METHODOLOGIES FOR TEAM WORKING IN ECO-OUTWARDS RESEARCH

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D2.1 METEOR Research Plan

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0.1	06.02.2024	ISU	First draft
0.2	17.02.2024	ISU	Second draft
0.3	25.02.2024	ISU	Third draft
1.0	26.02.2024	CASE	Final editing

Executive Summary

The study of the transversal skills' provision in PhD programs in Europe is planned in the framework of the project "Methodologies for Team Working in Eco-Outwards Research". This issue will be considered in 10 participant countries, members of the European Union - Poland, Italy, Spain, Norway, Finland, Denmark, Cyprus; two EU candidate countries - Turkey and Georgia; and the UK.

The current deliverable is the research plan that provides the project partners with detailed instructions on what information to collect, from which sources, when, and where. Particularly, the study will collect and analyze data from various sources, including relevant legislation, regulations, guides, policy reports, research papers, and interviews with various stakeholders, such as PhD students, ECRs, supervisors, university administration, and employers. This way the participatory approach will be ensured that will consider and compare the views of all stakeholders.

The data collection will be conducted in two phases: documents will be collected during the first phase, before the end of March 2025, while interviews will be conducted in the second phase, in March-May 2025. The collected data will be analyzed, and the baseline report will be developed by the end of August 2025. Each country team will be responsible for collecting and analyzing the relevant documentation and interviews, which should be conducted either face-to-face or online, individually or with groups in secure and comfortable environments that meet all ethical standards operating in the EU.

With this aim, the current document contains detailed interview guides separately for different stakeholders/respondents, as well as the questions that will be addressed via collecting and analyzing the relevant documents in each country.

As a result of the study, a baseline report will be developed to provide a comprehensive review of the current, most updated situation of the transversal skills development for PhD programs in 10 participant countries. The analysis of the collected data will enable the authors of the baseline report to provide a broad picture of certain aspects of the PhD education on the one hand and to consider the complex relations among multiple constituent elements of the PhD education that are relevant for the transversal skills' enabling environment in the participant countries.

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Acronyms & Abbreviations

Term	Description
ECR	Early Career Researcher
METEOR	Methodologies for Team Working in Eco-Outwards Research

1 Introduction

1.1 Overview

The aim of the study under **WP2 Evidence** is to create a baseline report that will be used for planning PhD training. METEOR introduces an innovative training model, as well as participatory methods and concepts that are missing from traditional PhD programs.

The overall aim of METEOR is to improve the transversal skills of current PhD candidates and ECRs through an innovative, collaborative, and participatory training program, including summer schools, group projects, and peer mentoring. Improving transversal skills will benefit both individual employability and the whole research ecosystem. METEOR is designed to have a much more direct effect on the pipeline for science and research careers by equipping PhD candidates and ECRs with the skills to operate in a range of research-driven environments and a desire to use their specialized knowledge for the benefit of society.

WP2 includes two deliverables. Deliverable 2.1 provides a research plan for a comprehensive analysis of transversal skills' supply in PhD education in the project countries.

1.2 Relation to other tasks and deliverables

The deliverable 2.1 provides outputs to the following METEOR tasks and deliverables:

Table 1. D2.1 Output for other tasks and deliverables

Deliverable	Due Date	Output from D2.1
D2.2	31.08.2025	Doctoral education and training in Europe
D3.1	31.05.2025	Training Resource Template
D3.3	30.11.2025	Overall course catalogue ph. 1
D3.4	31.05.2026	Overall course catalogue ph. 2
D5.3	31.05.2027	Policy recommendations and METEOR manifesto

1.3 Structure of the Deliverable

Deliverable 2.1 provides a research plan for a comprehensive analysis of transversal skills supply in PhD education in the project countries. The study is planned to collect and analyze information on PhD programs in the partner countries, focusing on their structure, outputs,

alignment with university missions, provision of transversal skills' education, and societal impact.

Deliverable D2.1 defines research questions and describes the methodology and how to collect and analyze information on PhD programs in the partner countries. It represents the study design, sampling, data collection methods, data analysis plan, and research instruments. The timeline of the tasks is also given in the document. References are listed at the end of the deliverable.

2 Research Questions

1. What types and structures of PhD programs currently exist in the project countries?
2. What are the main outputs of PhD training?
3. Do existing PhD programs support development of transversal skills? If so, how?
4. How do current structures and policies of doctoral education relate to university missions? What is the societal impact of PhD training?

