

# INTERSECTIONS: A Systematic Review of Grey Literature on Practices, Evaluation and Policies in Interdisciplinary and Transdisciplinary Research

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# INTERSECTIONS: A SYSTEMATIC REVIEW OF GREY LITERATURE ON PRACTICES, EVALUATION AND POLICIES IN INTERDISCIPLINARY AND TRANSDISCIPLINARY RESEARCH

## Accompanying Document

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**Project:** “Investigating Interdisciplinarity and Transdisciplinarity: Intersections of Practices, Culture(s) and Policy in Collaborative Knowledge Production” (INTERSECTIONS)

## 1. Background

This document describes the search and selection of relevant publications for a dataset underlying a qualitative systematic<sup>1</sup> literature review of grey literature on the topic of interdisciplinary and transdisciplinary research. For this purpose, we understand grey literature as publications created at any level of government, academia, business or industry, which have not been published by a commercial publisher.<sup>2</sup> This body of literature holds relevance as it represents a specific discourse on inter- and transdisciplinary research and research policy. This literature review was conducted within the project “Investigating Interdisciplinarity and Transdisciplinarity: Intersections of Practices, Culture(s) and Policy in Collaborative Knowledge Production” (INTERSECTIONS)<sup>3</sup>.

The literature search consisted of three steps:

1. A structured search in two databases of grey literature.
2. The inclusion of an existing database of the project “Shaping interdisciplinary practices in Europe” (SHAPE-ID, Horizon2020)<sup>4</sup>.
3. A manual search in websites of relevant stakeholders.

The steps are explained in detail below. This is an accompanying document to the csv file “INTERSECTIONS\_grey\_literature\_review\_dataset\_final” which contains the dataset resulting from the literature search described below, including relevant metadata.

<sup>1</sup> Snyder, Hannah. 2019. “Literature review as a research methodology: an overview and guidelines.” *Journal of Business Research* 104: 333-339. <https://doi.org/10.1016/j.jbusres.2019.07.039>.

<sup>2</sup> Schöpfel, Joachim and Dominic J. Farace. 2010. “Grey Literature”. In *Encyclopedia of Library and Information Sciences, Third Edition*. <https://doi.org/10.1081/E-ELIS3-120043732>.

<sup>3</sup> More details: <https://csts.ethz.ch/research/intersections.html>. The project “Investigating interdisciplinarity and transdisciplinarity: intersections of practices, culture(s) and policy in collaborative knowledge production” (INTERSECTIONS) is funded by the Swiss National Science Foundation (SNSF), Programme PRIMA, Grant no. 201582, period 2022-2027.

<sup>4</sup> More details: <https://www.shapeid.eu>. The project ‘Shaping interdisciplinary practices in Europe’ (SHAPE-ID) received funding from the European Union’s Horizon 2020 Research and Innovation Programme under grant agreement No. 822705, period 2019–21.

## 2. Methodology

In all three steps, the literature search was guided by a set of inclusion and exclusion criteria (see Appendix A). The central element of these were the research questions guiding the INTERSECTIONS project. These are related to four main themes: (i) understandings of interdisciplinarity (ID) and transdisciplinarity (TD); (ii) theories and methods to understand ID and TD; (iii) challenges of conducting, funding and evaluating ID/TD; and (iv) intersections between practices, cultures and policies in collaborative settings.

### 2.1. Database search

As a first step, two databases with policy literature and grey literature were searched: OpenAIRE<sup>5</sup> and Dimensions<sup>6</sup>.

#### 2.1.1 OpenAIRE – simple keyword search

For the database **OpenAIRE**, a number of relevant keywords were used that were joined together in various combinations by the Boolean operator “AND”. The keywords included: interdisciplinary, interdisciplinarity, transdisciplinary, transdisciplinarity, and policy. In addition, the language was set to English and the document type restricted to “Other research products”. Moreover, the time period was set to the years 2000 – 2022. Hereby, three sets of results with 197, 34 and 15 items respectively were attained. From these sets, 185 were considered for closer consideration from which one item was selected for the dataset.

#### 2.1.2 Dimensions – complex query strings

For the database **Dimensions** we developed more complex search queries which were applied to search titles and abstracts. Three search strings were applied, which resulted in three datasets of 21, 34, and 21 items respectively. After merging the results and removing duplicates, 32 unique items remained from which six were added to our dataset.

