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**What’s it all about?**

**Interdisciplinary research**

Interdisciplinary research brings together insights or approaches from different academic disciplines. One of the most widely accepted definitions describes it as:

> [...] a mode of research by teams or individuals that integrates information, data, techniques, tools, perspectives, concepts, and/or theories from two or more disciplines or bodies of specialized knowledge to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline.¹

As this definition indicates, interdisciplinary research can take place in a range of ways and for a variety of reasons. It can vary based on what is integrated (e.g. data, techniques, concepts); the degree of integration (how much transformation/novelty occurs as a result); the ‘distance’ between the disciplines involved (e.g., the extent to which they share objects of study, world views or modes of knowledge production); or whether it is carried out by an individual researcher integrating insights from outside their discipline, or a collaborative team of researchers from different disciplines. This guide focuses on **collaborative research**.

Sometimes **interdisciplinary** research is used as a catch-all term to cover research better described as **multidisciplinary** or **transdisciplinary**.

**Multidisciplinary research**

Multidisciplinary research usually refers to collaboration between disciplines ‘who each provide a different perspective on a problem or issue’ with little or no integration of perspectives, methods or outputs.²

**Transdisciplinary research**

Transdisciplinary research has been defined in a variety of ways but a recent OECD report reflects current usage in European policy contexts in defining it as ‘a mode of research that integrates both academic researchers from unrelated disciplines – including natural sciences and SSH – and non-academic participants to achieve a common goal, involving the creation of new knowledge and theory.’³ The key difference is the inclusion of stakeholders from other sectors, such as industry, civil society or citizens, often to better address societal challenges.

Though not termed transdisciplinary research, some Horizon Europe calls require projects to use what they call the ‘multi-actor approach’,⁴ which similarly involves researchers and practitioners from different sectors to fully grasp and tackle the challenge.

**SSH integration**

For some topics in Horizon Europe, **Social Sciences and Humanities (SSH)** researchers will be the obvious leaders and contributors. Additionally, for many topics where STEM experts will likely lead, projects may be expected to integrate SSH expertise to address the social, economic, political, legal, behavioural, institutional, historical or cultural dimensions of a challenge. SSH integration as a cross-cutting priority acknowledges that societal problems usually can’t be solved by science and technology alone but need to draw on the expertise of those who study human attitudes, values, behaviour and culture, both individually and collectively. Including such expertise in a meaningful way can increase understanding of the human and societal dimensions of the challenge and enhance the validity, credibility and adoption of innovations.

The Horizon Europe Programme guide provides a list of SSH disciplines under the broad categories of ‘social sciences, education, business and law’ and ‘humanities and the arts’.⁵ These categories include a wide range of individual disciplines, such as economics, political science, sociology, anthropology, psychology, geography, education, journalism, marketing, public relations, law, philosophy, history, peace studies, religion, studies of languages, literature and culture, and visual and performing arts. Each has its own distinct body of knowledge, methods and modes of expertise, as well as being internally diverse.
Why does it matter?

Why does it matter?
Complex challenges require diverse expertise

Many call topics in the Horizon Europe collaborative funding programmes require expertise from multiple disciplines and sectors to fully realise their scope and ambition and deliver their expected outcomes and impacts. Consortia are expected to have the necessary expertise to deliver the project’s objectives, which must credibly and comprehensively address the requirements outlined for the topic. For example, partners with different expertise might contribute to developing and testing new technologies; conducting economic assessments of the technologies’ market potential or life-cycle assessments of sustainability gains; assessing the ethical implications of new technologies; facilitating engagement with potential end users; analysing social, political or contextual factors that might be barriers to the adoption of the technologies; and research co-design with stakeholders (or contributing to co-design as a stakeholder) to ensure better understanding of and solutions to a complex and multi-faceted challenge.

SSH-flagged topics

Many call topics are SSH-flagged, meaning they explicitly call for and require contributions from SSH disciplines to address some aspect of the challenge defined in the topic. Some are quite specific about the nature of this contribution, while others call for ‘appropriate’ SSH contributions. It is important to check the call topic carefully to identify if the topic is SSH-flagged or if SSH participation is mentioned in the text (in general or with reference to specific insights from SSH disciplines). If SSH is flagged or referenced in the topic, make sure to involve appropriate SSH partners in meaningful roles. If it is not flagged, do still consider the societal aspects of the challenge and where expertise from SSH disciplines might add value.

How interdisciplinarity and SSH integration are evaluated

In the ‘Methodology’ section of the Horizon Europe proposal template, applicants are asked to explain how expertise and methods from different disciplines will be brought together and integrated in pursuit of the project’s objectives, and – for SSH-flagged topics – to show the role of SSH disciplines. In both cases, a justification must be provided if the applicant deems these not to be necessary for the proposed research. These criteria will be explicitly evaluated as part of the ‘Excellence’ section, in considering whether the project is likely to achieve the expected outcomes and fully address topic requirements.

