

Why Should We Care about Interdisciplinarity and Transdisciplinarity?

Radical solutions for the monumental global challenges we face



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Today's societal problems are complex and multifaceted. Developing solutions demands a variety of disciplinary and practitioner approaches and perspectives. SHAPE-ID brings to the fore the importance of arts, humanities, and social sciences (AHSS) in addressing these challenges in a more holistic and socially credible manner. The project seeks to improve pathways for inter- and transdisciplinary research, particularly between AHSS and STEM disciplines.

The most exciting and ground-breaking innovations are happening at the intersection of disciplines. We need to cherish and encourage this as much as we can. But right now, our current infrastructure dissuades interdisciplinary research. –Carlos Moedas, 'The New Republic of Letters', 2017

Introduction to SHAPE-ID

As the climate crisis, the Covid-19 pandemic, and artificial intelligence all demonstrate, the problems of today's society are complex and multifaceted. Developing solutions demands a variety of disciplinary and practitioner approaches and perspectives. Inter- and transdisciplinary research (IDR/TDR) might just provide the radical solutions for the monumental global challenges that we face.

Shaping Interdisciplinary Practices in Europe (SHAPE-ID) is an EU-funded project that brings to the fore the importance of arts, humanities, and social sciences (AHSS) perspectives as essential for addressing such complex societal challenges in a more holistic and socially credible manner. It seeks to improve pathways for inter- and transdisciplinary research, particularly between AHSS and science, technology, engineering, and maths (STEM) disciplines.¹

The fundamental importance of inter- and transdisciplinary approaches is highlighted in Ireland's National Development Plan (2021–2030):

The development of new ideas and new thinking required to tackle complex societal challenges requires a diversity of perspectives and interdisciplinary approaches. Engaging leading researchers from both Arts, Humanities, and Social Sciences (AHSS) and STEM can often generate more innovative solutions and new ways of approaching and thinking about problems.

The United Nations Sustainable Development Goals underpin both European and national funding agendas, and AHSS integration will be necessary for the delivery of transformational change. However, the potential contributions of AHSS disciplines are often poorly understood. SHAPE-ID has addressed this by launching a new toolkit that reflects the insights it has gathered from EU-wide workshops on all the ways AHSS can contribute in the context of inter- and transdisciplinary research. Collaboration with these areas is essential to really tackling many of the complex societal challenges.

There are enduring challenges for those engaged in inter- and transdisciplinary research, such as the policy and funding landscape, institutional structures, and the need for personal and interpersonal skills opportunities across disciplinary and sectoral boundaries. But the possibilities are groundbreaking: climate scientists working with artists, computer engineers with philosophers, neuroscientists with dancers, architects with NGOs – all to address some of the world's most urgent dilemmas.

The SHAPE-ID project findings identify the main preconditions for successful inter- and transdisciplinary research, and group them under three headings:

1. Research policy and funding

First, the research policy and funding landscape matters. Long-term commitment is needed to support inter- and transdisciplinary research and capacity-building for it.² Second, challenge-led research questions create a good occasion for collaboration, but much collaboration starts from the bottom up, from curiosity, and from supporting basic research. Finally, how funding calls are designed, and proposals evaluated, is important. Co-design with AHSS scholars and experts can improve how problems are framed by funders, and inter- and transdisciplinary expertise is also needed in designing calls and evaluating proposals. With this in mind, a range of funding instruments are needed to build capacity and support more ambitious large-scale collaboration.

2. Institutions and disciplines

Higher education institutions and their disciplinary structures have a huge influence on researcher education, training, and careers. Inter- and transdisciplinary research is often seen as risky for early-career researchers because of the lack of viable career pathways.

3. Attributes, skills, and expertise

The attributes, skills, and expertise of individual researchers are critical. Inter- and transdisciplinary researchers need to be open, curious, willing to listen and learn, willing to leave their egos at the door when meeting others, and motivated to collaborate. Interdisciplinary teams also require a range of disciplinary expertise, integration expertise (people who can bridge the disciplinary knowledge), the involvement of relevant societal and enterprise stakeholders, and respect for their knowledge and experience.

SHAPE-ID recommendations

The SHAPE-ID project has summarised its key findings into five succinct recommendations:

1. *Promote socio-cultural missions and challenges:* Funders and policymakers need to commit to research and innovation missions driven by socio-cultural challenges and questions that foreground the human dimensions of challenges and put human flourishing at their centre.
2. *Co-design funding calls with AHSS experts:* AHSS researchers and societal stakeholders need to be consulted at an early stage in designing funding calls and programmes. Call language should be more open and inclusive, inviting a range of perspectives in addressing the topic and explicitly welcoming a broad range of contributions from AHSS and other stakeholders.
3. *Provide seed funding to enable relationship- and capacity-building:* Inter- and transdisciplinary research take time and trust, and the AHSS disciplines in particular require support to build capacity. Seed funding is needed to build networks, consortia, and relationships, including with industry and societal stakeholders, laying the foundation for larger-scale collaboration.
4. *Support a culture of IDR/TDR in higher education:* Culture change takes time. Policymakers and funders can support the development of inter- and transdisciplinary education and research in higher education institutions to build capacity from undergraduate to postdoctoral and faculty level, training in ‘meta-skills’, and developmental support for those in institutional governance roles.
5. *Fund sustainable research careers, networks, and infrastructures:* To facilitate knowledge-sharing and community-building across dispersed stakeholder groups, the European Commission and other funding bodies should provide sustainable funding for inter- and transdisciplinary infrastructure, building on the SHAPE-ID toolkit to create a more dynamic, interactive, and sustainable resource. Continuity of funding support is also needed to enable researchers to build inter- and transdisciplinary careers, ranging from curiosity-led through to challenge-led research.

