podcast Generation: How Audio is Reaching Young Voters," 10 November 2024.

[4] BAI Sound & Vision Scheme, Funding Guidelines 2025, Section 4.3.

Heritage Trail Gamification: Increasing Visitor Dwell Time and Local Economic Benefit

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Arts & Humanities
School	Tourism & Hospitality Management
Research Hub	Visitor Economy Research Hub
Keywords	Gamification, heritage tourism, dwell time, local economy, visitor experience
New or Updated	New (Hypothetical Example)

Summary of the Impact

A gamified mobile app for heritage trails in three Irish towns increased average visitor dwell time by 74 minutes and local spend by EUR 22 per visit. The model was endorsed by Failte Ireland for integration into its Destination Experience Development Plans, and the app platform was licensed to two heritage organisations outside Ireland.

Research Description

The research (2022-2025) applied gamification principles (challenges, narrative progression, rewards, social sharing) to heritage walking trails in three towns with significant but underperforming heritage assets. The team developed a configurable mobile app platform in collaboration with a local software company, using iterative user testing with 240 visitors. A controlled evaluation compared visitor behaviour (GPS-tracked dwell time, spend surveys, business footfall counts) in gamified versus non-gamified trail periods across 16 weekends. The project was co-funded by Failte Ireland and the Heritage Council.

Description of the Impact

Average visitor dwell time increased by 74 minutes (from 108 to 182 minutes). Mean local spend rose by EUR 22 per visit, equating to an additional EUR 396,000 annually across the three towns. Failte Ireland endorsed the gamification model and referenced it in two Destination Experience Development Plans. The app platform was licensed to heritage organisations in Wales and northern Spain, generating EUR 65,000 in licence income. Local business associations in all three towns reported measurable footfall increases. The project was featured on RTE's Ear to the Ground and in the Sunday Independent's travel section.

Testimonials

> *"Before the gamified trail, visitors drove through in 20 minutes. Now families are staying half a day, visiting shops, eating lunch, exploring laneways they never knew existed. It has been transformative for our main street."*
>
> **Fictional Chair, Local Business Association (hypothetical testimonial, consent obtained)**

> *"The research showed us how technology can extend the value of heritage assets we already have, rather than building new attractions. The cost-benefit case is compelling."*
>
> **Fictional Regional Manager, Failte Ireland (hypothetical testimonial)**

UNSDG Contributions

SDG 8 (Decent Work and Economic Growth): Target 8.9 - promoting sustainable tourism that creates jobs and promotes local culture.

SDG 11 (Sustainable Cities and Communities): Target 11.4 - strengthening efforts to protect and safeguard cultural and natural heritage.

Evidence/Sources to Corroborate Research Impact

Failte Ireland Destination Experience Development Plans referencing the model. GPS-tracked dwell time data (16 weekends, controlled comparison). Visitor spend surveys and business footfall records. Licence agreements with Welsh and Spanish heritage organisations. RTE Ear to the Ground broadcast (May 2024). Sunday Independent travel feature (June 2024). Heritage Council project evaluation report. Business association and visitor testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2024). "Gamifying heritage: a controlled evaluation of mobile app-based heritage trails." Tourism Management, 100, 104815.

[2] Smith, J. et al. (2025). "Economic impact of gamified heritage tourism in small Irish towns." Annals of Tourism Research, 100, 103580.

[3] RTE Ear to the Ground, "Playing the Heritage Game," broadcast 16 May 2024.

[4] Sunday Independent Travel, "The Towns Where History Comes Alive on Your Phone," 2 June 2024.

Machine Translation Quality for Irish Sign Language: Bridging the Access Gap

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Arts & Humanities
School	Language Studies
Research Hub	Translation and Interpreting Research Hub
Keywords	Irish Sign Language, machine translation, accessibility, deaf community, language technology
New or Updated	New (Hypothetical Example)

Summary of the Impact

Research developing improved machine translation between written English and Irish Sign Language (ISL) produced a prototype avatar system that scored within 85% of human interpreter accuracy on standardised comprehension tests. The National Disability Authority endorsed the system for public service pilot deployment, and Citizens Information adopted it for six regional offices.

Research Description

The study (2022-2025) addressed the chronic shortage of qualified ISL interpreters in Ireland by developing a neural machine translation system pairing written English public service content with ISL avatar output. The team built an ISL motion-capture corpus with 48 native Deaf signers, capturing 14,000 signed utterances across government service domains (social welfare, housing, healthcare). The translation engine used transformer architecture with attention mechanisms tailored to sign language spatial grammar. Evaluation involved comprehension testing with 120 Deaf adults comparing avatar output to human interpretation and written-only provision. The project was co-funded by SFI and the Department of Children, Equality, Disability, Integration and Youth.

Description of the Impact

The avatar system achieved 85% of human interpreter comprehension scores on standardised tests, and significantly outperformed written-only provision for Deaf users whose first language is ISL. Citizens Information adopted the system in six regional offices for providing social welfare information, serving an estimated 1,200 Deaf clients. The National Disability Authority endorsed the system for broader public service deployment in its 2025 accessibility guidance. The Irish Deaf Society, while noting the system is not a replacement for human interpreters, welcomed it as a complementary tool for routine information access. The work was featured in the Sunday Business Post and on Virgin Media News.

Testimonials

> *"For the first time, I could walk into a Citizens Information office and access information in my own language without booking an interpreter two weeks in advance. It is not perfect, but it is a genuine step forward."*
>
> **Fictional Service User, Irish Deaf Society member (hypothetical testimonial, consent obtained)**

"This technology addresses a real gap in public service accessibility. We see it as a complement to human interpreters, not a replacement, and a model for how other public bodies can improve access."

Fictional Director, National Disability Authority (hypothetical testimonial)

UNSDG Contributions

SDG 10 (Reduced Inequalities): Target 10.2 - empowering and promoting social, economic and political inclusion irrespective of disability.

SDG 16 (Peace, Justice and Strong Institutions): Target 16.6 - developing effective, accountable and transparent institutions at all levels.

Evidence/Sources to Corroborate Research Impact

National Disability Authority accessibility guidance (2025) endorsing the system. Citizens Information pilot deployment records (6 offices, usage statistics). Comprehension test data (n=120 Deaf adults). ISL motion-capture corpus (14,000 utterances, deposited in CLARIN). Irish Deaf Society statement. Sunday Business Post feature (March 2025). Virgin Media News segment (April 2025). SFI and Department project completion reports. Service user testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2024). "Building a motion-capture corpus for Irish Sign Language: methods and applications." Language Resources and Evaluation, 58(2), 445-468.

[2] Smith, J. et al. (2025). "Neural machine translation for Irish Sign Language: avatar-based comprehension evaluation." Computer Speech & Language, 89, 101654.

[3] Sunday Business Post, "Breaking the Silence: AI Interpreters for Deaf Citizens," 9 March 2025.

[4] National Disability Authority, Guidance on Digital Accessibility in Public Services, 2025, Section 6.2.

Faculty of Business

Carbon Accounting Standards for Irish Credit Unions: Building Climate Literacy in Community Finance

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Business
School	School of Accounting, Economics & Finance
Research Hub	Sustainable Finance Research Hub
Keywords	Carbon accounting, credit unions, climate finance, community banking, sustainability reporting
New or Updated	New (Hypothetical Example)

Summary of the Impact

Research developing a simplified carbon accounting framework for Irish credit unions was adopted by the Irish League of Credit Unions (ILCU) and informed the Central Bank of Ireland's approach to proportionate climate risk disclosure for smaller financial institutions. Sixty-two credit unions implemented the framework within 18 months, covering EUR 4.2 billion in assets under management.

Research Description

The study (2022-2025) addressed the gap between complex international carbon accounting standards (PCAF, GHG Protocol) and the operational reality of Ireland's 200+ credit unions. Through a Delphi process with 30 credit union managers, accountants, and climate finance experts, the team developed a proportionate framework covering Scope 1, 2, and financed emissions (Scope 3, Category 15). Pilot implementation in 12 credit unions tested feasibility, data availability, and reporting burden. A training programme was co-designed with the ILCU. The project was funded by the IRC and co-supported by the ILCU.

Description of the Impact

Sixty-two credit unions adopted the framework within 18 months, collectively managing EUR 4.2 billion in assets. The ILCU incorporated the framework into its 2025 member guidance on sustainability reporting. The Central Bank of Ireland cited the research in its discussion paper on proportionate climate risk disclosure for credit unions and smaller institutions. The Department of Finance referenced the work in its review of Ireland's sustainable finance roadmap. The study was covered in the Currency magazine and by RTE's Brainstorm platform. The Irish Auditing and Accounting Supervisory Authority invited the researchers to present at its annual conference.

Testimonials

> *"Our members expect us to take climate seriously but we had no idea where to start with carbon accounting. This framework gave us a practical, proportionate way in without the costs of hiring consultants."*
>
> **Fictional CEO, Credit Union (hypothetical testimonial, consent obtained)**

> *"The research demonstrated that proportionate climate disclosure is achievable for smaller institutions. It has directly informed our thinking on how to apply expectations fairly across the financial sector."*
>
> **Fictional Senior Policy Advisor, Central Bank of Ireland (hypothetical testimonial)**

UNSDG Contributions

SDG 13 (Climate Action): Target 13.3 - improving education, awareness-raising and capacity on climate change mitigation and adaptation.

SDG 8 (Decent Work and Economic Growth): Target 8.10 - strengthening the capacity of domestic financial institutions.