3 Methodology

3.1 Study Design

The study will be carried out in two phases:

1. Analysis of relevant national documentation, collected and summarized by the partner countries. Special guide is designed to collect information on PhD programs in partner universities, focusing on their structure, outputs, alignment with university missions, provision of transversal skills' education and societal impact. It consists of four sections, each addressing key aspects of PhD education. Guide is attached to the protocol as an Annex A.
2. A qualitative case study approach, incorporating semi-structured interviews and focus groups with four key stakeholder groups in each country:

- Doctoral Students (STEM, Social Sciences & Humanities, Professional Fields)
- Supervisors (representing each broad field)
- University Administrators (including deans and program directors)
- Employers* (from industry, government, and NGOs)

Each country will conduct 15 interviews and/or focus groups, ensuring representation from these categories. Each country researcher will attend a group workshop to agree how to conduct field work. A follow-up meeting will be scheduled with each country researcher. For the baseline report the findings from phase 1 (analysis of country-relevant documentation) will be combined with phase 2 (analysis of interviews/focus groups).

*The Employers' category includes representatives from organizations that regularly hire PhD graduates across the three broad fields studied (STEM, Social Sciences & Humanities, and Professional Fields). The project partners will select participants based on their organization's history of PhD employment and their familiarity with doctoral competencies. This includes both current employers of PhDs and those with strategic plans to expand PhD hiring. Project partners aim to include diverse organization types (industry, government, and NGOs) that represent common career pathways for doctoral graduates in each country.

3.2 Sampling and Data Collection Methods

A purposive sampling approach will be used for the interview/focus group phase to ensure a diverse set of perspectives. The distribution per country is as follows:

- Doctoral Students: 5 (2 from STEM, 2 from Social Sciences & Humanities, 1 from Professional Fields if available)
- Supervisors: 3 (1 from each broad field)
- University Administrators: 2
- Employers: 5 (2 from STEM-related industries, 2 from Social Sciences & Humanities fields, 1 from professional fields)

Respondents can be reached individually or focus-group interviews can be conducted with each segment of stakeholders.

Table 2. Sampling

	HUM/SOC	STEM	Prof.Doctorate
Students	2	2	1
Employers	2	2	1
Supervisors	1	1	1
Administration	2		

The following data collection methods are utilized in this study:

- Semi-Structured Interviews (45–60 minutes, online or in-person)
- Focus Groups (60–90 minutes, 5-6 participants per group)
- Recording & Documentation: Audio-recorded with consent

3.3 Data Analysis Plan

- Summarized Reports Analysis: Each country will submit structured summaries of interviews and focus groups instead of raw data. Each individual and/or group interview should be summarised separately. In addition to that, overall summaries should be provided offering a coherent overview of key findings. Thematic Analysis: The core research team will identify recurring themes, patterns, and divergences across summaries. These will be categorized under predefined themes (e.g., program structures, skills development, employability).
- Cross-Case Comparison: Comparative analysis will be conducted to highlight differences and similarities across institutional and national contexts.
- Synthesis and Reporting: Findings will be synthesized into a baseline report that outlines common trends, key challenges, and actionable recommendations.

3.4 Research Instruments

3.4.1 Guide for collecting and summarizing relevant national documents

GENERAL INFORMATION AND INSTRUCTIONS

This guide is designed to collect information on PhD programs in the partner countries, focusing on their structure, outputs, alignment with university missions, provision of transversal skills' education, and societal impact. It consists of four sections, each addressing key aspects of PhD education.

Each section invites participants to reflect on specific dimensions of the research and provide relevant supporting documents (e.g., local or international reports, articles, or normative documents) if available. The final section aims to provide a broader national perspective.

Completed forms should be submitted by **March 25.**

Summary of the Relevant National Documents

Country:

Partner:

Please, provide comprehensive, comparative, analytical answers where applicable

Section 1: Types and Structures of PhD Programs

Aspect/question

1.1. General Type and Structure:

- Are the PhD programs in your country mostly structured (course-based), unstructured (without teaching component) or both?
- Are the PhD programs in your country primarily research-focused, professional, or both?
- Are the PhD programs in your country full time, part time or both?
- Are the general provisions of PhD programs in your country regulated at the institutional level (PhD program curriculum, financing of students, admission requirements, graduation requirements)?
- Are the general provisions of PhD programs in your country regulated at the national level (PhD program curriculum, financing of students, admission requirements, graduation requirements)?