To develop the search strings, three main guiding **concepts** were used to develop three sets of keywords: inter-/transdisciplinarity, research and policy (table 1). The keyword’s endings were replaced with an asterisk (\*) to allow for different word variations to be taken into account. This process was part of a parallel literature review of academic literature. Schaltegger and Vienni-Baptista (2023)<sup>7</sup> describe this process in detail.

Set A	Set B		Set C
Interdisciplinarity/ Transdisciplinarity	Research		Policy
interdisciplinar*	research*	co-produc*	politic*
transdisciplinar*	practi*	collabor*	govern*
	process*	participa*	stakeholder*
	problem*	participa*	citizen*
	competenc*	perform*	PPP
	scien*		policy

Table 1 – An overview of the three sets of keywords

<sup>5</sup> <https://explore.openaire.eu/search/advanced/research-outcomes>

<sup>6</sup> <https://app.dimensions.ai/discover/publication>

<sup>7</sup> Schaltegger, Anne-Sophie, and Bianca Vienni-Baptista. 2023. “INTERSECTIONS: Literature Review Query Strings for Web of Science, Scopus and JSTOR.” ETH Research Collection. <https://doi.org/10.3929/ethz-b-000632748>.

For the strings, the keyword sets were connected using the Boolean operator AND. Within the keyword sets, all keywords were listed separated by OR. The three strings applied to Dimensions represented three different combinations of the three keyword sets:

1. Set A AND Set B
2. Set A AND Set C
3. Set A AND Set B AND Set C

Therefore, the specified parts of the publication needed to contain at least two or three keywords in order to be returned by the search. The strings can be found in Appendix A.

In addition, the search always restricted the time period to the years 2000 – 2022 and applied only to title and abstract. After selecting relevant results returned by each string, they were merged, and duplicates were removed by one researcher.

## 2.2. SHAPE-ID

The SHAPE-ID project was an EU-funded Horizon2020 project aiming to improve the standing of Arts, Humanities and Social Sciences in interdisciplinary collaborations. One of SHAPE-ID's outputs was a comprehensive systematic literature review of grey literature. As one of the authors was also a member of the SHAPE-ID Consortium, we could make use of the unpublished SHAPE-ID database of grey literature, entailing the publications that SHAPE-ID had analysed and those not included in their selection. Due to the relevance of the research questions guiding the SHAPE-ID project and the rigour of the grey literature search conducted, we decided to include the whole SHAPE-ID database in our grey literature dataset which accounts for 105 items. Some of the reports from the SHAPE-ID dataset have been replaced with their most current version.

## 2.3. MANUAL SEARCH

For the **manual search**, a list of relevant stakeholders was created. In a first step, relevant stakeholders were selected from an existing stakeholder database from the SHAPE-ID project.<sup>8</sup> Additional stakeholders relevant to the context of the INTERSECTIONS project were added, with a special focus on including Swiss actors. Subsequently, the websites of these organisations were searched using the following keywords in different combinations: interdisciplinary, transdisciplinary, and policy. This was complemented by a Google® search using the same keywords in combination with the names of the stakeholders.

In a second step, the first author searched some stakeholders with a special focus on the topic of evaluation in relation to interdisciplinarity and transdisciplinarity, extending the search with the following keywords: evaluation, funding, monitoring. In the case of Swiss stakeholders, the search was conducted in English and German. While Switzerland has four national languages (French, Italian, German, and Romansh), official policy documents or grey literature is often published in English, or in all three main national languages (French, Italian, German). A search in English and German therefore allowed to cover available literature and corresponded to the language abilities of the research team at that time.

The additional emphasis on evaluation was due to the topic focus of the doctoral thesis of the first author, who investigated evaluation of inter- and transdisciplinary research projects in Switzerland. As a result, the dataset we publish here covers a more general perspective on interdisciplinarity and transdisciplinarity, while also providing many publications with related, relevant but more narrow discussions on research evaluation.