SHAPE-ID toolkit

The key findings and recommendations compiled through literature reviews, surveys, and workshops culminate in the SHAPE-ID toolkit created to support inter- and transdisciplinary research in AHSS. It is the first toolkit on interdisciplinarity that explicitly focuses on integrating AHSS with other disciplines, and it outlines the tremendous benefits of such integration. It is designed to help researchers, universities, funders, policymakers, and societal partners to learn more about interdisciplinary research and take concrete steps to improve how they do it.³

The toolkit includes curated resources, case studies, reflective tools, and interviews with experts. The topics it covers include understanding interdisciplinarity; developing the skills needed to bridge disciplinary divides; developing an interdisciplinary career; and supporting, funding, and evaluating collaborative research. You can access the toolkit at www.shapeidtoolkit.eu. There is a wealth of resources to unpack, including:

- Case studies showcasing AHSS leadership in interdisciplinary research projects, including examples from the creative arts, funding initiatives that have supported AHSS capacity-building and leadership, and institutional case studies, including the Trinity Long Room Hub's own journey towards building capacity for interdisciplinarity.
- Reflective tools for researchers considering or beginning collaborative research, which can be used individually or as discussion tools to help think about whether this is the right path for you, what you want to gain by collaborating, and who you should work with to achieve your goals.
- 'Top Ten Tips' on writing an interdisciplinary proposal, developing an interdisciplinary career, and working in multi-stakeholder collaborations.
- Evaluator guides and best-practice recommendations for those tasked with evaluating interdisciplinary research proposals or projects.

Our guided tours for researchers and research leaders are a good place to start, and we have also created a guide for research development professionals to provide focused access to the resources most relevant for their work.⁴

Conclusion

We believe that the SHAPE-ID project and toolkit underpin EU and national policies to identify radical solutions for global challenges and to enable open collaboration within science and with other knowledge actors, including the involvement of citizens, civil society, and end-users.

SHAPE-ID provides support for interdisciplinary and transdisciplinary research across policy, funding, institutional structures, career development and assessment, open science, impact, global challenges, and societal partners. It has the potential to influence the transformation in universities by helping them reflect on their understanding of inter- and transdisciplinarity, assessing how established it is in their institutions, and recognising the steps needed to achieve best practice.

In short, SHAPE-ID and the toolkit represent a significant contribution towards achieving a more connected, inclusive, and efficient ecosystem that is truly inter- and transdisciplinary and one that embodies research, education, and innovation.

ENDNOTES

1. Horizon 2020 is the financial instrument implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness.
2. Highlighted in Mary Doyle's discussion paper 'Research for public policy and society: Building a stronger architecture for Ireland'.
3. The SHAPE-ID toolkit builds on the expertise of many partners: the development project was led by Prof. Catherine Lyall and Dr Isabel Fletcher at the University of Edinburgh, with support from the SHAPE-ID team in Trinity College Dublin, ETH Zurich, the Institute of Literary Research of the Polish Academy of Sciences, ISINNOVA, and Dr Jack Spaapen.
4. We're delighted to share the SHAPE-ID toolkit with you and hope you find it useful. If you have questions or comments about the toolkit or any aspect of the SHAPE-ID project, please feel free to contact us at info@shapeid.eu.



Creating Our Future

Experiences from a nationwide research engagement campaign

The roll-out of the vaccine programme this year was a clear, visible, and unquestionably beneficial product of research efforts across the globe. Our research community has much to be proud of as well. It is an opportune moment to reflect on the direction of research in Ireland and to engage its people in a conversation about the future.

This past year we have all been involved in a large-scale government campaign, Creating Our Future. It was proposed by Simon Harris, Minister of Further and Higher Education, Research, Innovation and Science, to involve the people of Ireland in a conversation about the role that research can and should play in addressing opportunities, challenges, and hopes for the future.

The campaign's scope included school visits and roadshow events in every county in Ireland, and the results were fascinating. With over 18,000 ideas submitted by the closing date of 30 November, the work now begins on analysing the data.

Inspired by similar campaigns in Flanders and the Netherlands, Creating Our Future sets out with the premise that everyone in Ireland could contribute ideas on how to make a better future for all. No one knows better, after all, what the best future for Ireland is than the people of Ireland themselves.

It will come as no surprise that health and wellbeing were core topics among the ideas submitted. The environment, sustainability, and climate change also featured very significantly. Accessibility issues were also prioritised, with many ideas focussed on the inclusion of neurodivergence and mental wellbeing in schools, workplaces, and society in general. But we won't have a clear picture until all the data is analysed.

The task of analysing the submissions now rests with an expert committee and expert working groups, chaired by Professor Linda Hogan of Trinity College Dublin. The overarching purpose of this analysis is to ensure that the findings reflect the public's voice and that recommendations are developed to inspire research in Ireland. This group of about 60 experts will analyse and interpret the information, draw conclusions, and develop a report for government and a book of inspiration for researchers.