amU
Aix Marseille Université

Self-assessment grid

to improve the way interdisciplinarity is considered in a research project

MISSION FOR INTERDISCIPLINARITY
OBSERVATORY OF INTERDISCIPLINARY PRACTICES

amU Aix Marseille Université

amidex Aix Marseille Université

FRANCE 2030

Inter disciplin arity

The objectives of the Mission

1 To share a comprehensive approach to interdisciplinarity adapted to AMU, by creating synergies between transformative projects and interdisciplinary strategy.

2 To address structural barriers to interdisciplinarity by implementing specific proactive actions and an integrated approach, by experimenting with facilitating and encouraging practices.

3 To provide concrete support for the implementation of interdisciplinary projects, in particular by exploring specific axes linking science and society, and by defining milestones and tools for evaluating and measuring the impact of interdisciplinary integration.

4 To capitalize, model, enhance and disseminate good practices within AMU and among our partners.

This work has been carried out thanks to the support of the grant **n° ANR-20-IDES-0003** funded by the French Government «**Investissements d'Avenir**» program and managed by the National Research Agency

Mission for Interdisciplinarity

Maryline Crivello
Vice-President of the Board of Directors
University lecturer - Historian
In charge of the Mission for Interdisciplinarity and cultural policy

Flore Nonchez
Project Manager - Mission for Interdisciplinarity

www.univ-amu.fr
mint-contact@univ-amu.fr

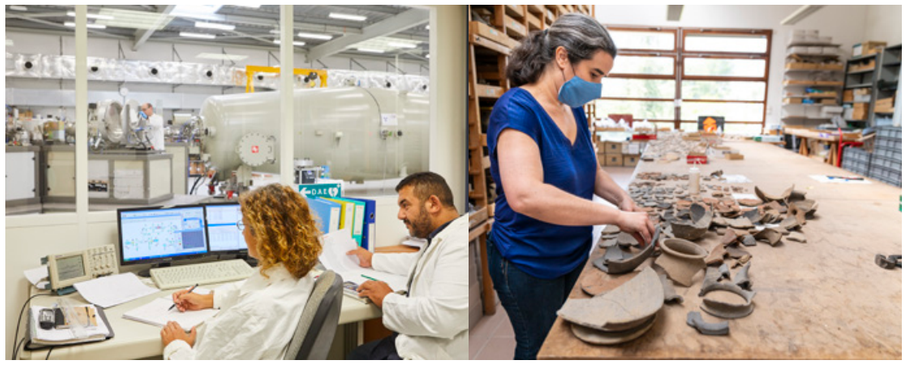
A self-assessment grid

to improve the way interdisciplinarity is considered in a research project

The following grid is designed to help project leaders to systematically consider the specific interdisciplinary aspects of an interdisciplinary research project from the conception phase onwards.
Presented in the form of a checklist, it is not intended to replace an external viewpoint, but to raise awareness among project sponsors and the research teams involved, so as to put them into **'interdisciplinary project mode'** with a view to ex ante reflection and an integrated approach.

The aim of the approach is to improve the way in which interdisciplinarity is applied, from the design of the research project to the exploitation of its results. An interdisciplinary research project, because of its intrinsic complexity, the investment it requires and the diversity of the resources it mobilizes, but also because it is assessed by disciplinary experts with a knowledge of interdisciplinarity, requires **greater methodological rigor** and a **'double standard'** (disciplinary and interdisciplinary) if it is to be credible and ultimately successful.
The pitfalls are numerous, so formalization is essential and any approximation is to be avoided, even more so than for a disciplinary project or one where interdisciplinarity is not central to solving the research problem.

This grid has therefore been designed to give all researchers, whatever their original discipline or experience of interdisciplinarity, the keys to re-reading their interdisciplinary project in order to clarify its formulation, enrich its description, maximize its relevance, facilitate its implementation (by anticipating possible difficulties) and enhance its impact. For promoters responding to external calls for interdisciplinary projects, it is a tool to improve the quality of their proposals, make them more convincing and thus increase their chances of being selected. It is the **first tool produced by the Observatory of Interdisciplinary Practices** of AMU Mission for Interdisciplinarity.