Evidence/Sources to Corroborate Research Impact

ILCU member guidance on sustainability reporting (2025) adopting the framework. Central Bank discussion paper citing the research. Department of Finance sustainable finance roadmap review. Adoption records from 62 credit unions. Pilot implementation data from 12 credit unions. Currency magazine feature (August 2024). RTE Brainstorm article (October 2024). IAASA conference proceedings. Credit union testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2024). "Proportionate carbon accounting for community financial institutions: development of a credit union framework." Accounting, Auditing & Accountability Journal, 37(3), 789-810.

[2] Smith, J. et al. (2025). "Implementing climate disclosure in Irish credit unions: a feasibility study." Journal of Sustainable Finance & Investment, 15(1), 112-130.

[3] Currency, "Credit Unions Count Their Carbon," August 2024.

[4] Central Bank of Ireland, Discussion Paper on Proportionate Climate Risk Disclosure, 2025.

Trade Facilitation for African SMEs: Reducing Barriers to EU Market Entry

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Business
School	School of Global Business
Research Hub	International Trade Research Hub
Keywords	Trade facilitation, African SMEs, EU market access, non-tariff barriers, development
New or Updated	New (Hypothetical Example)

Summary of the Impact

Research mapping non-tariff barriers faced by sub-Saharan African SMEs exporting to the EU led to a practical compliance toolkit adopted by the International Trade Centre (ITC). Ninety-four SMEs using the toolkit reported a 40% reduction in time spent on EU compliance requirements, and the findings were cited in EU trade policy consultations on the Economic Partnership Agreements.

Research Description

The study (2021-2024) combined trade data analysis, regulatory mapping, and in-depth interviews with 180 SME exporters across Kenya, Ghana, and Senegal to identify the specific non-tariff barriers (standards compliance, documentation, testing, certification) that disproportionately burden small firms seeking EU market access. The research produced a sector-specific compliance toolkit covering food, textiles, and handicrafts, with step-by-step guidance, template documentation, and links to accredited testing facilities. A 12-month pilot evaluation tracked compliance time, rejection rates, and export volumes among 94 SMEs. The project was funded by Irish Aid and the IRC.

Description of the Impact

SMEs using the toolkit reported a 40% reduction in time spent navigating EU compliance. Product rejection rates at EU borders fell by 28% among toolkit users. The International Trade Centre adopted the toolkit for distribution through its SME Trade Academy in 2025. The European Commission cited the research in its mid-term review of the EU-East African Community Economic Partnership Agreement. Irish Aid referenced the work in its 2025 Africa Strategy as an example of trade-related development research. The study was covered by RTE's This Week radio programme and the East African newspaper.

Testimonials

> *"Before the toolkit, I spent three months trying to understand EU labelling rules and still got my shipment rejected. With the toolkit, I got it right the first time. My export volume has doubled."*
>
> **Fictional SME Owner, Nairobi (hypothetical testimonial, consent obtained)**

> *"Reducing non-tariff barriers for small producers is essential to making trade agreements work for development. This research fills a gap between policy intent and practical reality."*
>
> **Fictional Programme Manager, International Trade Centre (hypothetical testimonial)**

UNSDG Contributions

SDG 8 (Decent Work and Economic Growth): Target 8.a - increasing Aid for Trade support for developing countries.

SDG 10 (Reduced Inequalities): Target 10.a - implementing the principle of special and differential treatment for developing countries.

SDG 17 (Partnerships for the Goals): Target 17.11 - significantly increasing the exports of developing countries.

Evidence/Sources to Corroborate Research Impact

ITC SME Trade Academy toolkit adoption records. European Commission EPA mid-term review citing the research. Irish Aid Africa Strategy (2025) reference. Compliance time and rejection rate data from 94 SMEs (12-month pilot). RTE This Week broadcast (February 2025). East African newspaper feature (March 2025). Irish Aid and IRC project completion reports. SME and trade body testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2023). "Non-tariff barriers and African SME exporters: a mixed-methods analysis of EU market access challenges." World Development, 164, 106172.

[2] Smith, J. et al. (2024). "Evaluating a compliance toolkit for sub-Saharan SME exporters: impact on trade performance." Journal of International Business Policy, 7(3), 345-365.

[3] RTE This Week, "Trading Places: Helping African Firms Reach Europe," broadcast 9 February 2025.

[4] European Commission, Mid-term Review of the EU-EAC Economic Partnership Agreement, 2025, p.47.

Executive Decision-Making Under Uncertainty: Simulation Training for Healthcare Leaders

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Business
School	Graduate Business School (GBS)
Research Hub	Healthcare Leadership Research Hub
Keywords	Decision-making, simulation training, healthcare leadership, crisis management, executive education
New or Updated	New (Hypothetical Example)

Summary of the Impact

A simulation-based executive training programme for healthcare leaders improved crisis decision-making speed by 29% and quality by 24% in validated assessments. Adopted by the HSE's National Leadership Academy, the programme trained 180 senior managers in its first year and was cited by the Department of Health in its workforce planning strategy.

Research Description

The research (2021-2024) developed immersive decision-making simulations replicating complex healthcare crises (pandemic surges, cyberattack on patient systems, mass casualty events). The simulations combined real-time data feeds, role-playing, and AI-driven scenario branching. A randomised controlled trial compared simulation-trained executives (n=96) with those receiving conventional case-study training (n=94) on validated measures of decision speed, decision quality (expert panel ratings), team coordination, and stress management. Follow-up at six months assessed real-world decision confidence and self-reported application of skills.

Description of the Impact

Simulation-trained participants made crisis decisions 29% faster and received 24% higher quality ratings from expert assessors compared to the case-study group. The HSE National Leadership Academy adopted the programme in 2025, training 180 senior managers across acute and community services in its first year. The Department of Health cited the research in its 2025 Health Workforce Planning Strategy, recommending simulation-based training for all new clinical directors. Two private hospital groups contracted the programme. The work was reported in the Medical Independent and Health Manager magazine.

Testimonials

> *"The simulation placed me under genuine pressure in a way that no lecture or case study ever could. When our hospital faced a real IT outage six months later, I recognised the decision patterns immediately. It made a tangible difference."*
>
> **Fictional Hospital Group CEO (hypothetical testimonial, consent obtained)**

> *"We needed an evidence-based approach to developing senior leaders who can perform under extreme uncertainty. This programme delivered exactly that, and the evaluation rigour gave us confidence to scale it nationally."*
>
> **Fictional Director, HSE National Leadership Academy (hypothetical testimonial)**

UNSDG Contributions

SDG 3 (Good Health and Wellbeing): Target 3.d - strengthening the capacity of all countries for health risk management.

SDG 4 (Quality Education): Target 4.4 - substantially increasing the number of people with relevant skills for employment.

Evidence/Sources to Corroborate Research Impact

HSE National Leadership Academy adoption records and training completion data (180 managers). Department of Health Workforce Planning Strategy (2025) citation. RCT dataset (n=190, decision speed and quality measures). Six-month follow-up survey. Private hospital group contracts. Medical Independent feature (January 2025). Health Manager article (March 2025). Participant testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2023). "Immersive simulation for healthcare executive decision-making: design and pilot evaluation." BMJ Leader, 7(3), 201-210.

[2] Smith, J. et al. (2024). "Simulation versus case-study training for crisis leadership: a randomised controlled trial." Health Services Research, 59(5), 1120-1135.

[3] Medical Independent, "Training Hospital Leaders for the Next Crisis," 16 January 2025.

[4] Department of Health, Health Workforce Planning Strategy 2025-2030, Section 5.4.

Psychological Safety and Innovation in Multinational R&D Teams Based in Ireland

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Business
School	School of Management, People & Organisations
Research Hub	Organisational Behaviour Research Hub
Keywords	Psychological safety, innovation, multinational teams, R&D, organisational culture
New or Updated	New (Hypothetical Example)

Summary of the Impact

A longitudinal study of psychological safety in multinational R&D teams operating in Ireland produced a diagnostic tool and intervention programme that increased idea generation by 38% and reduced project failure concealment by 52%. IDA Ireland adopted the tool for its client advisory services, and the findings shaped CIPD Ireland's guidance on innovation culture.

Research Description

The study (2022-2025) tracked 84 R&D teams across 12 multinational firms in Ireland over 24 months, measuring psychological safety (Edmondson scale), idea generation rates, failure reporting behaviours, and innovation output (patent applications, process improvements). The research identified cultural, structural, and leadership factors that predicted high psychological safety in cross-national teams. Based on these findings, the team designed a six-month intervention programme (leader coaching, team reflection protocols, failure debriefing structures) and evaluated it in a stepped-wedge design across 28 teams.

Description of the Impact

Teams completing the intervention showed a 38% increase in idea generation and a 52% reduction in failure concealment behaviours. IDA Ireland adopted the diagnostic tool for its client advisory services, offering it to multinational clients as part of its talent and innovation support. CIPD Ireland referenced the research in its 2025 guidance on building innovation culture. Three participating firms embedded the intervention as standard practice for new R&D teams. The work was featured in the Silicon Republic and Harvard Business Review online.

Testimonials

> *"We knew psychological safety mattered but had no way to measure it or improve it systematically. The diagnostic tool showed us exactly where the problems were, and the intervention gave our team leaders a practical playbook."*
>
> **Fictional VP of R&D, Multinational Firm (hypothetical testimonial, consent obtained)**

> *"For Ireland to maintain its attractiveness as an R&D hub, firms need to get the best from diverse teams. This research provides an evidence base for something that has been discussed anecdotally for years."*
>
> **Fictional Regional Director, IDA Ireland (hypothetical testimonial)**

UNSDG Contributions

SDG 8 (Decent Work and Economic Growth): Target 8.2 - achieving higher levels of economic productivity through innovation.

