

METEOR

METHODOLOGIES FOR TEAM WORKING IN ECOOUTWARDS RESEARCH

Grant Agreement: 101178320

D5.4 METEOR Policy Brief (intermediate)



Funded by
the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Research Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.

Project description

Acronym	METEOR
Title	Methodologies for Team Working in Eco-Outwards Research
Coordinator	CASE – Center for Social and Economic Research in Warsaw
Reference	101178320
Type	Coordination and Support Action (CSA)
Programme	Horizon Europe (HORIZON)
Topic	CL2-2024-TRANSFORMATION
Start	01.12.2024
Duration	12/2024 to 11/2027
Website	www.meteorhorizon.eu
Consortium	CASE – Center for Social and Economic Research, Poland (Coordinator) Nord Universitet, Norway The Open University, United Kingdom Università Degli Studi Di Verona, Italy European University Cyprus, Cyprus Jyväskylän Yliopisto, Finland Kastamonu Üniversitesi, Türkiye Ilia State University, Georgia Asociacion Para La Gestion Del Centro Europeo, Spain Hacettepe Üniversitesi, Türkiye Roskilde Universitet, Denmark SYNYO GmbH, Austria Universidade Do Estado Da Bahia, Brazil (Associate)

Deliverable

Deliverable number	D5.4
Deliverable title	METEOR Policy Brief (intermediate)
Deliverable version	1.0
Lead beneficiary	CASE
Work package number	WP5
Work package title	Policy and Impact
Due date of delivery	31.05.2026
Actual date of delivery	29.05.2026
Dissemination level	Public
Type	Report
Rights	METEOR Consortium
Authors	Peter Gray (CASE) Jan Bazyli Klakla (CASE) Ale Okada (OU)

Document history

Version	Date	Beneficiary	Description
0.1	25.05.2026	CASE	First draft by Peter Gray
0.2	27.05.2026	CASE	Second draft by Peter Gray and Jan Bazyli Klakla
0.3	28.05.2026	CASE	Third draft by Peter Gray, Jan Bazyli Klakla and Ale Okada
1.0	29.05.2026	CASE	Final version after partners comments

Executive Summary

Doctoral education across Europe continues to produce deep disciplinary expertise, but it often does so in ways that leave researchers underprepared for the realities of contemporary research and innovation work: collaboration across boundaries, communication beyond academia, and careers that increasingly unfold outside traditional academic pathways. METEOR responds to a Horizon call topic aimed at strengthening transversal skills for doctoral and post-doctoral researchers, and this need is reinforced by the project's comparative evidence base. In particular, persistent academic cultures create a mismatch between doctoral training and stakeholder expectations, with recurring gaps in entrepreneurship/commercialisation skills, communication for non-academic audiences, and industry integration.

METEOR addresses this problem through a combination of face-to-face events, online interaction, and online training resources. Participant reaction has been very positive, suggesting a strong and “pent-up” demand not only for conventional training, but for structured interaction beyond disciplinary silos. METEOR therefore focuses on creating safe spaces for doctoral students and Early-Career Researchers to experiment with inter- and trans-disciplinary ideas in small group settings. Peer Mentoring Groups (PMGs) provide mutual support and inspiration, and learning is experiential rather than transmissive. A core objective is the development of Transformative Research and Innovation Proposals (TRIPs) based on real-world problems and drawing on the disciplinary mix within each group.

As a “research ecosystem” in its own right, METEOR also provides a practical lens on five structural tensions that shape doctoral training and research careers: (1) in-depth disciplinary knowledge vs systemic awareness; (2) discipline-related research skills vs transversal skills; (3) long-term academic tenure vs portfolio careers; (4) eco-inwards vs eco-outwards research ecosystems; (5) top-down vs bottom-up funding regimes; and (6) individualised researcher development pathways vs collaborative, cross-boundary knowledge production. METEOR participants become more aware of these tensions and better able to navigate them as they move forward.

Across all six tensions, the policy message is pragmatic: meaningful improvement does not primarily depend on extensive curriculum redesign. It requires opening time and space for alternative forms of training and support, strengthening collaboration and exchange between institutions, and treating key capacities as learnable competences for both doctoral researchers and higher education staff. This supports not only better doctoral experiences and broader career readiness, but also more outward-facing, challenge-driven research cultures aligned with the wider research-and-society ecosystem.