1.2. Regulatory Framework:

- Are there significant differences in PhD program structures in your country? What defines these differences (field of study, type of program, type of universities-public/private, type of study - full time/part time, etc.)?

1.3. Supervision and Mentorship:

- How is PhD supervision organized (e.g., individual vs. committee supervision, etc.)?
- Are there formal guidelines or training programs for PhD supervisors? If yes, please describe.

1.4. PhD Student Skills Development:

- What transversal skills[1] are formally integrated into PhD training?

[1] List of skills:

1. Transformative Research, Global Citizenship, Climate Change Education, and the UN Sustainable Development Goals.
2. Intercultural Competence and Inclusion
3. Collaboration and Teamwork
4. Supervision and Mentoring

- What transversal skills are missing in the PhD program formal structure?
- Are there any extra-curricular programs or workshops (in or outside university) for student transversal skill development? If so, please provide details.

1.5. Challenges and Recommendations:

- What are the major challenges in structuring and delivering PhD programs in your country?
- What recommendations if any are suggested for improving PhD program structures in your country?

Supporting Documents: *If available, provide articles, regulations or program descriptions outlining PhD structures and skill development initiatives/recommendations in your country (list the documents here and upload them to the designated folder)*

Section 2: Outputs of PhD Programs

Aspect/question

2.1. Academic and Professional Outputs:

- What are the main expected outputs of PhD programs (e.g., dissertations, publications, patents, applied projects)?
- Are there significant differences in PhD program outputs in your country? What defines these differences (field of study, type of program, etc.)?

2.2. Relation to the Market and Employability:

- What career paths do PhD graduates typically follow in your country (academia, industry, government, entrepreneurship)?
- Are PhD graduates well-prepared for academic careers? Why or why not?
- Are PhD graduates well-prepared for non-academic careers? Why or why not?
- Are some PhD research projects conducted in partnership with industry or government?

2.3. Challenges and recommendations

5. Research Proposal Evaluation
6. Research and Innovation Project Design
7. Impact and Behavioral Change
8. Project Management and Implementation
9. Entrepreneurship, Exploitation and Career Development
10. Communication and Dissemination
11. Research ethics
12. Critical thinking

- What are the biggest challenges PhD students and ECRs face in completing their studies and entering the job market?
- What support mechanisms exist to enhance employability (e.g., career services, internships, alumni networks)?
- What improvements could be made to align PhD program outputs with labor market needs?

Supporting Documents: *If available, provide articles, graduate tracking reports, statistics, or industry collaboration agreements (list the documents here and upload them to the designated folder)*

Section 3: Social Impact of PhD Programs

Aspect/question

3.1. Continuous Education: Focus on Lifelong Learning & Educational Outreach

- In what ways do PhD programs foster continuous learning for both their participants (students, faculty) and broader community members? What specific initiatives or partnerships (either within the university or with external organizations) engage PhD students in creating and delivering educational programs aimed at promoting lifelong learning?
- Are there specific initiatives (in or outside university) that involve PhD students in developing/delivering life-long learning for society?

3.2. Knowledge Transfer and Innovation: Translating Research into Practice and Innovation

- How do PhD programs facilitate the translation of academic research into practical, market-ready innovations (e.g., products, services, or processes)?
- What specific initiatives such as incubators, technology transfer offices, or accelerator programs are available within or beyond the university to assist PhD students in commercializing their research or launching startups?

3.3. Social Engagement: Broader Societal Impact; Diversity, Inclusion, and Social Responsibility

- Are there policies or programs (in or outside university) supporting diversity, inclusion, and social responsibility in PhD education?

3.4. Challenges and Recommendations:

- What are the main challenges in ensuring PhD programs contribute to societal impact?

- What recommendations are proposed to strengthen the social impact of PhD programs?

Supporting Documents: *If available, provide articles, reports or case studies on PhD programs' contributions to social impact (list the documents here and upload them to the designated folder)*

Section 4: General Reflections on PhD programs

Aspect/question

4.1. General Challenges and Recommendations:

- What are the biggest structural or institutional barriers to improving PhD education in your country?
- What recommendations are proposed for strengthening transversal skills training in PhD programs?