SDG 9 (Industry, Innovation and Infrastructure): Target 9.5 - enhancing scientific research and encouraging innovation.

Evidence/Sources to Corroborate Research Impact

IDA Ireland adoption documentation for client advisory services. CIPD Ireland guidance on innovation culture (2025). Longitudinal dataset (84 teams, 12 firms, 24 months). Stepped-wedge intervention evaluation (28 teams). Patent application and process improvement records. Silicon Republic feature (April 2025). Harvard Business Review online article (May 2025). Firm adoption documentation. Team leader and participant testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2024). "Psychological safety in multinational R&D teams: a 24-month longitudinal study." Organization Science, 35(2), 456-478.

[2] Smith, J. et al. (2025). "Improving psychological safety in cross-national teams: a stepped-wedge intervention trial." Journal of Applied Psychology, 110(3), 301-318.

[3] Silicon Republic, "The Hidden Factor Holding Back Innovation in Ireland," 8 April 2025.

[4] CIPD Ireland, Building Innovation Culture: Guidance for HR Professionals, 2025.

Crowdfunding as Market Validation: Helping Craft Producers Scale Sustainably*

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Business
School	School of Marketing & Entrepreneurship
Research Hub	Entrepreneurship and Small Business Research Hub
Keywords	Crowdfunding, market validation, craft producers, scaling, sustainable growth
New or Updated	New (Hypothetical Example)

Summary of the Impact

Research into crowdfunding campaign design for Irish craft producers produced a structured market validation methodology that tripled average campaign success rates and generated EUR 1.4M in pre-sales for 38 participating makers. The Design & Crafts Council Ireland adopted the methodology in its business development programme, and Enterprise Ireland cited the research in its guidance on early-stage market testing.

Research Description

The study (2022-2025) analysed 480 Irish crowdfunding campaigns (Kickstarter and Indiegogo) to identify factors predicting success in craft and artisan categories. The analysis revealed that campaign structure, video storytelling, reward tier design, and early-backer momentum were stronger predictors than product quality alone. Based on these findings, the team developed a structured market validation methodology and tested it with 38 craft producers in a supported cohort programme over 12 months. Controls comprised 38 matched producers launching campaigns without the methodology. The project was funded by the IRC and co-supported by the Design & Crafts Council Ireland.

Description of the Impact

Methodology participants achieved a 76% campaign success rate (fully funded) versus 24% for controls. Cumulative pre-sales reached EUR 1.4M. Beyond funding, 28 of the 38 producers reported that campaign data informed subsequent product development and pricing decisions. The Design & Crafts Council Ireland adopted the methodology for its 2025 business development programme, reaching 120 makers annually. Enterprise Ireland cited the research in its updated guidance on early-stage market testing for micro-enterprises. The study was featured in the Irish Independent business section and on Newstalk's Down to Business programme.

Testimonials

> *"I had been making ceramics for ten years but had no idea how to test whether a new product line would sell. The crowdfunding methodology gave me real customer data before I committed to production. My campaign funded in 72 hours."*
>
> **Fictional Ceramic Artist, Kilkenny (hypothetical testimonial, consent obtained)**

> *"This research turned crowdfunding from a lottery into a structured market testing tool. The methodology is now part of how we advise craft producers on scaling their businesses."*
>
> **Fictional Head of Enterprise, Design & Crafts Council Ireland (hypothetical testimonial)**

UNSDG Contributions

SDG 8 (Decent Work and Economic Growth): Target 8.3 - supporting productive activities, entrepreneurship, creativity, and micro and small enterprise growth.

SDG 12 (Responsible Consumption and Production): Target 12.b - developing tools to monitor sustainable consumption.

Evidence/Sources to Corroborate Research Impact

Design & Crafts Council Ireland programme adoption records. Enterprise Ireland market testing guidance (2025) citing the research. Campaign success rate data (38 intervention, 38 control). Pre-sales revenue records (EUR 1.4M cumulative). Post-campaign product development surveys. Irish Independent business feature (October 2024). Newstalk Down to Business interview (November 2024). Producer testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2023). "Predicting crowdfunding success in craft and artisan categories: a mixed-methods analysis." International Small Business Journal, 41(6), 690-712.

[2] Smith, J. et al. (2025). "Crowdfunding as market validation for craft producers: a controlled cohort evaluation." Journal of Business Venturing Insights, 23, e00438.

[3] Irish Independent, "How Crowdfunding is Changing the Craft Business," 14 October 2024.

[4] Enterprise Ireland, Guidance on Early-Stage Market Testing for Micro-Enterprises, 2025, Section 3.2.

*See the Planning for Impact: Worked Examples document for the completed template for this hypothetical Research Impact Case Study

Last-Mile Delivery Optimisation for Independent Retailers: Competing with E-Commerce Giants

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Business
School	School of Business Technology, Retail & Supply Chain
Research Hub	Retail Innovation Research Hub
Keywords	Last-mile delivery, independent retail, e-commerce, logistics optimisation, local economy
New or Updated	New (Hypothetical Example)

Summary of the Impact

Research into collaborative last-mile delivery networks for independent retailers in three Irish towns produced a shared logistics platform that reduced delivery costs by 41% and delivery times by 55%. Retail Ireland adopted the model in its Digital Retail Strategy, and the platform was recognised by the European Commission's Logistics Innovation Award.

Research Description

The study (2022-2025) addressed the competitive disadvantage faced by independent retailers unable to match the delivery speed and cost of major e-commerce platforms. The team designed a collaborative logistics model where clusters of independent retailers in a town share delivery infrastructure (vehicles, warehousing, routing software). Vehicle routing algorithms optimised for consolidated multi-retailer deliveries were developed and tested. Three towns (population 8,000-25,000) served as pilot sites, each with 15-22 participating retailers. A 12-month evaluation tracked delivery cost per parcel, delivery time, customer satisfaction, and retailer revenue changes. The project was co-funded by Enterprise Ireland and the Local Enterprise Offices.

Description of the Impact

Average delivery cost per parcel fell by 41% (from EUR 7.20 to EUR 4.25). Mean delivery time dropped from 4.2 days to 1.9 days. Participating retailers reported a 23% increase in online order volumes. Retail Ireland adopted the collaborative logistics model in its 2025 Digital Retail Strategy, recommending it to its 2,000+ members. The European Commission recognised the platform with a Logistics Innovation Award (SME category). Five additional towns expressed interest in replicating the model. The work was covered by Retail News Ireland and the Sunday Times business section.

Testimonials

> *"We were losing customers to next-day delivery from the big platforms. The shared delivery network means I can now offer same-day delivery within 20km at a price my business can sustain."*
>
> **Fictional Independent Retailer (hypothetical testimonial, consent obtained)**

> *"This model proves that collaboration can level the playing field. Independent retailers do not need to match Amazon individually; they need to work together intelligently."*
>
> **Fictional Director, Retail Ireland (hypothetical testimonial)**

UNSDG Contributions

SDG 8 (Decent Work and Economic Growth): Target 8.3 - supporting productive activities and small enterprise growth.

SDG 9 (Industry, Innovation and Infrastructure): Target 9.1 - developing reliable and resilient infrastructure.

SDG 11 (Sustainable Cities and Communities): Target 11.a - supporting positive economic links between urban and rural areas.

Evidence/Sources to Corroborate Research Impact

Retail Ireland Digital Retail Strategy (2025) citing the model. European Commission Logistics Innovation Award documentation. Delivery cost and time data (3 towns, 12 months). Retailer revenue data (pre/post online orders). Customer satisfaction surveys. Interest expressions from five additional towns. Retail News Ireland feature (July 2024). Sunday Times business article (August 2024). Enterprise Ireland and LEO project reports. Retailer testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2024). "Collaborative last-mile delivery for independent retailers: routing optimisation and cost analysis." Transportation Research Part E, 182, 103412.

[2] Smith, J. et al. (2025). "Can small retailers compete on delivery? A 12-month evaluation of shared logistics networks." Journal of Retailing, 101(1), 45-62.

[3] Retail News Ireland, "Small Shops Share Vans to Beat the Delivery Giants," July 2024.

[4] European Commission, Logistics Innovation Award 2024, SME Category Citation.

Faculty of Computing, Digital & Data

Detecting Deepfake Audio in Legal Proceedings: A Forensic Analysis Tool*

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Computing, Digital & Data
School	School of Computer Science
Research Hub	Digital Forensics Research Hub
Keywords	Deepfake detection, audio forensics, legal proceedings, AI-generated speech, digital evidence
New or Updated	New (Hypothetical Example)

Summary of the Impact

A forensic tool for detecting AI-generated deepfake audio achieved 97.3% accuracy on a benchmark dataset and was validated for courtroom use by An Garda Siochana's Computer Crime Investigation Unit. The Courts Service of Ireland cited the tool in its updated guidance on digital audio evidence, and the research informed proposed amendments to the Criminal Evidence Act.

Research Description

The research (2021-2024) developed a detection system combining spectral analysis, speaker-embedding anomaly detection, and temporal consistency modelling to identify AI-synthesised speech in audio recordings submitted as evidence. The training dataset comprised 48,000 genuine and 48,000 synthetic audio samples across multiple generation methods (voice cloning, text-to-speech, voice conversion). Validation included a blind test with forensic audio examiners and legal professionals assessing 200 samples of varying difficulty. The system was designed to produce court-admissible reports with confidence scores and explanatory visualisations. The project was funded by SFI and co-supported by the Department of Justice.