Contents

Executive Summary.....	5
Why it matters?	7
Tension 1: In-depth subject knowledge vs systemic awareness	8
Tension 2: In-depth, discipline-related research skills vs transversal skills	9
Tension 3: Long-term academic tenure vs portfolio careers	10
Tension 4: Eco-inwards vs eco-outwards research ecosystems.....	10
Tension 5: Top-down vs bottom-up funding regimes.....	11
Tension 6: Individualised researcher development pathways vs collaborative, cross-boundary knowledge production	13
Conclusions.....	14

Why it matters?

METEOR responds to a Horizon call topic designed to increase the transversal skills of doctoral and post-doctoral researchers. This basic requirement has been reinforced by METEOR deliverable 2.2: Doctoral Education and Training in Europe. It is worth quoting from this document:

The persistence of academic culture creates a mismatch between doctoral training and stakeholder expectations. Career preparation failures emerge universally, with students consistently reporting inadequate preparation for non-academic careers despite statistics showing that most PhD graduates will not pursue academic positions. Critical gaps exist in entrepreneurship and commercialisation skills, communication for non-academic audiences, and industry integration. (METEOR, 2025, p.5).

METEOR has addressed this problem through a combination of face-to-face events, online interaction and online training resources. Participant reaction has been very positive and our overall impression is that the project has answered a pent-up demand for interaction amongst doctoral students. It should be emphasised that this is not directly a demand for training in the conventional sense. Rather, it is an acknowledgement that the doctoral process is too often located in disciplinary silos. This produces doctoral graduates who have deep specialist knowledge, but who lack experience in the kind of interactions that will potentially be demanded of them in positions outside their disciplinary boundaries. The term “eco-outwards” in the METEOR title refers to the fact that there is a wider ecosystem connecting research and society, as has been acknowledged by the EC in its promotion of Responsible Research and Innovation.

METEOR is thus about creating safe spaces for doctoral students and Early-Career Researchers (ECRs) to experiment with inter- and trans-disciplinary ideas in small group settings. We use the term “peer mentoring groups” (PMGs) to describe their underlying function of bringing people together for mutual support and inspiration. Learning in METEOR is experiential rather than transmissive, although we have provided a wide range of training resources to support the process. The main objective that we have set for the PMGs is to produce Transformative Research and Innovation Proposals (TRIPs) based on real-world problems and deploying a range of disciplinary knowledge(s) based on the composition of the respective PMGs. The process of group formation was intended to maximise inter-disciplinarity and diversity of national background. This was generally successful, although there has been discussion of the use of participant profiles rather than random assignments.

As a research ecosystem, METEOR exemplifies some of the tensions in existing systems and provides a vehicle for discussion and experimentation. These tensions can be summarised as follows:

- In-depth disciplinary knowledge vs systemic awareness
- In-depth, discipline-related research skills vs transversal skills
- Long-term academic tenure vs portfolio careers
- Eco-inwards vs eco-outwards research ecosystems
- Top-down vs bottom-up funding regimes
- Individualised researcher development pathways vs collaborative, cross-boundary knowledge production