4.2. Additional Information:

- Is there any other relevant information that was not covered but is important for understanding PhD programs in your country?

Supporting Documents: *Any additional articles, reports, policies, or relevant documentation (list the documents here and upload them to the designated folder)*

3.4.2 Guide for conducting interviews

This guide outlines the approach for conducting **semi-structured interviews** (45–60 minutes, online or in-person) to explore participants' experiences, perspectives, and recommendations regarding **doctoral education**.

Interview settings

Language & Setting: Interviews are conducted in the preferred language of the respondent and in a safe place chosen by the interlocutor. For online interviews, institutional **Microsoft Teams** or **Zoom** will be used, with security measures such as **waiting rooms and password protection** enabled.

Informed Consent & Anonymization: Before the interview begins, the researcher will provide the interlocutor with detailed information about the project, its goals, and the principles of **interview anonymization, data archiving, and data protection as defined in the project**.

Voluntary Participation: The interlocutor decides which questions they wish to answer. Participation is voluntary, and they may withdraw their consent at any time.

3.4.2.1 Interview Protocol for PhD Students

1. **Program Structure & Experience**
   - How would you describe your experience in the PhD program?
   - What aspects of the program work well, and what could be improved?
   - To what extent do you have flexibility in shaping your research and coursework?
2. **Skills Development & Preparation**
   - Have you developed any transversal skills during your PhD, if any? If so, which ones?
   - Do you feel prepared for careers both inside and outside academia? Why or why not?
   - What additional skills or training, if any, would help you transition into the job market?
3. **Supervision & Institutional Support**
   - How would you describe your relationship with your supervisor?
   - What types of mentoring and career support, if any, does your institution provide?
   - What are the main challenges you face in completing your PhD?
4. **Outcomes & Future Plans**
   - What career paths are you considering after your PhD?
   - How do you perceive the value of a PhD in your country's job market?
   - What, if anything, could universities do to better support PhD students in their career development?
5. **Barriers to Completion**
   - What factors, if any, hinder the successful completion of a doctoral program within a reasonable timeframe?
6. **Closing Questions**
   - If you could change one thing about doctoral education, what would it be?
   - How would you describe/envision a successful PhD training? Is there anything important that we have not discussed?

3.4.2.2 Interview protocol for Faculty/Supervisors

1. **Program Design**

- What elements of the current program structure work well, and what aspects need improvement?
- How do you see the relationship between PhD students' research productivity and their skill development? Do these aspects complement each other, or do they sometimes come into conflict?

2. **Student Development**
   - What are the key challenges in supervising doctoral students?
   - How do you assess and track student progress?
   - What factors, if any, contribute to a successful PhD completion?
3. **Outcomes & Impact**
   - In what ways, if any, could PhD programs better serve both academic and societal needs?
   - How do you view the relationship between academic training and future professional career?
   - What societal impact do you see from PhD research, if any?
4. **Barriers to Completion**
   - What factors, if any, hinder the successful completion of a doctoral program within a reasonable timeframe?
5. **Closing Questions**
   - If you could change one thing about doctoral education, what would it be?
   - How would you describe/envision a successful PhD training?
   - Is there anything important that we have not discussed?

3.4.2.3 Interview Protocol for Industry Partners/Employers

1. **Skills & Preparation**
   - What skills, if any, do you value most in PhD graduates?
   - How well do current programs prepare graduates for the industry/job market?
   - Do you see any gaps in PhD training? If so, what are they?
2. **Collaboration**
   - How could university-industry collaboration in PhD training be improved?
   - What role should industry play in doctoral education?
   - What are the benefits and challenges of hiring PhD graduates?

- What trends, if any, do you observe in PhD retention and career progression in your organization/sector?

3. **Closing Questions**

- What changes, if any, would you prioritize in doctoral education?
- How would you describe/envision a successful PhD training?
- Are there any other important aspects we have not discussed?

3.4.2.4 Interview Protocol for University Administrators

1. **Strategic Questions**
   - How does PhD education align with your university's mission?
   - What metrics, if any, do you use to evaluate program success?
   - How do you balance the needs of students, faculty, and employers?
2. **Resource & Policy**
   - What are the main challenges, if any, in managing PhD programs?
   - How do you make decisions about program structure and funding?
   - What policy changes, if any, would improve doctoral education?
3. **Closing Questions**
   - What changes, if any, would you prioritize in doctoral education?
   - How would you describe/envision a successful PhD training?
   - Are there any other important aspects we have not discussed?