Description of the Impact

The tool achieved 97.3% detection accuracy on the benchmark, outperforming the three leading commercial alternatives. An Garda Siochana's CCIU validated the tool for operational use and deployed it in three active cases during the trial period. The Courts Service of Ireland updated its Practice Direction on digital audio evidence to reference AI-generated content and the availability of forensic detection tools. The Department of Justice cited the research in its 2025 consultation on amendments to the Criminal Evidence Act regarding digital evidence standards. The tool was licensed to a European digital forensics firm. Coverage appeared in the Law Society Gazette and on RTE's Prime Time Investigates.

Testimonials

> *"Audio evidence is increasingly central to criminal cases. Without reliable detection tools, the courts risk admitting fabricated recordings. This research gives us a validated, explainable method that meets evidential standards."*
>
> **Fictional Detective Inspector, Garda CCIU (hypothetical testimonial, consent obtained)**

> *"The ability to challenge the authenticity of audio recordings is fundamental to fair trial rights. This tool provides the defence and prosecution alike with an objective assessment."*
>
> **Fictional Barrister, Criminal Courts of Justice (hypothetical testimonial)**

UNSDG Contributions

SDG 16 (Peace, Justice and Strong Institutions): Target 16.3 - promoting the rule of law and ensuring equal access to justice.

SDG 9 (Industry, Innovation and Infrastructure): Target 9.5 - enhancing scientific research and encouraging innovation.

Evidence/Sources to Corroborate Research Impact

Courts Service Practice Direction on digital audio evidence (updated 2025). An Garda Siochana CCIU validation and deployment records. Department of Justice consultation paper on Criminal Evidence Act amendments. Benchmark detection accuracy data (96,000 samples). Blind test results (200 samples, forensic examiners). Licence agreement with forensic firm. Law Society Gazette feature (March 2025). RTE Prime Time Investigates segment (April 2025). SFI and DOJ project reports. Legal and policing testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2023). "Detecting AI-generated speech: a multi-method forensic framework." IEEE Transactions on Information Forensics and Security, 18, 3421-3435.

[2] Smith, J. et al. (2024). "Courtroom-ready deepfake audio detection: validation with forensic practitioners." Digital Investigation, 48, 301652.

[3] Law Society Gazette, "When the Voice in Evidence Isn't Real," March 2025.

[4] Department of Justice, Consultation on Digital Evidence Standards under the Criminal Evidence Act, 2025.

*See the Planning for Impact: Worked Examples document for the completed template for this hypothetical Research Impact Case Study

Accessible Digital Government Services: Automated WCAG Compliance Monitoring

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Computing, Digital & Data
School	School of Enterprise Computing & Digital Transformation
Research Hub	Digital Accessibility Research Hub
Keywords	Web accessibility, WCAG, digital government, automated testing, disability inclusion
New or Updated	New (Hypothetical Example)

Summary of the Impact

An automated monitoring system for web accessibility compliance was deployed across 48 Irish government websites, identifying 12,400 accessibility barriers. The National Disability Authority adopted the system for its annual accessibility audits, and average WCAG 2.1 AA compliance rates improved from 62% to 84% within 12 months of deployment.

Research Description

The research (2022-2025) developed a continuous automated monitoring system combining static analysis, dynamic rendering testing, and machine learning-based evaluation of subjective WCAG criteria (meaningful alt text, logical heading structure, sufficient colour contrast in complex layouts). The system was designed to scan entire government websites weekly and generate prioritised remediation reports aligned with the EU Web Accessibility Directive. Validation involved comparison with expert manual audits across 20 sites (1,200 pages), achieving 91% agreement on barrier identification. The project was co-funded by the Department of Public Expenditure and the IRC.

Description of the Impact

Deployment across 48 government websites identified 12,400 accessibility barriers, with weekly monitoring tracking remediation progress. Average WCAG 2.1 AA compliance improved from 62% to 84% within 12 months. The NDA adopted the system for its annual monitoring reports under the EU Web Accessibility Directive. The Department of Public Expenditure issued a circular requiring all government bodies to participate in continuous monitoring by 2026. The Centre for Excellence in Universal Design cited the research in its updated design guidance. Disability Federation of Ireland welcomed the system in a public statement. The work was covered by Silicon Republic and the Irish Computer Society newsletter.

Testimonials

> *"For the first time, we can track accessibility compliance in real time rather than relying on periodic audits that are outdated before they are published. Departments are fixing issues within days instead of months."*
>
> **Fictional Head of Digital Services, Department of Public Expenditure (hypothetical testimonial)**

"People with disabilities interact with government services online every day. This system means barriers are found and fixed faster, which translates directly into better access to essential services."

Fictional CEO, Disability Federation of Ireland (hypothetical testimonial)

UNSDG Contributions

SDG 10 (Reduced Inequalities): Target 10.2 - empowering and promoting inclusion irrespective of disability.

SDG 16 (Peace, Justice and Strong Institutions): Target 16.6 - developing effective, accountable and transparent institutions.

Evidence/Sources to Corroborate Research Impact

NDA annual monitoring report (2025) adopting the system. Department of Public Expenditure circular on continuous accessibility monitoring. Compliance data (48 websites, 12-month trajectory from 62% to 84%). Expert audit validation (20 sites, 1,200 pages). Centre for Excellence in Universal Design guidance update. Disability Federation of Ireland public statement. Silicon Republic feature (September 2024). ICS newsletter (October 2024). Government body and disability organisation testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2024). "Automated WCAG compliance monitoring at scale: combining static analysis with machine learning." ACM Transactions on Accessible Computing, 17(2), 1-28.

[2] Smith, J. et al. (2025). "Impact of continuous accessibility monitoring on government website compliance." Government Information Quarterly, 42(1), 101912.

[3] Silicon Republic, "The AI That Finds Barriers on Government Websites," 20 September 2024.

[4] Department of Public Expenditure, Circular on Digital Accessibility Monitoring, 2025.

Privacy-Preserving Health Data Sharing: A Federated Learning Framework for Hospital Networks

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Computing, Digital & Data
School	School of Informatics & Cybersecurity
Research Hub	Health Data Privacy Research Hub
Keywords	Federated learning, health data, privacy, hospital networks, GDPR compliance
New or Updated	New (Hypothetical Example)

Summary of the Impact

A federated learning framework enabling hospitals to collaboratively train clinical prediction models without sharing patient data was piloted across four hospital groups. The framework achieved predictive performance within 2% of centralised models while maintaining full GDPR compliance. The HSE's Office of the Chief Information Officer adopted it for its national health data strategy.

Research Description

The research (2021-2024) developed a federated learning architecture allowing hospital networks to train shared machine learning models on local patient data without that data leaving each institution. The framework incorporated differential privacy, secure aggregation, and model poisoning defences. Validation involved training sepsis prediction and readmission risk models across four hospital groups (covering 820,000 patient episodes) and comparing performance with equivalent centralised models and single-site models. A GDPR compliance assessment was conducted in collaboration with the Data Protection Commission. The project was funded by the HRB and SFI.

Description of the Impact

Federated models achieved AUC scores within 2% of centralised equivalents and significantly outperformed single-site models ($p<0.001$). The HSE's OCIO adopted the framework in its 2025 National Health Data Strategy as the recommended approach for multi-site predictive analytics. The Data Protection Commission issued a favourable opinion on the GDPR compliance framework, which was subsequently referenced in its guidance for health data controllers. Two hospital groups began operational deployment for sepsis early warning. The research was covered by the Medical Independent and Health Tech World, and presented at the European Health Data Space conference.

Testimonials

> *"We have been unable to collaborate on predictive models because sharing patient data between hospital groups raises insurmountable governance barriers. This framework resolves that impasse entirely."*
>
> **Fictional Chief Clinical Information Officer, Hospital Group (hypothetical testimonial, consent obtained)**

"The privacy-by-design approach is exactly what we advocate. This framework demonstrates that data protection and clinical innovation are not in conflict."

Fictional Commissioner, Data Protection Commission (hypothetical testimonial)

UNSDG Contributions

SDG 3 (Good Health and Wellbeing): Target 3.d - strengthening capacity for health risk management.

SDG 9 (Industry, Innovation and Infrastructure): Target 9.5 - enhancing scientific research and encouraging innovation.

Evidence/Sources to Corroborate Research Impact

HSE OCIO National Health Data Strategy (2025) adopting the framework. DPC guidance for health data controllers referencing the compliance assessment. Model performance data (4 hospital groups, 820,000 episodes). Operational deployment records from two hospital groups. Medical Independent feature (November 2024). Health Tech World report (January 2025). European Health Data Space conference proceedings. HRB and SFI project reports. Hospital and DPC testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2023). "Federated learning for clinical prediction: a multi-hospital framework with differential privacy." npj Digital Medicine, 6, 189.

[2] Smith, J. et al. (2024). "GDPR-compliant federated learning in healthcare: a data protection impact assessment framework." Journal of Medical Internet Research, 26(8), e52341.

[3] Medical Independent, "Hospitals Train AI Together Without Sharing a Single Record," 21 November 2024.

[4] HSE Office of the Chief Information Officer, National Health Data Strategy 2025-2030, Section 4.7.

Actuarial Modelling of Climate Risk for Irish Property Insurance

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Computing, Digital & Data
School	School of Mathematics & Statistics
Research Hub	Risk and Actuarial Science Research Hub
Keywords	Climate risk, actuarial modelling, property insurance, flood risk, financial stability
New or Updated	New (Hypothetical Example)

Summary of the Impact

Novel actuarial models integrating high-resolution climate projections with property-level flood exposure data produced granular risk assessments that the Central Bank of Ireland used in its climate stress testing of the domestic insurance sector. Three insurers adopted the models, and the Society of Actuaries in Ireland endorsed the methodology.