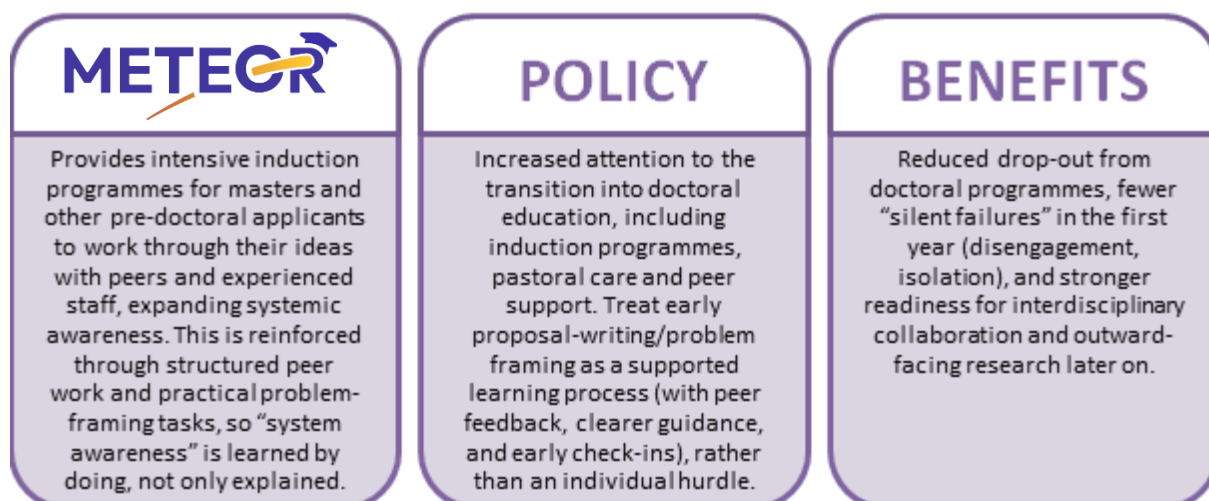
METEOR participants are aware of all these tensions and are therefore better able to deal with them as they move forward. For the purposes of this policy brief, we need to be more speculative as to the possible influence of METEOR on future actions in all five areas of tension.

Tension 1: In-depth subject knowledge vs systemic awareness

The critical moment here is when an individual makes the decision to pursue a specific topic at doctoral level. This decision is subject to a range of influences including potential supervisors, departmental programmes, funding sources, prior academic achievement and informal influences such as peer groups, family and the media. Frequently, but not universally, there is a proposal-writing process whereby prospective doctoral students form their ideas into an outline of their project. However, there is usually a lack of preparation and prior experience related to this process.

In practice, this means that many candidates start from a strong disciplinary interest, but with a more limited “systemic awareness”: how supervision works in reality, what institutional support is available, how time and expectations will be managed, what kinds of stakeholders might matter, and how the project could (or could not) travel beyond the department. This matters because early topic choices and early proposal drafts often set the trajectory for years – and that is before the candidate has had a structured opportunity to test ideas, re-scope, or learn the “hidden rules” of the doctoral ecosystem.

METEOR’s evidence base suggests that addressing this is not only about adding more courses. It also requires early-stage support environments that reduce isolation, make expectations legible, and offer safe channels for feedback and course-correction, especially where supervision quality and institutional support are uneven (Kapanadze, Javakhishvili, Bregvadze, Gurchiani, 2025 D2.2 Doctoral Education and Training in Europe).