Applicants must also describe the capacity of the consortium in Section 3 of the proposal and explain how it brings together the necessary disciplinary and interdisciplinary knowledge, including SSH expertise.

For SSH-flagged topics, proposals without sufficient contributions from SSH research and expertise will receive a lower score in the evaluation.

Interdisciplinary teams v. interdisciplinary approaches

Interdisciplinarity does not happen automatically when a team comprising researchers from different disciplines is formed. It requires ongoing effort to understand and integrate knowledge and expertise from across disciplines – and more effort the greater the gap between the disciplines’ usual ways of understanding the world and creating knowledge. Careful consideration needs to be given to how the team will work together and how different kinds of knowledge will be integrated to produce something greater than the sum of their parts. Communication challenges can be overcome by positive collaborative attitudes, openness to learning and giving adequate time to build a team, discuss concepts, pursue mutual understanding, and align expectations and goals.

Where an inter- or transdisciplinary approach is central to the project, this should be reflected in the project team, objectives, methodology, plans to achieve impact through stakeholder engagement, work plan and allocation of resources. The ‘Resources’ section below recommends some useful guides and toolkits for further considering how to develop an inter- or transdisciplinary project.
Where in the proposal to address it

Before you begin writing the proposal, you may wish to consult the IDR and SSH in Horizon Europe planning worksheet.

**Part A: Administrative Forms**

**Participant information:** the interdisciplinary capacity of the consortium will be reflected in the selection of partners and evidence of their expertise, as provided in their lists of previous achievements, projects and infrastructure. SSH contributions should be identified in ‘Role of participating organisation in the project’.

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**Part B: Main Body of Proposal**

<table>
<thead>
<tr>
<th>Checking</th>
<th>Excellence</th>
<th>Impact</th>
<th>Implementation</th>
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<tbody>
<tr>
<td>□</td>
<td>It is clear how expertise and methods from different disciplines will be brought together and integrated to achieve project objectives.</td>
<td>□ Stakeholders (citizens, policy makers, industry, NGOs, end users) are appropriately involved in project activities from early on to ensure realistic pathways to socially valid impacts.</td>
<td>□ The consortium matches the project’s objectives and brings together the necessary disciplinary, interdisciplinary and SSH knowledge and expertise, including leadership of inter-/transdisciplinary projects.</td>
</tr>
<tr>
<td>□</td>
<td>The role of SSH disciplines is clear and fully addressed.</td>
<td>□ Plans are in place to disseminate diverse outputs from inter-/transdisciplinary research.</td>
<td>□ All partners, including SSH partners, have a meaningful role within the project.</td>
</tr>
<tr>
<td>□</td>
<td>If either of the above are considered unnecessary, this is fully and credibly justified.</td>
<td>□ Inter-/transdisciplinary methods and approaches are clearly described and rationale provided.</td>
<td>□ The work plan makes clear how work from different disciplines will be integrated.</td>
</tr>
<tr>
<td>□</td>
<td>Inter-/transdisciplinary methods and approaches are clearly described and rationale provided.</td>
<td>□ State of the Art and methods from different disciplines are explained in a way accessible to non-specialists.</td>
<td>□ Inter-/transdisciplinary activities are adequately resourced in terms of person months and budget.</td>
</tr>
<tr>
<td>□</td>
<td>State of the Art and methods from different disciplines are explained in a way accessible to non-specialists.</td>
<td>□ Transdisciplinary approaches (stakeholder participation in project design and activities) are described under Open Science.</td>
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Where in proposal to address:

**1.2 Methodology**

‘Explain how expertise and methods from different disciplines will be brought together and integrated in pursuit of your objectives. If you consider that an inter-disciplinary approach is unnecessary… please provide a justification.’

‘[For SSH-flagged topics], show the role of these disciplines in the project or provide a justification if you consider that these disciplines are not relevant.’

‘Open science practices include [...] involving all relevant knowledge actors including citizens, civil society and end users in the co-creation of R&I agendas and contents (such as citizen science).’

**2.1 Project’s pathways towards impact**

[including societal impact]

**2.2 Measures to maximise impact**

Dissemination, exploitation and communication

**3.1 Work plan and resources**

**3.2 Capacity of participants and consortium as a whole**

‘Describe the consortium. How does it match the project’s objectives, and bring together the necessary disciplinary and inter-disciplinary knowledge? Show how this includes expertise in social sciences and humanities, open science practices, and gender aspects of R&I, as appropriate.’
Case studies: Interdisciplinary Research with SSH Integration

Introduction

These case studies highlight a number of collaborative projects in different fields where disciplines from STEM and SSH worked together to address societal challenges in a multi-faceted and holistic way. Links to more collections of case studies are provided in the ‘Resources’ section below.