Research Description

The research (2021-2024) developed Bayesian loss models linking Met Eireann and ICHEC climate projections (at 4km resolution) with Geodirectory property-level data, OPW flood maps, and historical claims data provided (anonymised) by Insurance Ireland. The models estimated changes in expected annual loss distributions for residential and commercial property under RCP 4.5 and 8.5 scenarios to 2050 and 2080. Uncertainty quantification distinguished climate model uncertainty from exposure data uncertainty. Validation used out-of-sample prediction of claims following Storm Barra and Storm Debi. The project was co-funded by SFI and Insurance Ireland.

Description of the Impact

The Central Bank of Ireland used the models in its 2025 climate stress test of the domestic insurance sector, the first such exercise for the Irish market. Three insurers adopted the models for internal capital modelling, covering approximately 35% of the domestic property insurance market. The Society of Actuaries in Ireland endorsed the methodology in its 2025 practice note on climate risk. The OPW referenced the research in its National Flood Risk Assessment update. The work was reported in the Irish Times business pages and Insurance Post magazine. The Department of Finance cited the study in its consultation on climate risk and financial stability.

Testimonials

> *"Standard actuarial models treat climate as stationary. This research gave us models that actually capture the trajectory of risk. It changed how we set reserves for flood exposure."*
>
> **Fictional Chief Actuary, Insurance Company (hypothetical testimonial, consent obtained)**

> *"Credible, transparent climate risk modelling is essential for financial stability. This work provided the granular Irish-specific models that we needed for our first climate stress test."*
>
> **Fictional Head of Insurance Supervision, Central Bank of Ireland (hypothetical testimonial)**

UNSDG Contributions

SDG 13 (Climate Action): Target 13.1 - strengthening resilience and adaptive capacity to climate-related hazards and natural disasters.

SDG 11 (Sustainable Cities and Communities): Target 11.5 - significantly reducing economic losses caused by water-related disasters.

Evidence/Sources to Corroborate Research Impact

Central Bank of Ireland climate stress test report (2025) using the models. Adoption documentation from three insurers. Society of Actuaries practice note (2025) endorsing the methodology. OPW National Flood Risk Assessment update. Department of Finance consultation paper. Out-of-sample validation against Storm Barra and Storm Debi claims. Irish Times business feature (February 2025). Insurance Post article (March 2025). SFI and Insurance Ireland project reports. Insurer and regulator testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2023). "Bayesian climate-conditioned loss modelling for Irish property insurance." Scandinavian Actuarial Journal, 2023(8), 712-735.

[2] Smith, J. et al. (2024). "Climate stress testing the Irish insurance sector: methodology and scenario design." The Geneva Papers on Risk and Insurance, 49(3), 456-480.

[3] Irish Times, "Counting the Cost of Future Floods: New Models for Irish Insurers," 6 February 2025.

[4] Society of Actuaries in Ireland, Practice Note on Climate Risk in Property Insurance, 2025.

Faculty of Engineering, Built Environment & Apprenticeships

Hempcrete Building Systems for Low-Carbon Affordable Housing*

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Engineering, Built Environment & Apprenticeships
School	School of Architecture, Building & Environment
Research Hub	Low-Carbon Construction Research Hub
Keywords	Hempcrete, low-carbon housing, affordable construction, embodied carbon, building performance
New or Updated	New (Hypothetical Example)

Summary of the Impact

Research optimising hempcrete wall systems for the Irish climate produced structural and hygrothermal performance data that underpinned the first Irish Agrément Board certification for a hempcrete building product. A social housing pilot of 24 units demonstrated 78% lower embodied carbon than conventional blockwork, and the Department of Housing referenced the research in its updated guidance on low-carbon construction materials.

Research Description

The study (2021-2024) characterised the structural, thermal, moisture, and fire performance of hempcrete wall assemblies under Irish climatic conditions through laboratory testing and in-situ monitoring of prototype buildings. The team optimised binder formulations for Irish hemp shiv, developed construction detailing for junctions, openings, and services, and produced lifecycle assessment data comparing hempcrete with conventional cavity wall and timber frame systems. A pilot project of 24 social housing units (8 hempcrete, 8 timber frame, 8 blockwork) provided 24-month comparative performance data on energy use, indoor environment quality, construction speed, and cost. The project was co-funded by SEAI and the Department of Housing.

Description of the Impact

The Irish Agrément Board issued certification for the optimised hempcrete wall system in 2024, the first such certification in Ireland, enabling its specification by architects and local authorities. The 24-unit pilot showed 78% lower embodied carbon, comparable operational energy performance, and 12% lower construction cost compared to blockwork. The Department of Housing referenced the research in its 2025 guidance on low-carbon construction materials for publicly funded housing. Three local authorities expressed interest in hempcrete for future social housing programmes. The Hemp Cooperative of Ireland reported a 300% increase in enquiries for building-grade hemp shiv following the certification. The study was featured in Construct Ireland magazine and on RTE's Future Island documentary series.

Testimonials

> *"Without Irish performance data and certification, we simply could not specify hempcrete. This research removed the regulatory barrier. We now have a viable low-carbon option for social housing that meets all building regulations."*
>
> **Fictional Senior Architect, Local Authority Housing Section (hypothetical testimonial, consent obtained)**

"The potential for Irish farmers to supply building-grade hemp is significant. The Agrément certification has created a new market for an Irish-grown crop that sequesters carbon as it grows."

Fictional Chair, Hemp Cooperative of Ireland (hypothetical testimonial)

UNSDG Contributions

SDG 11 (Sustainable Cities and Communities): Target 11.1 - ensuring access to adequate, safe and affordable housing; Target 11.c - supporting sustainable and resilient buildings using local materials.

SDG 13 (Climate Action): Target 13.2 - integrating climate change measures into national policies.

Evidence/Sources to Corroborate Research Impact

Irish Agrément Board certification (2024). Department of Housing guidance on low-carbon construction materials (2025). 24-month comparative performance data (24 units, three construction types). Lifecycle assessment data. Hemp Cooperative enquiry statistics. Local authority interest expressions. Construct Ireland magazine feature (November 2024). RTE Future Island documentary (February 2025). SEAI and Department of Housing project reports. Architect and farmer testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2023). "Hygrothermal performance of hempcrete wall assemblies under Irish climatic conditions." Construction and Building Materials, 375, 130938.

[2] Smith, J. et al. (2024). "Comparative lifecycle assessment of hempcrete, timber frame, and cavity wall construction for social housing." Journal of Cleaner Production, 434, 140120.

[3] Construct Ireland, "Hemp Houses Pass the Test," November 2024.

[4] Irish Agrément Board, Certificate No. IAB-24-0XX, Hempcrete Wall System, 2024.

*See the Planning for Impact: Worked Examples document for the completed template for this hypothetical Research Impact Case Study

Wearable Vibration Monitoring for Construction Workers: Preventing Hand-Arm Vibration Syndrome

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Engineering, Built Environment & Apprenticeships
School	School of Electrical & Electronic Engineering
Research Hub	Occupational Sensing Research Hub
Keywords	Vibration monitoring, HAVS, wearable sensors, construction safety, occupational health
New or Updated	New (Hypothetical Example)

Summary of the Impact

A wearable vibration exposure monitoring system for construction workers enabled real-time alerts when daily exposure limits were approached, reducing hand-arm vibration syndrome (HAVS) risk. Adopted by the Construction Industry Federation's Safe Pass programme and referenced in the HSA's updated vibration exposure guidance, the system was piloted with 340 workers across four construction firms.

Research Description

The research (2021-2024) developed a low-cost wearable sensor system (wrist-mounted accelerometer with Bluetooth connectivity) that continuously measured vibration exposure from power tools and provided real-time alerts to workers and supervisors via a mobile app when daily exposure action values (2.5 m/s2 A(8)) and limit values (5 m/s2 A(8)) were approached. The system used machine learning to distinguish tool-induced vibration from movement artefacts. A 12-month field trial across four construction firms (340 workers) compared exposure awareness, tool-swapping behaviour, and reported musculoskeletal symptoms between monitored and unmonitored crews.

Description of the Impact

Monitored crews reduced average daily vibration exposure by 34% through behaviour change (earlier tool rotation, use of lower-vibration alternatives). Reported hand and wrist symptoms fell by 26%. The CIF incorporated the monitoring approach into its Safe Pass training programme from 2025. The HSA updated its Guide to the Safety, Health and Welfare at Work (General Application) Regulations guidance on vibration to reference wearable monitoring as an example of good practice. The sensor system was licensed to an occupational health technology firm. The project was covered by Construction magazine and Health and Safety Review Ireland.

Testimonials

> *"Before the monitors, lads had no idea how close they were to the limit. The app buzzes when you are at 80% and the culture on site has changed completely. Workers rotate tools without being told."*
>
> **Fictional Site Manager, Construction Firm (hypothetical testimonial, consent obtained)**

> *"HAVS is preventable but under-reported. This technology makes invisible risk visible. The data from the trial gave us the evidence base to update our sector guidance."*
>
> **Fictional Senior Inspector, Health and Safety Authority (hypothetical testimonial)**

UNSDG Contributions

SDG 3 (Good Health and Wellbeing): Target 3.9 - substantially reducing the number of illnesses from hazardous exposure.

SDG 8 (Decent Work and Economic Growth): Target 8.8 - protecting labour rights and promoting safe working environments.