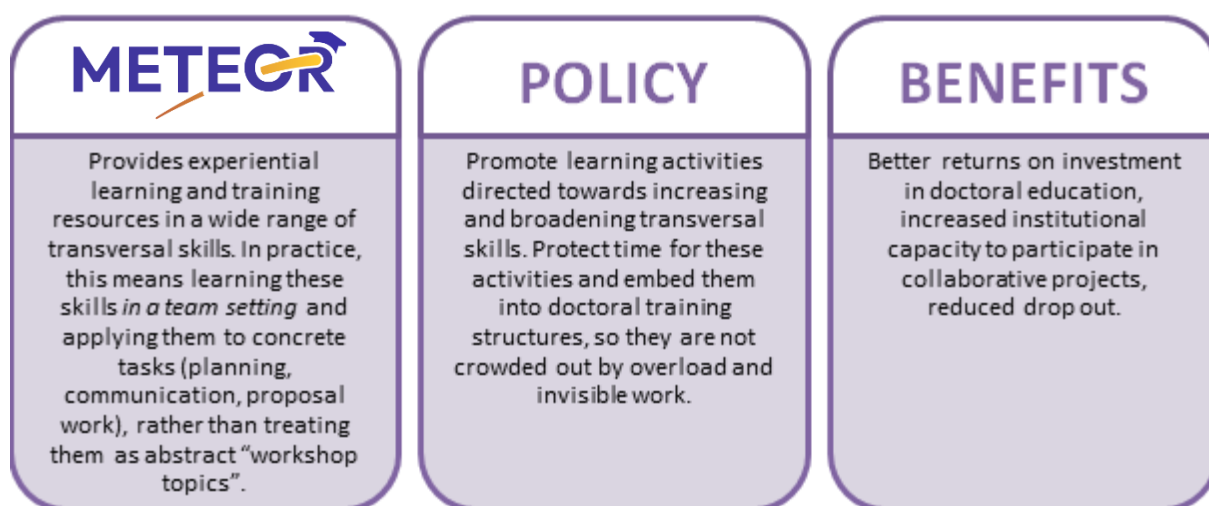


Tension 2: In-depth, discipline-related research skills vs transversal skills

Although discipline-related research skills are essential to the doctoral process, they are of limited use if they cannot be applied in subsequent employment, including further research, teaching and commercial/industrial work. Transversal skills, such as teamwork, collaboration across boundaries, communication and research planning, are necessary to make use of disciplinary knowledge. In some cases, it is these transversal skills that constitute one of the core values of doctoral graduates, in roles where the PhD opens doors to high-level positions unrelated to specific disciplines.

This tension is reinforced by a persistent mismatch between doctoral training and stakeholder expectations. METEOR's state-of-the-art evidence points to recurring gaps in areas such as communication for non-academic audiences, industry/third-sector integration, entrepreneurship/commercialisation, and proposal evaluation and innovation project design – skills that are central to many non-academic and hybrid research careers

The challenge is not simply “adding more training”. It may require careful consideration of time management within doctoral programmes. Our experience indicates that doctoral students are frequently overloaded, perhaps with taught courses or with “invisible work” for supervisors or other faculty. Therefore, activity analysis and consideration of the long-term value of specific tasks would be a priority, in addition to the provision of transversal skill training opportunities, either internally or from projects such as METEOR.



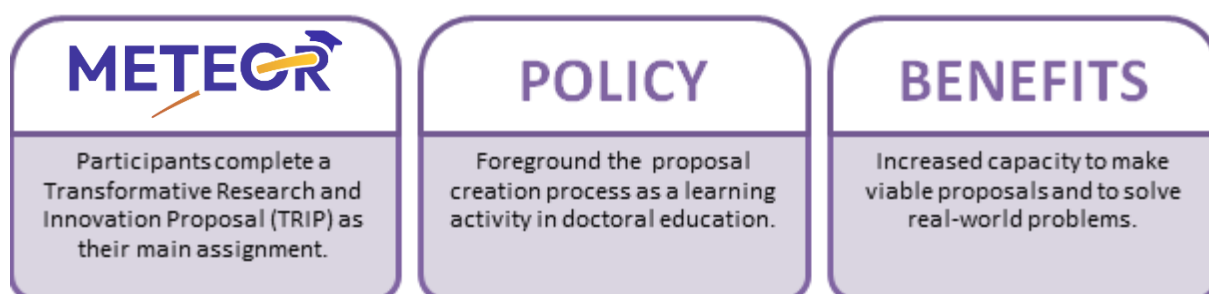
Tension 3: Long-term academic tenure vs portfolio careers

The transition from doctoral student to tenured professor is perhaps the most traditional career path in academia, but is also becoming increasingly challenging due to competitive pressures, including the need to publish and demographic or political challenges to HE. Meanwhile, the global economic, geopolitical and environmental situation increasingly demands solutions to complex challenges. These create a potential demand for versatile, critical and productive thinkers trained to a high level and able to apply their skills to a wide range of problems. The use of traditional assessment methods in assessing doctoral students, especially in the early stages of the PhD, is increasingly inappropriate, whilst the increasing prevalence of “PhD by publication” assessment creates further pressure on both students and the antiquated academic publishing system.

METEOR’s evidence base reinforces the structural side of this tension: across countries, doctoral training remains predominantly academic-focused even though many graduates will pursue careers outside traditional academic tenure pathways. This produces a recurring “career preparation gap”, where graduates often feel underprepared for non-academic contexts and for hybrid roles that combine research with policy, innovation, or organisational work (see Kapanadze, Javakhishvili, Bregvadze, Gurchiani, 2025 D2.2 Doctoral Education and Training in Europe).

The process of preparing, for example, a Horizon Europe application is far more in line with the kind of assessment that would be appropriate in the 21st century. Horizon proposals are intended to be transformative, to address complex challenges and require international and interdisciplinary collaboration. They require attention to the state of the art, to real-world impact and to practical implementation. They are also very competitive and require concentrated effort and critical thinking, along with communication skills, and the ability to bring a team together in pursuit of a significant goal.