Greater methodological rigor

Guide project leaders step by step

Its design is based on a critical re-reading of a number of projects submitted by institutional institutes in response to the AMidex 2021 call for interdisciplinary projects (CFP).
This review, which was welcomed by the project leaders concerned, has been used to translate the selection criteria for this call, listed in the first column, into a checklist of questions applicable to any type of interdisciplinary research project, in order to **guide project leaders step by step in the implementation of an integrated approach (mainstreaming) of interdisciplinarity.**

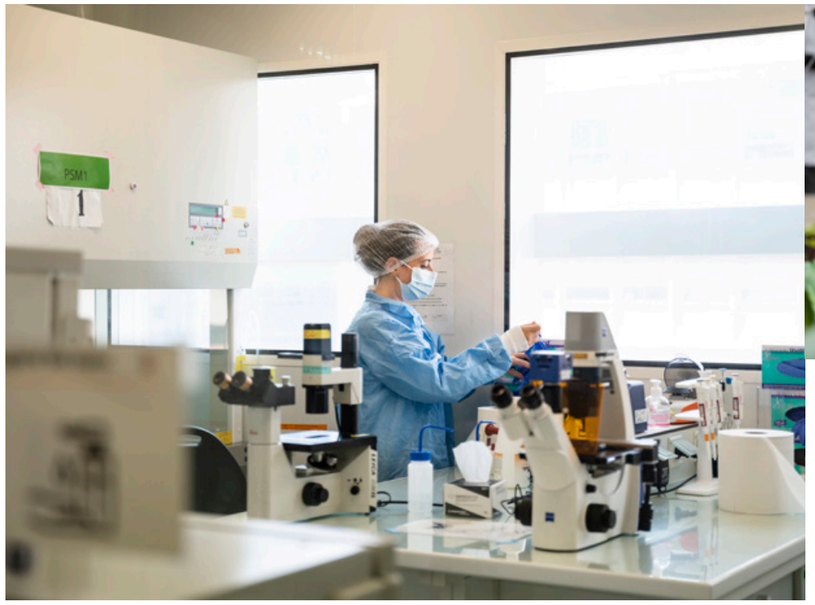
These questions, listed in the second column of the grid, have been examined using an empirical approach based on a combination of theory and practice: documentary study (literature review on the specific characteristics of interdisciplinary research), observation and qualitative analysis (weaknesses or inconsistencies that were the subject of recommendations when projects were re-read, expert assessments of a sample of projects), testing of the grid and validation of its operability by researchers from different disciplines with varying degrees of experience in the practice of interdisciplinary research. A third column lists a number of useful references and resources for those wishing to learn further.

Its starting point is the definition of interdisciplinary research given by the sociologist Anthony Giddens (1991): *«Interdisciplinary research is 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 or field of research practice».
This definition works for any type of research project; however, it remains generic.

This is why we have added a questioning and appropriation phase upstream of the project design phase, so that project leaders can ask themselves questions about this definition and apply it to their own field. This strategic self-positioning is conceived as a prerequisite for action, because it enables the interdisciplinary team to come together around the co-definition of key concepts and principles, and to share a common base in terms of language and argumentation, by clarifying the meaning of the interdisciplinary approach.

The OECD (2020) defines transdisciplinary research projects as follows: *«Transdisciplinarity is a mode of research that integrates both academic researchers from unrelated disciplines - including natural sciences, social sciences and humanities - and non-academic participants to achieve a common goal involving the creation of new knowledge and theory.*



*Drawing on the **breadth of scientific and non-scientific knowledge domains**, such as local and traditional knowledge, and cultural norms and values, it aims to complement and transform scientific knowledge for the benefit of society. It cuts across the traditionally separate domains of science and practice, advancing both simultaneously.»*
Participatory sciences - which play a key role in research - are seen (particularly by the ANR) as the first step towards transdisciplinarity. In fact, they are collaborating on a research object that remains effectively constructed by the

Enabling the interdisciplinarity team to come together

Implementaing collective intelligence processes

academic sector. The checklist below is not precisely adapted to the specificities of this type of project, whose complexity is increased by the often-divergent interests of non-scientific stakeholders, but it could be adapted to transdisciplinary projects involving non-academics, which seems essential to strengthen their societal impact and its measurement, particularly in the field of sustainability sciences.

As far as the peer review of the project is concerned, since interdisciplinary integration is a question of mutual understanding and the implementation of collective intelligence processes, the ideal way to grasp its reality and added value is to bring together a multidisciplinary collegiate body, trained in the challenges of interdisciplinarity and made up of interdisciplinary practitioners. If this is not possible, the assessment should be entrusted to two assessors from the disciplinary fields involved in the project, with recognized excellence in their discipline and with proven practical experience of interdisciplinarity (coordination of interdisciplinary projects, participation in interdisciplinary bodies, etc.), enabling them to assess the scientific interest and quality as well as the interdisciplinary added value of the project («T-shaped researchers» profile). This is what has been recommended and implemented for the evaluation of projects submitted to the AMidex Interdisciplinarity 2021 call. In the case of very divergent opinions, it is recommended that the two evaluators be put in contact with each other so that they can work together to produce a consensus report.

