



# CATALISI

Catalysation of institutional transformations  
of Higher Education Institutions through  
the adoption of acceleration services

## **“Predictive Studies on Transversal Skills Development: Preparing Young Researchers for the Dynamic European Labour Market” and its potential as Acceleration Service for HEIs**

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**5<sup>th</sup> March 2025**



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# The Predictive Study

## *Introduction*

The **Predictive Study** serves as an **acceleration service**, helping institutions **reshape researcher training** to match future labor market needs.

Focuses on **R1 (PhD candidates)** and **R2 (postdoctoral researchers)** to ensure **career adaptability** and **impact-driven research**



# Predictive Study

*Aim and Objective*

## AIM

**To anticipate future transversal skill needs** and align doctoral training with employer demands.

## Objectives

### Assess the current situation:

Understanding researchers' current transversal skills

**Forecast the future competencies:** Predicting **skills that will be crucial in future research careers**

### Identify employer mismatches:

Comparing **researcher self-assessment vs. employer expectations.**

**Provide recommendations:** Helping HEIs **implement new training strategies**

# Predictive Study

## *Methodology*

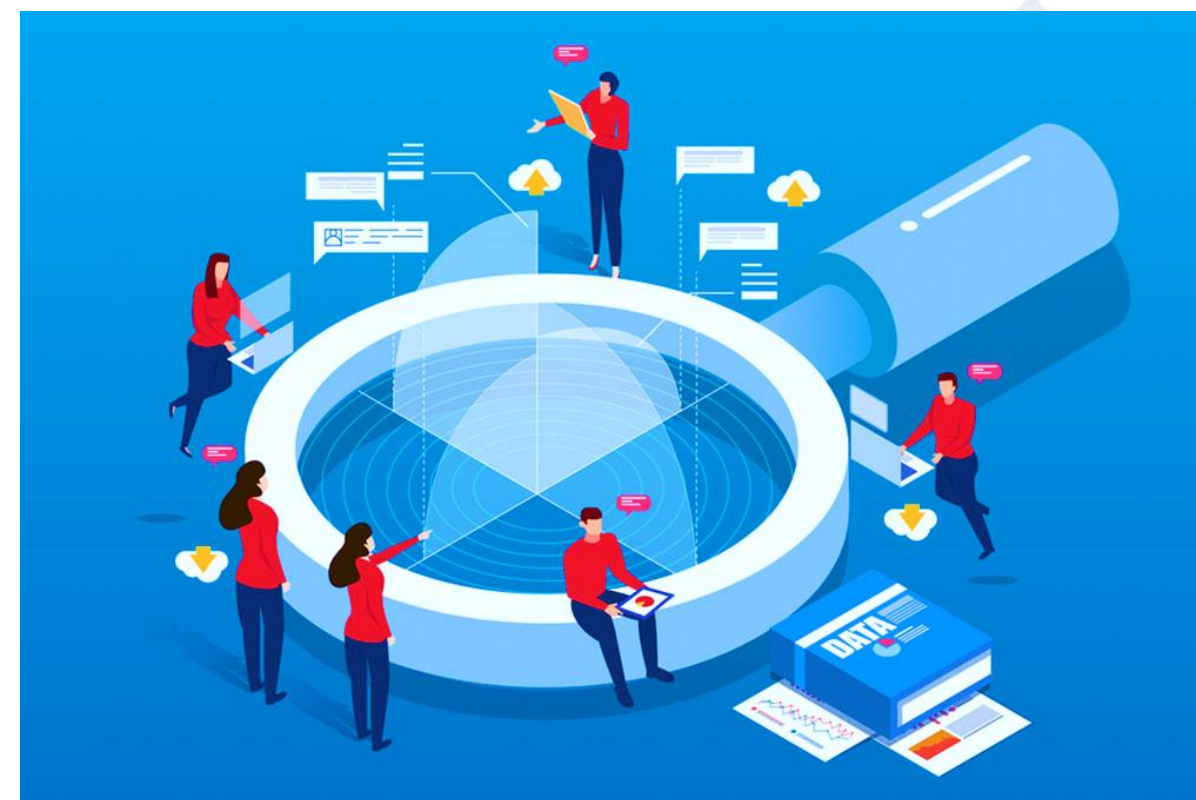
**Surveys** – **1,701 researchers** (R1 and R2) participated, **843 completed responses** were used for in-depth analysis.