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<sup>8</sup> An overview of the type of stakeholders included in that list can be found on page 30 of the following publication: Vienni Baptista, B., Fletcher, I., Maryl, M., Wciślik, P., Buchner, A., Lyall, C., Spaapen, J., & Pohl, C. (2020). Final Report on Understandings of Interdisciplinary and Transdisciplinary Research and Factors of Success and Failure. Zenodo. <https://doi.org/10.5281/zenodo.3824839>.

As part of the manual search, the dataset also includes publications the different team members came across individually in other contexts that were considered relevant to the literature review. In total, 95 items were included from the manual search.

### **3. Acknowledgements**

We acknowledge the value of the datasets provided by the SHAPE-ID Consortium.

## Appendix B – Inclusion and Exclusion Criteria

	Selection Criteria	Reason for criteria
<b>Scope</b>	<p>Questions for the Literature Review derived from the research questions.</p> <ul style="list-style-type: none"> <li>- Q1: How are ID and TD understood and conceptualised in research and in policy?</li> <li>- Q2: What are suitable theories and methods to investigate inter- and transdisciplinary knowledge production processes?</li> <li>- Q3: What are the specific challenges to interdisciplinary and transdisciplinary research (practices, cultures, spaces) and to its responsiveness to scientific and societal demands?</li> <li>- Q4: What are the intersections that exist between practices, cultures and policy in ID/TD and how do they enable impact on scientific and societal needs?</li> </ul>	Relationship to research questions.
<b>Topic coverage</b>	All papers that contain interdisciplinary* or transdisciplinary*	Focus of our research project is on inter- and transdisciplinarity.
<b>Exclusion criteria</b>	<ul style="list-style-type: none"> <li>• Publications that exclusively relate to teaching and learning.</li> </ul>	<ul style="list-style-type: none"> <li>• Publications that serve as a resource for educators or students respectively to teach or learn about inter-/transdisciplinarity, or that serve as a guidance on how to develop an inter-/transdisciplinary exercise.</li> <li>• Example: Lyall, C., Meagher, L., Bandola-Gill, J. &amp; Kettle, A. (2015). "Interdisciplinary provision in higher education. Current and future challenges." Higher Education Academy.</li> </ul>
	<ul style="list-style-type: none"> <li>• Publications where the title or abstract is not in English or German.</li> </ul>	<ul style="list-style-type: none"> <li>• Most relevant literature is published in English. Relevant publications from Switzerland will be available in English or in one or several national languages, German being the most dominant one for the context in which the project is developed.</li> </ul>
	<ul style="list-style-type: none"> <li>• Publications that analyse the interdisciplinary trajectory of a person or researcher.</li> </ul>	<ul style="list-style-type: none"> <li>• The focus of our project is on collective and collaborative forms of inter- and transdisciplinary research. Individual trajectories fall outside this scope.</li> </ul>
	<ul style="list-style-type: none"> <li>• Publications that are not publicly accessible.</li> </ul>	<ul style="list-style-type: none"> <li>• Using only publicly accessible documents ensures the reproducibility and transparency of the analysis allowing for an evaluation of the rigour of our research.</li> </ul>
	<ul style="list-style-type: none"> <li>• Policy-oriented outputs (whitepapers, briefs etc.) of research projects that are specific to the project's topic and do not discuss the impact of the inter-/transdisciplinary dimensions.</li> </ul>	<ul style="list-style-type: none"> <li>• Example: A policy brief on water management that was developed in an inter-/transdisciplinary fashion but does not specifically discuss the inter-/transdisciplinary teamwork.</li> </ul>
<b>Inclusion criteria</b>	<ul style="list-style-type: none"> <li>• Contribute to the discourse on inter-/transdisciplinary research and science policy.</li> </ul>	The focus of our project is inter-/transdisciplinarity with one work package focusing on the intersection of research and policy.
	<ul style="list-style-type: none"> <li>• Represent one of the following document types: <ul style="list-style-type: none"> <li>○ evaluation and monitoring reports,</li> <li>○ event reports,</li> <li>○ funding calls and programs,</li> <li>○ guidance and recommendations,</li> <li>○ positions statements,</li> <li>○ press releases,</li> <li>○ policy briefs and whitepapers</li> </ul> </li> <li>• and surveys of a research field or specific activities within it.</li> </ul>	Exhaustive list of the document types we consider to be grey literature.