This is also why “portfolio careers” are becoming a realistic reference point for doctoral training: careers built across academia, public sector, NGOs, industry, and research organisations, where the value of a PhD depends on combining disciplinary depth with collaboration, communication, project design, and the ability to translate knowledge into usable outputs.



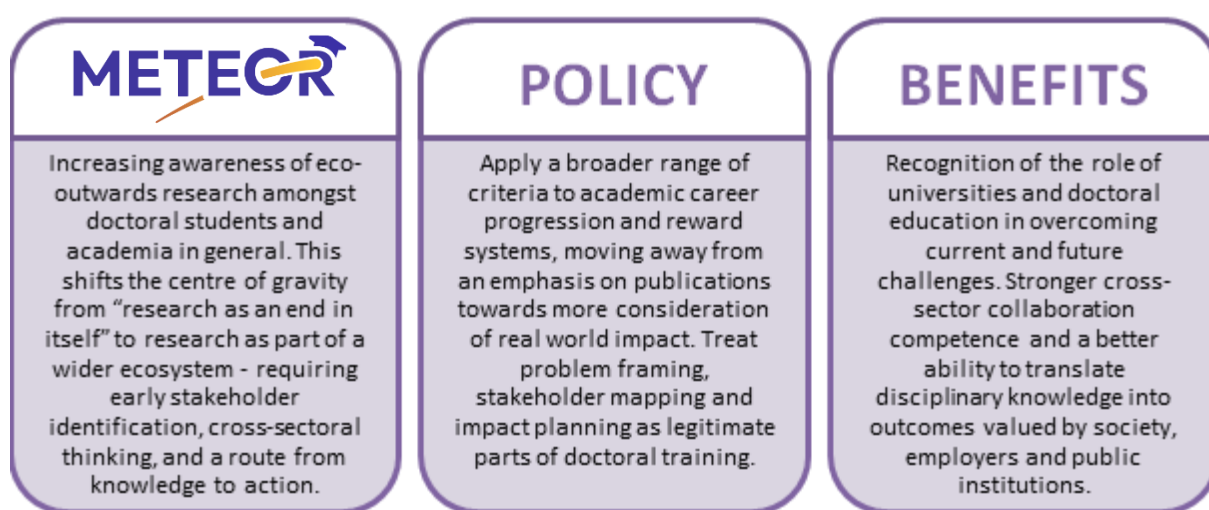
Tension 4: Eco-inwards vs eco-outwards research ecosystems

METEOR is based on the premise that research has traditionally remained within disciplinary boundaries, at least in academia, and tend to pursue knowledge for its own sake rather than as a

means to an end. Whilst we would not argue against academic freedom as such, we believe, in line with the EC's Call Topic, that doctoral students are constrained by the current 'eco-inwards' system and deserve the opportunity and freedom to navigate within a much larger and more significant 'eco-outwards' research ecosystem. This is also in line with, for example, current calls in the WIDERA programme related to the European Research Area. The Horizon programme itself is clearly an eco-outwards system that addresses major societal challenges.

The point here is not to replace depth with breadth, nor to push every doctoral project into immediate "application". This is a creative tension and not a binary choice between two opposing factions in research. We need depth in research as well as breadth in its application. However, the 'great leap forward' is in being aware of the need for an outward facing approach: recognising the wider ecosystem connecting research and society and learning how to work across it – through collaboration, stakeholder engagement, and realistic pathways to impact. Even in disciplines such as philosophy, there are avenues for applying rigorous thought to the major societal challenges mentioned above.

METEOR's broader evidence base also highlights persistent "research-to-practice" translation deficits and stakeholder engagement barriers: graduates may be analytically strong but often lack exposure to application environments and the organisational literacy needed to turn research into usable outcomes (see Kapanadze, Javakhishvili, Bregvadze, Gurchiani, 2025 D2.2 Doctoral Education and Training in Europe). This is exactly the gap that eco-outwards training aims to address.