Technology, Ethics and Human Rights: SIENNA
The Horizon 2020-funded SIENNA project examined ethical and legal issues of new and emerging technologies in three areas: 1) human genetics and genomics, 2) technologies that can be used to enhance human abilities, and 3) artificial intelligence and robotics. The project was committed to addressing the socio-economic impacts of new and emerging technologies, as well as the ethical and legal issues that arise, acknowledging that such challenges can only be properly addressed if the diversity of views and values of both scientists and citizens are considered early in the research process. The project developed a methodology for reconciling the different views, interests and values of stakeholders such as ethics committees, field experts (natural and life sciences, medicine, social sciences and humanities, engineering and information sciences), human rights organisations, consumer rights organisations, patient advocacy organisations, policy-makers, regulators, professional organisations or associations, industry and the public (including non-experts). See: https://www.sienna-project.eu/

Heritage for Rural Regeneration: RURITAGE
The transdisciplinary RURITAGE project (Horizon 2020) turns rural areas into laboratories to show how natural and cultural heritage can act as engines for regeneration. It draws on the expertise of a range of disciplines and professions to promote change towards sustainable development in real-life environments. Coordinated by architects, the consortium consists of 38 partners from 19 countries, and includes research organisations, education establishments, private for-profit entities, and public bodies. Partners analysed lessons learnt from established natural and cultural heritage sites, identified potential new sites, and co-developed innovative heritage-led regeneration plans for six chosen replication sites. They also aim to foster networking, mobilise investments, and increase local employment. The project team understands cultural and natural heritage as part of a ‘broader definition of cultural ecosystem services’, providing both tangible and intangible benefits to local residents and visitors. The project identified six key topics for further work (so-called systemic innovation areas): art and festivals, integrated landscape management, migration, pilgrimages, resilience and sustainable local food production. See: https://www.ruritage.eu/

Emotional Wellbeing and Mental Health: ECoWeB
The ECoWeB project (Horizon 2020) aims to develop and disseminate a mobile application to provide engaging and personalised tools and psychological skills to promote emotional wellbeing and prevent mental health problems in adolescents and young adults. SSH was integrated into the project from the beginning in order to fully address the research questions. For conducting clinical trial research it is now recognised that multiple competencies and disciplines are required, including treatment delivery, clinical trial methods, statistics, economics and qualitative research and implementation science. The project’s interdisciplinary team consists of world leading academics from child and adolescent psychiatry, clinical psychology, social cross-cultural psychology, emotion research, statistics, and computer science, and worked with important actors in the health, education, and employment areas (such as government and community agencies, health insurances, self-help groups, parent associations, school and employer organisations). See: http://www.ecowebproject.eu/
Resources

Training & Toolkits
- RDO Coordinator Training: Interdisciplinarity and SSH in Horizon Europe Proposals (video, 18 min)
- RDO Checklist: Interdisciplinarity and SSH integration in Horizon Europe Proposals
- SHAPE-ID toolkit: Pathways to Interdisciplinary and Transdisciplinary Research (online toolkit)
- Td-net toolbox: Methods and tools for co-producing knowledge (online toolkit)
- Integrating Social Sciences and Humanities in Horizon Europe (Bridge2HEU, video, 2 hours)
- Free Massive Open Online Course from TD-NET: Partnering for Change: Link Research to Societal Challenges (runs periodically)

Case studies
- SHAPE-ID toolkit case study collection (PDF collections showcasing SSH integration)
- Net4Society case study collection: ‘Success stories in SSH-STEM collaboration’ (PDF collections for different societal challenge areas within Horizon 2020)

Policy
- League of European Research Universities (LERU): Interdisciplinarity and the 21st century research-intensive university (PDF)
- Horizon Europe Programme Guide (SSH integration as cross-cutting priority, PDF)
- SHAPE-ID annotated Bibliography of Policy Literature (on inter- and transdisciplinary research, PDF)
- Integration of social sciences and humanities in Horizon 2020 (EC report, PDF)

Further Information
- SHAPE-ID Top Ten Tips on Writing an Inter- or Transdisciplinary Proposal (PDF)

1 National Academy of Sciences. 2005. Facilitating Interdisciplinary Research. Washington, DC: The National Academies Press. For Horizon 2020 the European Commission defined interdisciplinarity in a similar manner, as ‘the integration of information, data, techniques, tools, perspectives, concepts or theories from two or more disciplines.’
4 EIP-AGRI, Horizon 2020 multi-actor projects.
5 The list is adapted from the UNESCO International Standard Classification of Education (ISCED 2011).