Respondents from over 140 universities across 21 EU countries

**Employer Insights** – Surveys and interviews with **academic leaders (45 vice rectors)** and **industry representatives**.

**Text Mining of Job Postings** – Analyzed industry trends and skill requirements.

**Validation and Bias Control** – The survey was **pilot-tested** to ensure reliability.



# ResearchComp

## Overview

**Cognitive Abilities** – Critical thinking, problem-solving.

**Self-Management** – Adaptability, resilience.

**Working with others** – Collaboration, communication.

**Doing Research** – Data analysis, scientific methodologies.

**Managing Research**– Project planning, funding.

**Managing Research Tool** – Digital and AI literacy.

**Impact Creation** – Open Science, public engagement.





# Frameworks and Policies Supporting Transversal Skills

## *Additional European Policies and Frameworks*

- European Charter & Code of Conduct
- Digital Competence Framework for Citizens
- EntreComp Framework (Entrepreneurial Competencies)
- Open Science & Responsible Research and Innovation (RRI)
- Marie Skłodowska-Curie Actions (MSCA) Competency Framework



### **The European Code of Conduct for Research Integrity**

REVISED EDITION 2023



### **EntreComp: The Entrepreneurship Competence Framework**



**Marie  
Skłodowska-Curie  
Actions**

# Predictive Study

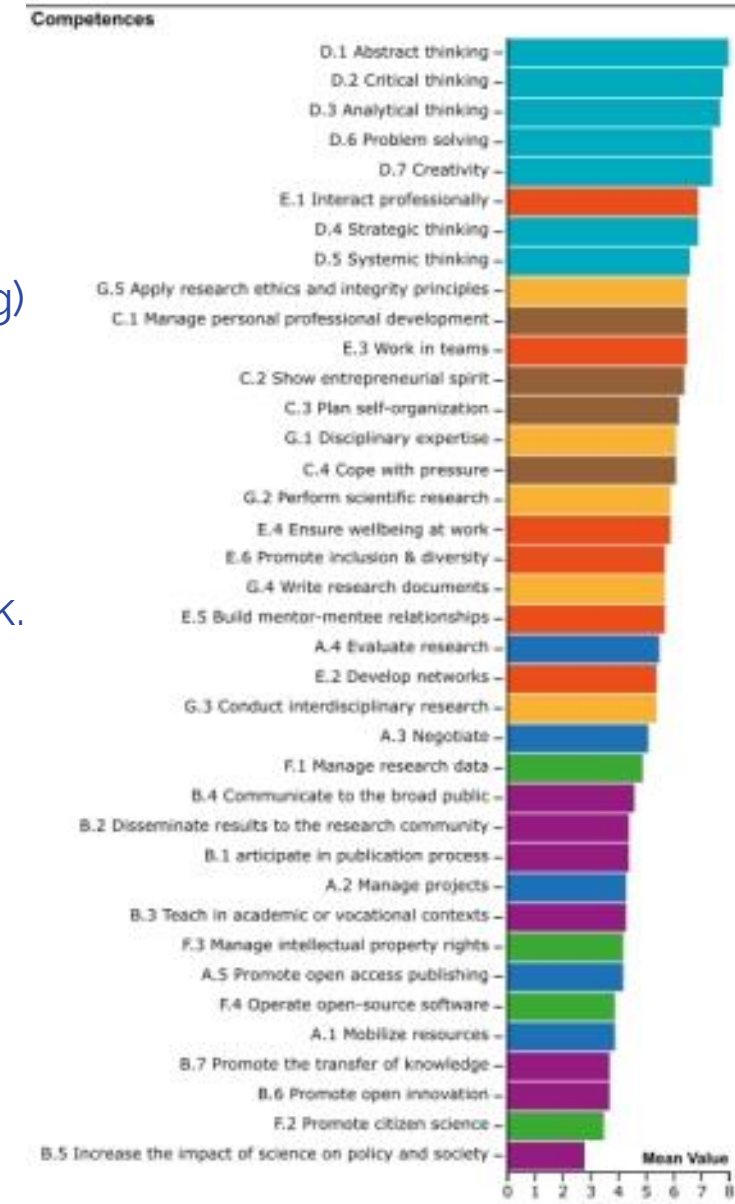
## Findings – Current Situation

### Strengths Identified

- Researchers excel in **cognitive abilities** (critical thinking, problem-solving)
- Strong competences in **research execution** (methodologies, data collection, analysis).