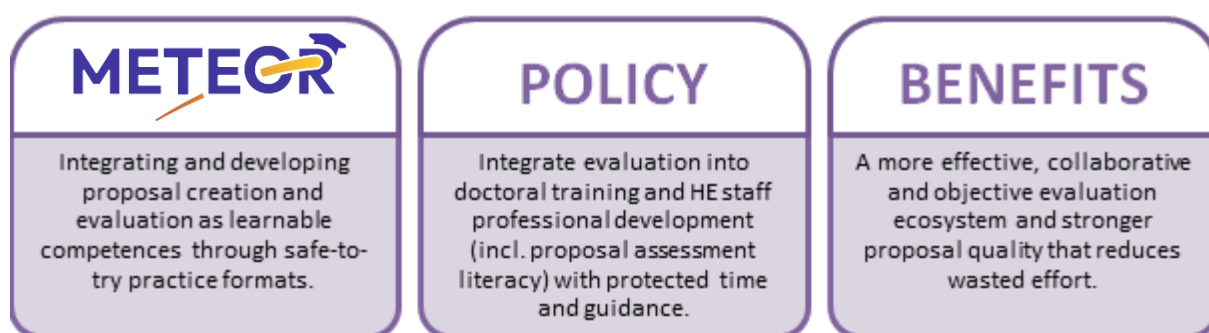
Tension 5: Top-down vs bottom-up funding regimes

The fifth tension is between funding regimes. In "top-down" regimes, problems or research areas are identified, calls for proposals issued and funding allocated based on competitive evaluation. This is the norm, even if in some funding streams, e.g. MSC/ERC grants, there is a degree of freedom in topic choice. In METEOR, we have been experimenting with a 'bottom-up' system in which participants in

peer mentoring groups are free to suggest their own problems or issues to address. There have been internal tensions here between maximising the use of in-group disciplinary knowledge in the first instance and building a common understanding of an issue or problem based on the group's personal values and beliefs. In practice, this is where teams learn whether they can move from “what we care about” to “what we can credibly do together” – a shared problem definition, feasible scope, and a workable pathway to outcomes (see Andersen, Warring, Lau, Martinez, Nokkala, Cakmakci, Louca, 2026 D4.2 Report on the First METEOR Summer School)

This is a common situation in preparing Horizon or other funding proposals. Academics are generally, and understandably, looking for ways to fund their research activities. These are often driven by strong beliefs and positive values, especially in social science and humanities subjects. The critical skill in proposal preparation is to align these beliefs and values with scientific knowledge and practical wisdom in order to develop a viable project. There are often tensions here between the Call Topic, designed to fit into a particular niche for reasons of policy and bureaucracy, and the overall desire of the group to solve a specific problem or address a particular challenge. Proposal writing therefore becomes not only a technical exercise, but a process of translation: between values and evidence, between disciplinary depth and implementation realities, and between what funders ask for and what teams want to achieve.

The tension here is not so much between who initiates the process, as between competition and collaboration. In METEOR, we are emphasising collaboration, and are opening up the possibility of inter-group collaboration in order to assemble more powerful proposals and better solutions (see Andersen, Warring, Martinez, Nokkala, Lau, Cakmakci, Louca, 2026 D4.2 Report on the First METEOR Summer School). We know that in Horizon, for example, huge amounts of effort are expended on writing viable proposals which are not funded. Whilst there would be many obstacles to eliminating this waste, the real issue is the challenges themselves, and sustainable, long-term solutions. A practical response is to treat proposal creation and evaluation as learnable competences, so that more effort goes into stronger problem framing, smarter collaboration, and better-quality proposals, rather than repeated “one-off” competitive drafting.