Evidence/Sources to Corroborate Research Impact

HSA updated vibration exposure guidance (2025) referencing wearable monitoring. CIF Safe Pass programme documentation. Field trial data (340 workers, 4 firms, 12 months). Symptom questionnaire results (pre/post). Licence agreement with OccHealth tech firm. Construction magazine feature (May 2024). Health and Safety Review Ireland article (July 2024). Worker and site manager testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2023). "A wearable system for real-time hand-arm vibration exposure monitoring in construction." Annals of Work Exposures and Health, 67(5), 612-626.

[2] Smith, J. et al. (2024). "Impact of real-time vibration monitoring on construction worker behaviour and symptom reporting." Occupational and Environmental Medicine, 81(8), 502-511.

[3] HSA, Guide on Vibration Exposure: General Application Regulations, updated 2025.

[4] Construction Magazine, "Wristbands That Save Hands," May 2024.

Additive Manufacturing of Custom Orthopaedic Implants: From Scan to Surgery

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Engineering, Built Environment & Apprenticeships
School	School of Mechanical Engineering
Research Hub	Biomedical Engineering Research Hub
Keywords	Additive manufacturing, orthopaedic implants, 3D printing, patient-specific design, titanium
New or Updated	New (Hypothetical Example)

Summary of the Impact

Research on laser powder bed fusion of patient-specific titanium orthopaedic implants produced a validated end-to-end workflow from CT scan to surgical-grade component. Piloted with two hospital groups covering 42 complex revision hip and knee cases, the approach reduced surgical time by 28% and was endorsed by the RCSI for inclusion in surgical training curricula.

Research Description

The study (2020-2024) developed the full process chain for producing custom titanium alloy (Ti-6Al-4V) orthopaedic implants: automated CT-to-CAD segmentation, topology optimisation for bone ingrowth and load transfer, laser powder bed fusion manufacturing, post-processing, and biocompatibility verification. Mechanical testing (fatigue, static load, wear) met ISO 13485 and FDA-equivalent requirements. A clinical pilot in collaboration with two hospital groups evaluated outcomes in 42 complex revision arthroplasty cases where off-the-shelf implants were inadequate. Outcome measures included surgical time, implant fit (intraoperative assessment), early revision rate, and patient-reported outcomes (Oxford Hip/Knee Score) at 12 months. The project was funded by SFI and Enterprise Ireland.

Description of the Impact

Surgical time fell by 28% in custom implant cases compared to historical controls using intraoperatively modified off-the-shelf components. No early revisions were required at 12 months (compared to 9.5% historical early revision rate for complex cases). Patient-reported outcomes were significantly better ($p<0.01$). The RCSI endorsed the methodology for inclusion in its higher surgical training curriculum for orthopaedics. HIQA referenced the research in its health technology assessment of additive manufacturing in Irish hospitals. The workflow was licensed to a medical device company, generating EUR 180,000 in income and creating 4 engineering roles. The Irish Medical Times and Engineers Journal featured the project.

Testimonials

> *"In complex revision cases, the surgeon often spends significant time modifying an implant intraoperatively. The custom-printed implant fitted precisely. It reduced operating time, reduced blood loss, and the patient was mobilising a day earlier than expected."*
>
> **Fictional Consultant Orthopaedic Surgeon (hypothetical testimonial, consent obtained)**

"This is the future of implant surgery. The fact that a validated, quality-assured workflow now exists in Ireland means we do not need to send complex cases abroad."

Fictional President, Irish Orthopaedic Association (hypothetical testimonial)

UNSDG Contributions

SDG 3 (Good Health and Wellbeing): Target 3.8 - achieving universal health coverage including access to quality essential health-care services.

SDG 9 (Industry, Innovation and Infrastructure): Target 9.5 - enhancing scientific research and upgrading technological capabilities.

Evidence/Sources to Corroborate Research Impact

RCSI curriculum endorsement documentation. HIQA health technology assessment referencing the research. Surgical time and outcome data (42 cases, 12-month follow-up). Oxford Hip/Knee Scores. ISO 13485 conformity documentation. Licence agreement and employment records. Irish Medical Times feature (September 2024). Engineers Journal article (November 2024). SFI and Enterprise Ireland project reports. Surgeon and patient testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2023). "Topology-optimised patient-specific titanium implants: design, manufacture and mechanical validation." Additive Manufacturing, 68, 103512.

[2] Smith, J. et al. (2024). "Clinical outcomes of custom 3D-printed implants in complex revision arthroplasty: a prospective multicentre study." The Bone & Joint Journal, 106-B(9), 1012-1021.

[3] Irish Medical Times, "3D-Printed Implants Made in Ireland for the First Time," 12 September 2024.

[4] HIQA, Health Technology Assessment: Additive Manufacturing in Orthopaedics, 2025.

Drone-Based Structural Inspection of Bridges: Reducing Cost and Risk

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Engineering, Built Environment & Apprenticeships
School	School of Surveying & Construction Innovation
Research Hub	Infrastructure Assessment Research Hub
Keywords	Drone inspection, bridge assessment, structural health, infrastructure management, remote sensing
New or Updated	New (Hypothetical Example)

Summary of the Impact

An automated drone-based bridge inspection system using AI-powered defect detection reduced inspection costs by 58% and eliminated the need for under-bridge access units in 80% of routine assessments. Transport Infrastructure Ireland (TII) adopted the system for its national bridge stock, and the IAA cited the research in its updated guidance on drone operations near critical infrastructure.

Research Description

The research (2021-2024) developed an integrated system combining autonomous drone flight planning, high-resolution imaging, and a convolutional neural network trained to detect and classify bridge defects (cracking, spalling, corrosion, delamination, vegetation ingress). The training dataset comprised 86,000 annotated images from 240 Irish bridges. The system was validated against conventional hands-on inspection by chartered structural engineers across 60 bridges of varying type, age, and condition. A cost-benefit analysis compared drone-based with conventional inspection across the national bridge stock. The project was co-funded by TII and SFI.

Description of the Impact

The AI defect detection system achieved 93.7% sensitivity and 95.2% specificity against expert manual inspection. Inspection costs fell by 58% per bridge. Under-bridge access units (traffic disruption, working-at-height risk) were eliminated for 80% of routine assessments. TII adopted the system in 2025 for its stock of 2,800+ bridges, projecting annual savings of EUR 2.1M and significantly reduced inspector safety risk. The IAA updated its guidance on drone operations near critical infrastructure, referencing the safety protocols developed during the research. Engineers Ireland featured the project in its annual innovation showcase. The work was reported in the Engineers Journal and by RTE News.

Testimonials

> *"Conventional bridge inspection requires lane closures, traffic management, and people working at height. The drone system delivers equal or better defect data with a fraction of the disruption and none of the fall risk."*
>
> **Fictional Head of Structures, Transport Infrastructure Ireland (hypothetical testimonial)**

> *"The AI detection caught hairline cracks that I might have missed from a platform 15 metres away. It is not replacing the engineer; it is giving the engineer better eyes."*
>
> **Fictional Chartered Structural Engineer (hypothetical testimonial, consent obtained)**

UNSDG Contributions

SDG 9 (Industry, Innovation and Infrastructure): Target 9.1 - developing reliable and resilient infrastructure to support economic development and wellbeing.

SDG 11 (Sustainable Cities and Communities): Target 11.2 - providing access to safe, sustainable transport systems.

Evidence/Sources to Corroborate Research Impact

TII adoption documentation and projected savings analysis. IAA updated drone operations guidance. Defect detection accuracy data (60 bridges, comparison with expert inspection). Cost-benefit analysis across national bridge stock. Engineers Ireland innovation showcase entry. Engineers Journal feature (June 2024). RTE News segment (July 2024). SFI and TII project reports. Engineer testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2023). "AI-powered defect detection for drone-based bridge inspection: training and validation on Irish infrastructure." Automation in Construction, 150, 104838.

[2] Smith, J. et al. (2024). "Cost-benefit analysis of drone versus conventional bridge inspection: a national stock assessment." Structure and Infrastructure Engineering, 20(8), 1056-1072.

[3] Engineers Journal, "Eyes in the Sky for Ireland's Bridges," June 2024.

[4] IAA, Guidance on Drone Operations Near Critical Infrastructure, updated 2025, Section 8.3.

Permeable Paving Systems for Urban Heat Island Mitigation

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Engineering, Built Environment & Apprenticeships
School	School of Transport & Civil Engineering
Research Hub	Urban Infrastructure Research Hub
Keywords	Permeable paving, urban heat island, surface temperature, stormwater management, climate adaptation
New or Updated	New (Hypothetical Example)

Summary of the Impact

Research on the cooling effect of permeable paving systems in urban environments demonstrated surface temperature reductions of up to 12 degrees Celsius during summer heatwaves compared to conventional asphalt. The findings informed Dublin City Council's Climate Action Plan and the National Roads Authority's updated specification for urban road surfaces.

Research Description

The study (2021-2024) monitored surface temperature, subsurface temperature, albedo, evaporative cooling, and stormwater infiltration across 14 permeable paving installations (porous asphalt, permeable concrete block, resin-bound gravel) and paired conventional surfaces in Dublin over three summers. Microclimate modelling extended the observations to assess neighbourhood-scale effects under current and projected climate scenarios. The research also assessed structural durability, maintenance requirements, and lifecycle cost over the monitoring period. The project was co-funded by Dublin City Council and the EPA.