ASSESSMENT CRITERIA	QUESTIONS TO ASK YOURSELF	USEFUL REFERENCES/ RESOURCES
0 - PHASE OF QUESTIONING AND APPROPRIATION [Situational analysis, preliminary reflection]		
▶ How are we positioned in relation to Giddens' definition («Interdisciplinary research is 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 specialised knowledge to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline or field of research practice»)? Individually and collectively? Conceptually and practically? In terms of knowledge and experience of the disciplinary backgrounds within the scope of our research?		
▶ What is our own definition of interdisciplinarity and what are our positions on it? Are we talking about endogenous/close interdisciplinarity, or exogenous/wider interdisciplinarity? What are our strengths and weaknesses? What are our expectations regarding this interdisciplinary approach, and what are our motivations and barriers? In the light of this assessment, can we formulate our interdisciplinary research strategy and priorities in a few words?		
1 - DESIGN PHASE Quality and ambition of the interdisciplinary research project and team [relevance]		
▶ **Interdisciplinary nature of the project for the Aix-Marseille site** involving several disciplinary field ;	☒ Is the interdisciplinary nature of the project clearly spelled out and the issues clearly formulated, whether the interdisciplinarity that characterizes it is endogenous ('close') or exogenous ('wider')?	*To identify the disciplines and sub-disciplines required:* *https://aurehal.archives-ouvertes.fr/domain/*
	☒ Are several disciplinary fields involved, or at least (in the case of endogenous interdisciplinarity) several sub-disciplines identified?	*To reflect on the positioning of the disciplines involved according to their epistemological characteristics, on disciplinary hospitality and on the difficulties in terms of inter-comprehension within the team that need to be anticipated :* *https://oro.open.ac.uk/31071/1/42-239-1-PB.pdf*
▶ **Definition of interdisciplinarity** provided by the project leader and **relevance of the combination of disciplines mobilized** with regard to the project's objectives;	☒ Are the disciplines involved sufficient in quantitative and qualitative terms (scientific excellence of the teams) to respond appropriately to the subject, the question and the research hypotheses and challenges presented?	
	☒ Is the expected role of each discipline in meeting the challenges of the project specified? Is this combination clearly justified as a sine qua non for innovation on a subject at the interface of the disciplines involved? If societal challenges are involved, are they clearly formulated and how will they be addressed?	*The societal challenges of the CNRS:* *https://www.cnrs.fr/fr/nos-defis/defis-societaux*
▶ **Innovative approach;** scientific boldness and resolution of new issues through interdisciplinarity;	☒ Have the interdisciplinary issues raised by the project leader been formulated collectively by the team, through mutual questioning between the disciplines involved? Is it based on a common vision of the project and on a mission shared by the participating disciplines, i.e. a genuine integration of disciplinary knowledge and methods, in order to answer the research question? (and not on an artificial juxtaposition of the 'interdisciplinary washing' type, with a hierarchization or instrumentalization of certain 'minor' disciplines) Have the objectives been defined and prioritized collectively in order to integrate all their disciplinary dimensions?	*A compass for examining the interdisciplinary features of the project:* *https://www.cairn.info/revue-natures-sciences-societes-2015-4-page-399.htm*
▶ **Quality and suitability of the interdisciplinary team** defined for the project (particularly experience of similar projects and knowledge of interdisciplinary issues).	☒ Is the scientific originality of the project well justified and situated in an international context, and does the state-of-the-art show that the interdisciplinary combination is original and relevant in its own right and not just at local level (collaborations or opportunities that are new here but not elsewhere)?	*5 principles to encourage interdisciplinary research (in particular the contribution of 'T-shaped researchers' according to Brown et alii, 2015):* *https://www.nature.com/articles/525315a.pdf*
	☒ What complementary disciplinary skills does the team bring together? Does this expertise cover all the questions raised by the research project? What experience does the team have, individually or collectively, of interdisciplinary and/or intercultural projects on similar themes, a key success factor to be highlighted in particular by describing the profile of the PI(s), their training, their career, their references and publications, the multidisciplinary structure to which they belong, their collaborative networks, etc.?	*Pitch summarizing the project (identity card) + diagram showing its interdisciplinary added value*
	☒ Is the project contextualized, i.e. how does it fit into the institute's (and/or research unit's) interdisciplinary strategy, and to what extent does it benefit from and contribute to this? Are the strategies of the institution, its supervisory bodies, the Mission for Interdisciplinarity, etc. mentioned (favorable ecosystem, institutional support for the project, help with implementation, resource center, etc.)?	