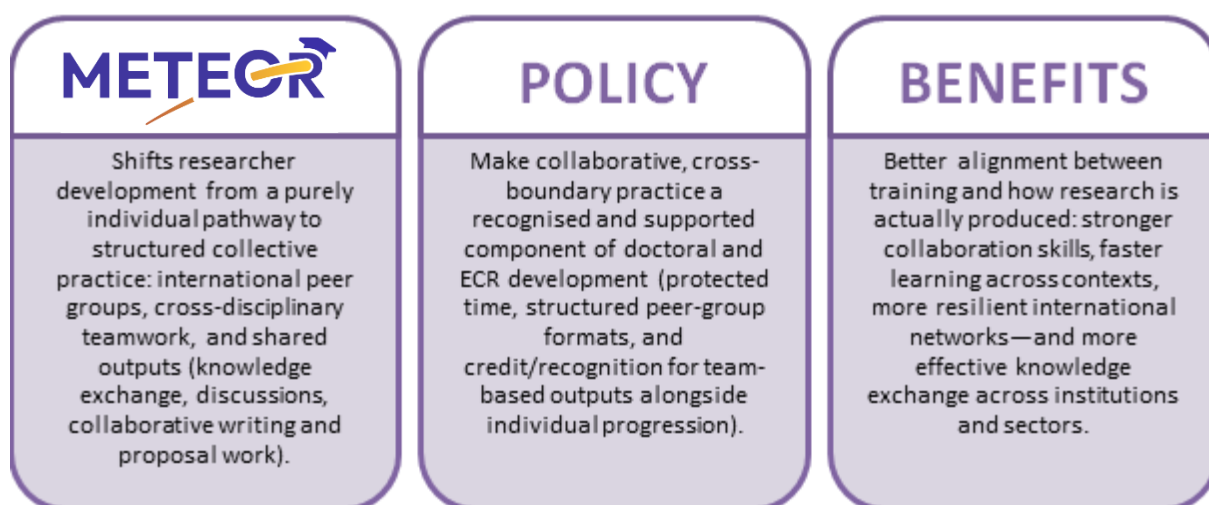
Tension 6: Individualised researcher development pathways vs collaborative, cross-boundary knowledge production

A persistent assumption in doctoral education and early career researcher (ECR) development is that progression is primarily an individual journey. Training structures, supervision models, and career development frameworks are still largely organised around the idea of the autonomous researcher building expertise within a defined disciplinary and institutional pathway. Even where cohort-based activities exist, progression is typically assessed and supported at the level of the individual (see Kapanadze, Javakhishvili, Bregvadze, Gurchiani, 2025 D2.2 Doctoral Education and Training in Europe).

In practice, however, contemporary research increasingly depends on collaborative, interdisciplinary, and internationally connected forms of knowledge production. This creates a tension between individualised development pathways and the collective nature of how research is now conducted and communicated. Early career researchers are often expected to demonstrate independent capability while simultaneously contributing to co-authored outputs, cross-institutional teams, and rapidly forming project-based collaborations. The result is a mismatch between how researchers are trained and how research is actually performed.

METEOR addresses this tension by deliberately shifting the unit of development from the individual to the collective, without removing individual learning trajectories. Through structured international networking, cross-disciplinary teamwork, and shared outputs such as blogs, online café discussions, thematic articles, collaborative knowledge exchange, and participation in bid proposal development, participants experience research as a socially distributed practice rather than a solitary progression (see Andersen, Warring, Martinez, Nokkala, Lau, Cakmakci, Louca, 2026 D4.2 Report on the First METEOR Summer School). As one participant reflected, the value lay not only in intellectual exchange but in encountering different research cultures and constraints: “The diversity of people, countries, disciplines, and roles was rich... it challenged my assumptions and helped me think more broadly about research design, ethics, and practice.”

At the same time, this collaborative model surfaces new challenges. Uneven access to mentoring, differences in institutional support, and variations in engagement structures can disrupt collective continuity and highlight inequalities within international research ecosystems. Nevertheless, while recognising the importance of individual academic progression, METEOR creates structured opportunities for researchers to develop through collective practice. In doing so, it supports a model of researcher development that values both individual trajectories and the collaborative capacities increasingly required in contemporary research ecosystems.



Conclusions

The enthusiasm of METEOR participants for meeting peers, sharing knowledge and developing ideas is powerful and encouraging. Bringing METEOR practices into the mainstream of doctoral education is not without challenges, but these do not necessarily require major new funding or extensive restructuring of curricula or staffing. Rather, they call for a more open and supportive approach to the doctoral process: protecting time for alternative forms of learning, creating structured peer support, and strengthening proposal-creation and evaluation literacy as part of doctoral training and staff development. At European level, our results contribute to ongoing efforts to strengthen the European Research Area and to programmes such as Horizon Europe, by supporting collaboration-oriented and challenge-driven research cultures. At institutional level, these practices can support recruitment and retention and improve research quality and relevance through stronger collaboration and clearer pathways to impact. At individual level, they can strengthen competence and confidence, support wellbeing, broaden career options and expand professional networks. The trade-offs are manageable, and the potential gains – for researchers, institutions and research ecosystems – are substantial.