Description of the Impact

Permeable surfaces recorded peak temperature reductions of 12 degrees Celsius compared to adjacent conventional asphalt during the July 2023 heatwave. Neighbourhood-scale modelling predicted a 1.8 degree Celsius reduction in ambient air temperature if 30% of hard surfaces were converted. Dublin City Council incorporated the findings in its 2025-2029 Climate Action Plan, setting a target for permeable surface conversion in priority heat island areas. The NRA updated its specification for urban road surfaces to include permeable options where conditions permit. The EPA cited the research in its 2025 State of the Environment report's climate adaptation chapter. The study was covered by the Irish Times, Engineers Journal, and featured in an EPA research brief distributed to all local authorities.

Testimonials

> *"Twelve degrees cooler at the surface is remarkable. When you combine the cooling with stormwater management benefits, the case for permeable paving in urban areas becomes very strong. This data gave us the confidence to set targets."*
>
> **Fictional Climate Action Coordinator, Dublin City Council (hypothetical testimonial)**

> *"We needed Irish-specific performance data to justify the specification change. International data was not sufficient given our rainfall and temperature profiles. This research filled that gap."*
>
> **Fictional Standards Engineer, National Roads Authority (hypothetical testimonial)**

UNSDG Contributions

SDG 11 (Sustainable Cities and Communities): Target 11.b - increasing the number of cities adopting integrated policies for climate change adaptation.

SDG 13 (Climate Action): Target 13.1 - strengthening resilience and adaptive capacity to climate-related hazards.

Evidence/Sources to Corroborate Research Impact

Dublin City Council Climate Action Plan 2025-2029 referencing the research. NRA updated urban road surface specification. EPA State of the Environment 2025 citation. Surface temperature monitoring data (14 sites, 3 summers). Microclimate modelling outputs. EPA research brief distributed to local authorities. Irish Times feature (August 2023). Engineers Journal article (October 2023). Council and NRA testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2023). "Surface cooling performance of permeable paving systems in Dublin: a three-year monitoring study." Urban Climate, 50, 101584.

[2] Smith, J. et al. (2024). "Neighbourhood-scale urban heat island mitigation through permeable surface conversion: modelling current and future scenarios." Building and Environment, 252, 111236.

[3] EPA, State of the Environment Report 2025, Climate Adaptation Chapter, p.142.

[4] Irish Times, "Cool Streets: The Pavement That Lowers City Temperatures," 3 August 2023.

Faculty of Sciences & Health

Exercise Prescription for Cancer-Related Fatigue: A Community-Based Programme*

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Sciences & Health
School	School of Biological, Health & Sports Sciences
Research Hub	Exercise and Health Research Hub
Keywords	Exercise prescription, cancer-related fatigue, community health, survivorship, physical activity
New or Updated	New (Hypothetical Example)

Summary of the Impact

A structured community-based exercise programme for cancer survivors reduced cancer-related fatigue by 41% and improved cardiorespiratory fitness by 18%. The National Cancer Control Programme adopted the model for its survivorship care pathways, and the Irish Cancer Society funded national expansion to 24 community sites.

Research Description

The research (2021-2024) developed a 12-week structured exercise programme (combined aerobic and resistance training, twice weekly, supervised by exercise physiologists) specifically designed for cancer survivors experiencing persistent fatigue. A multicentre randomised controlled trial across six community leisure centres compared the exercise programme (n=126) with standard care (n=124). Primary outcomes were cancer-related fatigue (FACIT-Fatigue), cardiorespiratory fitness (6-minute walk test), and quality of life (EORTC QLQ-C30). Secondary outcomes included adherence, adverse events, and health service utilisation. Follow-up extended to 12 months post-programme. The project was funded by the HRB and the Irish Cancer Society.

Description of the Impact

Exercise group participants showed a 41% reduction in fatigue scores compared to 8% in controls ($p<0.001$). Six-minute walk distance improved by 18%. Quality of life scores improved across all functional domains. Adherence was 82% with no serious adverse events. The NCCP adopted the model in its 2025 survivorship care pathways, recommending structured community exercise as standard of care for cancer-related fatigue. The Irish Cancer Society funded expansion to 24 community sites nationally. The programme was featured on RTE's Claire Byrne Show and in the Irish Medical Journal's editorial. Exercise Professionals Ireland incorporated the protocol into its cancer rehabilitation training.

Testimonials

> *"The fatigue was worse than the treatment itself. My oncologist told me to rest, but rest made it worse. This programme gave me structure, confidence, and energy I had not felt in two years."*
>
> **Fictional Cancer Survivor, Cork (hypothetical testimonial, consent obtained)**

> *"We have known for years that exercise helps cancer-related fatigue, but there was no standardised community programme in Ireland. This research gave us a model that is safe, effective, and deliverable at scale."*
>
> **Fictional Clinical Lead, National Cancer Control Programme (hypothetical testimonial)**

UNSDG Contributions

SDG 3 (Good Health and Wellbeing): Target 3.4 - reducing premature mortality from non-communicable diseases and promoting mental health and wellbeing.

SDG 10 (Reduced Inequalities): Target 10.2 - empowering and promoting inclusion.

Evidence/Sources to Corroborate Research Impact

NCCP survivorship care pathway documentation (2025) adopting the model. Irish Cancer Society national expansion funding records (24 sites). RCT dataset (n=250, 12-month follow-up). FACIT-Fatigue and EORTC QLQ-C30 results. Exercise Professionals Ireland training materials. RTE Claire Byrne Show segment (January 2025). Irish Medical Journal editorial (February 2025). HRB and Irish Cancer Society project reports. Survivor and clinician testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2023). "Community-based exercise for cancer-related fatigue: protocol for a multicentre randomised controlled trial." BMC Cancer, 23, 892.

[2] Smith, J. et al. (2024). "Structured exercise versus standard care for cancer-related fatigue: a multicentre RCT with 12-month follow-up." British Journal of Sports Medicine, 58(12), 1340-1352.

[3] Irish Medical Journal, "Exercise as Medicine in Cancer Survivorship" (editorial), February 2025.

[4] NCCP, National Survivorship Care Pathway Guidance, 2025, Section 6.3.

*See the Planning for Impact: Worked Examples document for the completed template for this hypothetical Research Impact Case Study

Biodegradable Coatings for Controlled Drug Release from Medical Implants

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Sciences & Health
School	School of Chemical & BioPharmaceutical Sciences
Research Hub	Pharmaceutical Materials Research Hub
Keywords	Biodegradable coatings, controlled release, medical implants, infection prevention, biomaterials
New or Updated	New (Hypothetical Example)

Summary of the Impact

Novel biodegradable polymer coatings for orthopaedic implants that release antibiotics in a controlled manner over 21 days were developed and validated in a preclinical model. Licensed to a medical device manufacturer, the coatings entered regulatory evaluation and were referenced in HIQA's health technology assessment of infection prevention in joint replacement.

Research Description

The research (2020-2024) designed and synthesised biodegradable poly(lactic-co-glycolic acid) (PLGA) coatings loaded with gentamicin for application to titanium orthopaedic implant surfaces. The programme optimised coating thickness, drug loading, release kinetics, and degradation profile to achieve sustained antibiotic release above MIC for S. aureus and S. epidermidis over 21 days, matching the critical postoperative infection window. In vitro testing confirmed biocompatibility with osteoblast cells and no adverse effects on implant osseointegration. A preclinical model (ovine femoral implant) validated infection prevention efficacy and coating biocompatibility in vivo. The project was co-funded by Enterprise Ireland and a medical device manufacturer.

Description of the Impact

The coating technology was licensed to the device manufacturer for EUR 350,000 plus royalties. The company submitted the coated implant for CE marking under the EU Medical Device Regulation. HIQA referenced the underpinning research in its 2025 health technology assessment of infection prevention strategies in joint replacement surgery, noting the potential to reduce periprosthetic joint infection rates. The technology was presented at the European Society for Biomaterials annual congress and at the BioMedical Research Conference in Galway. Two additional device companies initiated discussions on coating adaptation for other implant types. The Irish Examiner and Medical Device Network both covered the story.

Testimonials

> *"Periprosthetic infection is devastating for patients and costs the health system enormously. A coating that provides local antibiotic delivery during the critical window could significantly reduce infection rates without systemic side effects."*
>
> **Fictional Consultant Microbiologist (hypothetical testimonial, consent obtained)**

"The quality of the preclinical data made it possible for us to proceed directly to regulatory submission. The partnership with TU Dublin shortened our development timeline by at least two years."

Fictional VP of R&D, Medical Device Company (hypothetical testimonial, consent obtained)

UNSDG Contributions

SDG 3 (Good Health and Wellbeing): Target 3.8 - achieving universal health coverage including access to quality essential services and medicines.

SDG 9 (Industry, Innovation and Infrastructure): Target 9.5 - enhancing scientific research and upgrading technological capabilities.

Evidence/Sources to Corroborate Research Impact

Licence agreement with device manufacturer. CE marking submission documentation. HIQA health technology assessment (2025) referencing the research. Preclinical data (ovine model, 12-week follow-up). In vitro release kinetics and biocompatibility data. European Society for Biomaterials congress proceedings. Irish Examiner feature (June 2024). Medical Device Network article (August 2024). Enterprise Ireland project report. Clinician and industry testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2023). "PLGA-gentamicin coatings for orthopaedic implants: optimisation of release kinetics and osteoblast compatibility." Biomaterials, 295, 122035.

[2] Smith, J. et al. (2024). "Prevention of periprosthetic infection by biodegradable antibiotic-eluting coatings: a preclinical study." Journal of Orthopaedic Research, 42(10), 2145-2158.

[3] HIQA, Health Technology Assessment: Infection Prevention in Joint Replacement, 2025, Section 5.2.

[4] Irish Examiner, "Irish-Developed Coating Could Prevent Implant Infections," 14 June 2024.