2 - IMPLEMENTATION PHASE Methods of implementation and structuring of the work plan to facilitate interdisciplinary co-production [coherence, efficiency]		
▶ **Ability to develop** interdisciplinary approaches in line with the **work plan**;	☒ How do the disciplines involved in the team pool their resources and integrate their work in a spirit of interdisciplinary co-production? For example, are the objectives and work packages presented (in a Gantt chart or other chronogram) in an integrated and collaborative way, or are they juxtaposed?	*Timeline summarizing the work plan, showing the interdisciplinary co-production of the Work Packages, and including progress meetings and project management*
▶ **Quality and coherence of the project** (defined program of activities, description of activities and resources, of the organization of the project, of its management over time, of the tools put in place to encourage interdisciplinary integration and its measurement).	☒ Interdisciplinary work takes time, especially in exogenous interdisciplinary projects or projects that bring together a wide range of heterogeneous disciplines in the Becher-Biglan sense. How does the project integrate interdisciplinarity into its timetable? Is the duration of the project sufficiently extended (to the maximum allowed by the CFP)?	*Action sheets for each work package (SMART)*
	☒ Interdisciplinary work also requires ad hoc project management. Are regular meetings planned to provide a framework (terminology, methods, etc.) and for interdisciplinary coordination? Is the Action Plan flexible and agile enough to include new orientations or even other disciplines by capillary action in the consortium if this proves necessary? If so, how? Is a risk analysis (identification of «warning points») included?	*Collective intelligence tools (for use in all phases):* • *Metaplan :* *https://www.facilitations.org/wp-content/uploads/2014/02/Guide-pratique-les-regles-de-la-methode.pdf*
	☒ What is the role of the PI(s) and the recruited staff (postdocs, PhD students, trainees, etc.) in the overall management of the project and within the work packages to facilitate interdisciplinary collaboration? Is support provided by a 'facilitator' at key stages?	• *Principled negotiation:* *https://i2insights.org/2022/11/15/principled-negotiation/*
	☒ Are key stages with indicators (for achievement, results, measuring integration) included in the work plan and are interdisciplinary deliverables mentioned? Particularly in the case of close (endogenous) interdisciplinarity or a project with a high TRL, special attention should be paid to this implementation phase with regard to the hybridization of heterogeneous concepts, methods, approaches, tools, data (reflection on the DMP) and techniques: is it well described and clearly linked to the scientific questions, or does the content remain approximate?	• *Participatory scenario planning:* *https://i2insights.org/2022/12/06/participatory-scenario-planning/*
		• *TD-Net toolbox:* *https://naturalsciences.ch/co-producing-knowledge-explained/methods/td-net_toolbox*
3 - DEVELOPMENT PHASE scientific results expected from the interdisciplinary approach [effectiveness, impact]		
▶ **Potential contribution of projects to the ecosystem,** clarity of expected interdisciplinary contributions and results;	☒ Are the outputs, outcomes and expected impacts of the project specified? • In terms of new scientific knowledge produced by/for each discipline involved and interdisciplinary innovation (tools, techniques, data, methods, concepts... cf. Giddens definition)? • In terms of institutional and structural impact and collective capacity building (at the level of the research units/institutes/teams involved, e.g. recruitment, organization, new skills, pedagogical feedback, link with training, creation of a GDR, etc.)? • In terms of individual capacity building and impact on the careers of team members? • In terms of societal and territorial impact and transdisciplinarity, i.e. cooperation with non-academic actors (support to policy-making, etc.)? • In terms of leverage for other funding and improvement of the competitiveness and scientific reputation of the location (e.g. new international collaborations, inclusion in national or European research networks and infrastructures such as COST actions, etc.)?	*Examples of interdisciplinary networks :* *https://www.horizon-europe.gouv.fr/les-actions-cost-30225 ;* *https://www.belmontforum.org/*
▶ **Improved position of Aix-Marseille site projects** in national, European and international interdisciplinary programs.	☒ If impact is the objective, is there at least a brief description of the baseline situation, and are there plans to analyze it at the start of the project in order to measure impact at the end (possibly through an external evaluation if not carried out by the operator)?	*Examples of interdisciplinary journals: generalist journals* • *Nature & Science*
	☒ Is capitalization through the production of interdisciplinary approaches and integrated tools or methods an explicit objective of the project? Many questions have been asked, but have possible answers (scenarios) been outlined to give the evaluators an idea of the potential contributions of the project?	• *PLOS One*
	☒ Are publications planned, in particular in interdisciplinary journals or in journals from disciplines other than that of one or more co-authors? Are there plans to present papers at interdisciplinary conferences or symposia? Or at disciplinary symposia involving team members from other disciplines?	• *IIS - Issues in Interdisciplinary Studies (journal of the Association for Interdisciplinary Studies)* *https://interdisciplinarystudies.org/issues/*
	☒ Are other calls for projects being considered (national or European, chairs, etc.)? What further work is planned on this or related topics, from a disciplinary or non-disciplinary point of view?	• *JIMIS – Journal of Interdisciplinary Methodologies and Issues in Science (CNRS)...* *https://jimis.episciences.org/*

amU
Aix Marseille Université

Follow us univ-amu.fr

Cover design : Jaune Sardine
Photo : Jean Fondacci & Shutterstock.com