	<ul style="list-style-type: none"> <li>• Outline concepts/definitions and/or understandings of inter-/transdisciplinarity or synonymous concepts as the main focus of the document (collab*, co-prod*, interdisciplinary*, transdisciplinary*, participa*, cooperat*).</li> </ul>	<ul style="list-style-type: none"> <li>• Relates to Q1.</li> </ul>
	<ul style="list-style-type: none"> <li>• Explore methods &amp; theories to study inter-/transdisciplinary knowledge production processes.</li> </ul>	<ul style="list-style-type: none"> <li>• Relates to Q2. Publications that explore the methods and/or theories with which e.g., a program or a case study was investigated, either as part of a report or as a separate publication.</li> <li>• Example: Chapter 5 of Bruun, H., Hukkinen, J. I., Huutoniemi, K. I., &amp; Thompson Klein, J. (2005). <i>Promoting interdisciplinary research: The case of the Academy of Finland</i>. Academy of Finland.</li> </ul>
	<ul style="list-style-type: none"> <li>• Explore factors that challenge, hinder or enable inter- and transdisciplinary research and science (condition*, indicat*).</li> </ul>	<ul style="list-style-type: none"> <li>• Relates to Q3.</li> </ul>
	<ul style="list-style-type: none"> <li>• Explore the impact of inter-/transdisciplinary research and science on societal, scientific and/or policy domains.</li> </ul>	<ul style="list-style-type: none"> <li>• Relates to Q3. Example: A report that shows how transdisciplinary research supports the fight against climate change.</li> </ul>
	<ul style="list-style-type: none"> <li>• Explore how policy, research, culture and society mutually affect each other and discuss the intersections that emerge from the interactions of these domains, especially: <ul style="list-style-type: none"> <li>◦ Explore how inter-/transdisciplinarity and research policy shape each other.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Relates to Q4.</li> </ul>
	<ul style="list-style-type: none"> <li>• Evaluate and/or analyse inter- and transdisciplinary research, science, programs, calls empirically (quantitatively and/or qualitatively) and/or derive recommendations.</li> </ul>	<ul style="list-style-type: none"> <li>• Example: Kania, K., Lemaire, C. &amp; Swinnen, L. 2019. Integration of social sciences and humanities in Horizon 2020: 4th monitoring report on SSH flagged projects funded in 2017 under the societal challenges and industrial leadership priorities.</li> </ul>
	<ul style="list-style-type: none"> <li>• Offer recommendations on the evaluation of inter-/transdisciplinary research and science.</li> </ul>	<ul style="list-style-type: none"> <li>• Example: Guideline with 5 quality assessment criteria for interdisciplinary projects that account for the specific challenges of this type of research.</li> </ul>
	<ul style="list-style-type: none"> <li>• Provide guidelines for submitting inter-/transdisciplinary proposals to funding opportunities.</li> </ul>	<ul style="list-style-type: none"> <li>• Documents that accompany a call/program. Example: The type of collaborative research described in the proposal must adhere to the funding entity's definition of interdisciplinarity: at least one STEM discipline and one AHSS discipline must be represented among the applicants.</li> </ul>
<b>Geographic barriers</b>	European organisations, selected global organisations, and Swiss organisations, including private think tanks, funders, and research firms.	
<b>Language</b>	English, German	
<b>Period of time</b>	2000 – 2024	
<b>Source</b>	Scopus, Web of Science, JSTOR, OPENAire, Dimensions, Shape-ID internal database, general internet search	

## Appendix B – Three search strings applied to the database Dimensions

- STRING 1

(transdisc\* OR interdisc\*) AND (research\* OR practi\* OR process\* OR problem\* OR competenc\* OR scien\* OR co-produc\* OR collabor\* OR participa\* OR art\* OR perform\*)

- STRING 2

(transdisc\* OR interdisc\*) AND (politic\* OR govern\* OR stakehold\* OR citizen\* OR PPP\* OR policy)

- STRING 3

(transdisc\* OR interdisc\*) AND (research\* OR practi\* OR process\* OR problem\* OR competenc\* OR scien\* OR co-produc\* OR collabor\* OR participa\* OR art\* OR perform\*) AND (politic\* OR govern\* OR stakehold\* OR citizen\* OR PPP\* OR policy)