3.4.3 Guide for conducting focus group interviews

To ensure consistency and depth in the data collection process, the following steps should be followed when planning interviews:

1. Preparation: Identify suitable participants based on the sampling criteria. Please, consider the same type of participants (PhD students only, or supervisors only, etc.) per focus group. At the same time, ensure diversity in their perspectives and institutional representation.
2. Scheduling: Arrange interviews at convenient times for participants, allowing at least 80-90 minutes per session. Provide an overview of the study beforehand.
3. Ethical Considerations: Obtain informed consent from all participants, ensuring confidentiality and secure data storage. Institutional **Microsoft Teams** or **Zoom** will be used for online interviews, with security measures such as **waiting rooms and**

password protection enabled. The principles of **interview anonymization, data archiving, and data protection, as defined in the project, apply here**.

4. Use the following structure:
   - Introduction (10 min): The Moderator introduces the session, explains the purpose, ensures informed consent, and clarifies confidentiality.
   - Discussion (60–75 min): Participants discuss key themes based on/according to the guide questions below. The moderator ensures balanced participation.
   - Closing (10 min): Final reflections, key takeaways, and summary.

Interview Protocol for Focus Groups

Main Questions

3.4.3.1 For Doctoral Students

- How would you describe your experience in your PhD program?
- What transversal skills have you developed, and which do you feel are lacking?
- What are the biggest challenges in supervision and institutional support?
- How do you feel about your career prospects post-PhD?
- What changes would you prioritize in doctoral education?

3.4.3.2 For Faculty/Supervisors

- What elements of the current PhD program structure work well, and what needs improvement?
- What are the main challenges in supervising doctoral students?
- Which assessment methods do you find most effective?
- What role do PhD programs play in bridging academic and professional outcomes?
- What policy or structural changes would improve doctoral training?

3.4.3.3 For Industry Partners/Employers

- What skills do you value most in PhD graduates?
- How well do current PhD programs prepare graduates for the job market?
- What are the major gaps in PhD training from an employer's perspective?
- How can university-industry collaboration be improved?
- What trends do you observe in PhD retention and career progression in your sector?

3.4.3.4 For University Administrators

- How does PhD education align with your university's mission and goals?
- What metrics do you use to evaluate PhD program success?
- What are the biggest challenges in managing PhD programs?
- How do you balance the needs of students, faculty, and employers?
- What policy changes would improve doctoral education?

3.5 Definition of the Terms:

3.5.1 Transversal Skills

Transversal skills are cross-cutting abilities that can be applied across different jobs, tasks, and life situations. These include critical thinking, problem-solving, communication, teamwork, adaptability, digital literacy, and learning to learn. They enable individuals to navigate complex challenges and transfer knowledge between different contexts.

3.5.2 Professional Doctorate

A Professional Doctorate is an advanced academic degree focusing on applying research to professional practice. Unlike PhDs that emphasize theoretical contributions, professional doctorates (such as EdD, DBA, and DNP) prepare experienced practitioners to solve complex real-world problems in their field by applying research methods and evidence-based approaches.

4 Timeline

Table 3. Timeline

No	Tasks	Starting Date	Delivery date
1	Research Protocol		28.02.2025
2	Collate, log, and summarize relevant national documentation - all partners except SY	1.02.2025	25.03.2025
3	Documentary data analysis by ISU	25.03.2025	30.05.2025
4	Meeting with the interviewers by ISU team (Online)	1.03.25	15.03.25
5	Qualitative data collection all partners except SY	15.03.2025	15.05.2025

6	Qualitative data analysis by ISU	15.05.2025	15.07.2025
7	Follow-up Meeting with the interviewers by ISU team (Online)	10.05.2025	15.05.2025
8	Summarising, analysis and development of the final report by ISU	15.07.2025	15.08.2005
9	Final Report		31.08.2025

5 Expected Outcomes and Impact

We expect to develop a baseline report on transversal skills provision in the PhD programs in the partner countries. The study findings may be applied for the better development and planning of further METEOR activities, such as training.

We will also prepare a public report about the state of arts in transversal skills' development in PhD education in Europe and make it available on the project's web page.

These two documents will serve not only the project participants and beneficiaries, but all relevant stakeholders.

6 References

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