Rapid Detection of Allergens in Packaged Foods: A Point-of-Sale Testing Device

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Sciences & Health
School	School of Food Science & Environmental Health
Research Hub	Food Safety Research Hub
Keywords	Allergen detection, food safety, point-of-sale testing, lateral flow assay, consumer protection
New or Updated	New (Hypothetical Example)

Summary of the Impact

Development of a rapid lateral flow assay device capable of detecting undeclared peanut and gluten allergens in packaged foods within five minutes at the point of sale. Validated by the FSAI, the device was adopted by three major retailers for spot-check programmes and informed updated FSAI guidance on allergen controls in food businesses.

Research Description

The research (2021-2024) developed a portable lateral flow immunoassay device using gold nanoparticle-labelled antibodies for the simultaneous detection of peanut (Ara h 1) and gluten (gliadin) proteins in packaged food matrices. The device was designed for use by non-laboratory staff (food safety officers, retail quality teams) with minimal training. Validation involved blind testing of 480 food products across 12 categories, benchmarked against gold-standard ELISA. Sensitivity, specificity, and limit of detection were assessed for each allergen. Field usability testing involved 60 food safety officers across retail, catering, and enforcement settings. The project was co-funded by the FSAI and Enterprise Ireland.

Description of the Impact

The device achieved 96.8% sensitivity and 98.1% specificity for peanut, and 95.4% sensitivity and 97.6% specificity for gluten, detecting down to 5 ppm. Three major Irish retailers adopted the device for allergen spot-check programmes, testing over 6,000 products in the first year. The FSAI referenced the research in its 2025 updated Guidance Note on Allergen Management and Control in Food Businesses. The device was licensed to a diagnostics company for EUR 200,000. Anaphylaxis Ireland welcomed the development in a public statement. The project was featured on RTE's Prime Time and in the Irish Independent health section.

Testimonials

> *"As a parent of a child with a severe peanut allergy, I live in constant fear of mislabelled food. Knowing that retailers are now using rapid testing to check products gives me genuine reassurance."*
>
> **Fictional Parent and Anaphylaxis Ireland member (hypothetical testimonial, consent obtained)**

> *"The device is simple enough that our food safety team can use it on the shop floor. In the first month alone we identified three products with undeclared allergens that should never have reached the shelf."*
>
> **Fictional Head of Quality, Retail Group (hypothetical testimonial, consent obtained)**

UNSDG Contributions

SDG 3 (Good Health and Wellbeing): Target 3.d - strengthening capacity for health risk reduction and management.

SDG 2 (Zero Hunger): Target 2.1 - ensuring access to safe and nutritious food.

SDG 12 (Responsible Consumption and Production): Target 12.3 - reducing food losses along production and supply chains.

Evidence/Sources to Corroborate Research Impact

FSAI Guidance Note on Allergen Management (updated 2025) referencing the research. Retailer adoption records and spot-check programme data (6,000+ products tested). Validation dataset (480 products, 12 categories, benchmarked against ELISA). Usability testing results (60 officers). Licence agreement with diagnostics company. Anaphylaxis Ireland statement. RTE Prime Time segment (October 2024). Irish Independent health feature (November 2024). FSAI and Enterprise Ireland project reports. Consumer and retailer testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2023). "Dual lateral flow immunoassay for rapid peanut and gluten detection in packaged foods." Food Chemistry, 412, 135582.

[2] Smith, J. et al. (2024). "Field validation of a point-of-sale allergen detection device across retail and catering settings." Food Control, 158, 110235.

[3] FSAI, Guidance Note on Allergen Management and Control in Food Businesses, updated 2025, Section 4.5.

[4] RTE Prime Time, "Hidden Dangers: Testing Food for Undeclared Allergens," broadcast 17 October 2024.

Compact Laser Systems for Non-Invasive Skin Cancer Screening in Primary Care

Researcher/s	Dr Jane Smith & Dr John Smith
Faculty	Faculty of Sciences & Health
School	School of Physics, Clinical & Optometric Sciences
Research Hub	Photonics and Clinical Sciences Research Hub
Keywords	Laser spectroscopy, skin cancer screening, primary care, non-invasive diagnosis, photonics
New or Updated	New (Hypothetical Example)

Summary of the Impact

A compact Raman spectroscopy device for non-invasive skin cancer screening in GP practices achieved sensitivity of 95.1% for melanoma detection and reduced unnecessary dermatology referrals by 42%. The HSE's National Cancer Screening Service adopted the device for a community screening pilot, and the technology was licensed internationally.

Research Description

The research (2020-2024) developed a compact, clinically usable Raman spectroscopy system that analyses the molecular composition of skin lesions non-invasively in under 30 seconds. The device used a bespoke 785nm laser excitation source, fibre-optic probe, and machine learning classifier trained on spectra from 4,200 histologically confirmed lesions (benign, pre-malignant, melanoma, non-melanoma skin cancer). A prospective multicentre diagnostic accuracy study in 22 GP practices (n=1,800 patients with suspicious lesions) compared the device's classification with dermatologist assessment and histopathological diagnosis. The project was funded by SFI and the HRB.

Description of the Impact

The device achieved 95.1% sensitivity and 88.4% specificity for melanoma, and 92.3% sensitivity and 90.7% specificity for all skin cancers. Use of the device as a GP triage tool reduced unnecessary dermatology referrals by 42% while maintaining diagnostic safety. The HSE National Cancer Screening Service adopted the device for a community pilot in 2025, deploying it across 40 GP practices. Estimated annual savings from reduced referrals exceeded EUR 1.6M. The technology was licensed to a photonics company for EUR 280,000 plus royalties, with markets in the UK and Australia. The Irish Medical Journal published an accompanying editorial endorsing the approach. The project was featured on RTE's Morning Ireland and in New Scientist.

Testimonials

> *"Most suspicious moles I refer turn out to be benign, but I cannot take the risk of missing a melanoma. This device gives me objective data at the point of consultation. My referral rate has halved without any reduction in cancer detection."*
>
> **Fictional GP, Dublin (hypothetical testimonial, consent obtained)**

"Non-invasive, rapid, and accurate. If the pilot confirms these results at scale, this could transform how we screen for skin cancer in the community and relieve enormous pressure on dermatology waiting lists."

Fictional Director, National Cancer Screening Service (hypothetical testimonial)

UNSDG Contributions

SDG 3 (Good Health and Wellbeing): Target 3.4 - reducing premature mortality from non-communicable diseases through early detection and treatment; Target 3.8 - achieving universal health coverage.

SDG 9 (Industry, Innovation and Infrastructure): Target 9.5 - enhancing scientific research and upgrading technological capabilities.

Evidence/Sources to Corroborate Research Impact

HSE National Cancer Screening Service pilot documentation (40 GP practices). Diagnostic accuracy study data (22 practices, n=1,800 patients). Referral reduction analysis (42%). Cost savings projection (EUR 1.6M annually). Licence agreement and international market records. Irish Medical Journal editorial (March 2025). RTE Morning Ireland broadcast (February 2025). New Scientist feature (April 2025). SFI and HRB project reports. GP, dermatologist, and patient testimonials (consent obtained).

Research References

[1] Smith, J. & Smith, J. (2023). "Compact Raman spectroscopy for skin lesion classification: device development and in vitro validation." Analytical Chemistry, 95(20), 7890-7901.

[2] Smith, J. et al. (2024). "Non-invasive skin cancer screening in primary care: a prospective multicentre diagnostic accuracy study." British Journal of Dermatology, 190(6), 1234-1245.

[3] Irish Medical Journal, "Lasers in the Waiting Room: Screening Skin Cancer in Primary Care" (editorial), March 2025.

[4] New Scientist, "The Light That Spots Skin Cancer in 30 Seconds," 10 April 2025.

Appendix: How to Use These Examples

These hypothetical case studies are designed as training and discussion aids. They are not real, and should never be presented as such. Here are some suggested ways to use them:

1. Workshop ice-breaker: Ask researchers to read the example for their school and identify what they would change, improve, or challenge. This builds critical thinking about impact evidence before people start writing their own case studies.

2. Template walkthrough: Use an example to demonstrate how each section of the TU Dublin Impact Case Study template should be completed. Highlight the difference between outputs (publications, datasets) and outcomes (policy change, practice adoption, behaviour shift).

3. Evidence identification exercise: Ask participants to list the types of evidence cited in a relevant example (media coverage, policy documents, testimonials, quantitative data, guidance references, licence agreements) and then brainstorm what equivalent evidence they could gather for their own research.

4. Testimonial drafting practice: Use the example testimonials to discuss what makes a strong, credible testimonial. Note how each one identifies a specific change and attributes it to the research. Then ask researchers to draft hypothetical testimonials for their own work and critique each other's drafts.

5. UNSDG alignment practice: Use the examples to discuss how research connects to specific SDG targets and indicators, and why being specific (citing target numbers, not just goal names) strengthens a case study.

6. Peer review simulation: Have researchers swap examples across disciplines and provide feedback as if reviewing a colleague's draft. This builds familiarity with the template and sharpens critical evaluation skills.

7. Impact level assessment: Map each example against the five levels in the TU Dublin Research Impact Framework (Minimal/Localised through to Transformative) and discuss what additional evidence or activity would move each case to the next level.

8. Evidence diversity audit: Compare the evidence types across several examples and note the range: media reports, policy citations, guidance documents, adoption records, quantitative data, testimonials, licence agreements, conference proceedings. Discuss which combinations are most persuasive and why.

For support in developing your own research impact case study, or to book a one-to-one session with the Research Impact Lead, contact the Research Engagement & Impact Office at engagementandimpact@tudublin.ie