### Key Skill Gaps

- **Teamwork & Collaboration** – Limited experience in interdisciplinary work.
- **Project Management & Leadership** – Lack of structured training in managing research projects.
- **Entrepreneurial & Innovation Skills** – Little exposure to funding, commercialization, and research valorization.
- **Digital & AI Competencies** – Limited proficiency in open science, AI-driven tools, and data management.



## Predictive Study

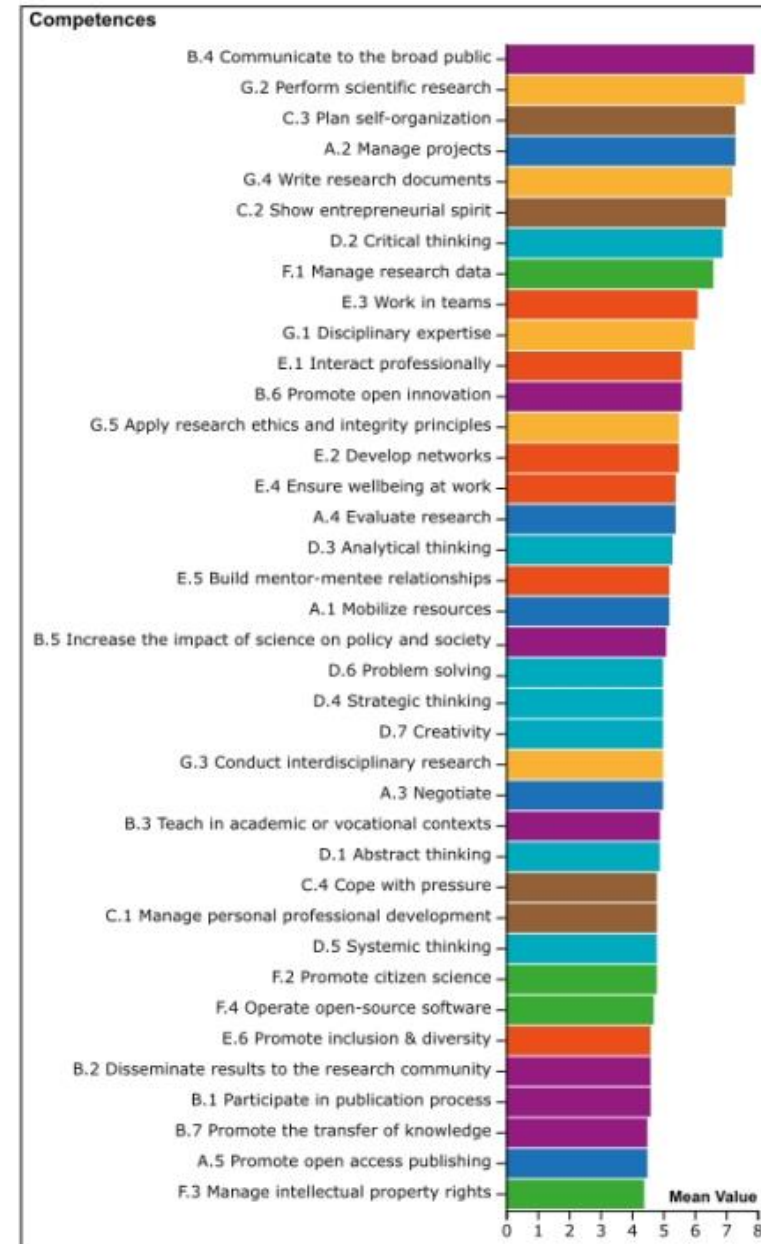
### *Mismatch Between Employer Priorities vs. Researcher Self-Assessment*

#### Employers prioritize:

- Project & Stakeholder Management
- Interdisciplinary Collaboration
- Public Science Communication & Policy Engagement

#### Researcher self-assessment:

- Stronger in disciplinary expertise and technical research.
- Underestimate the need for collaboration, leadership, and communication.



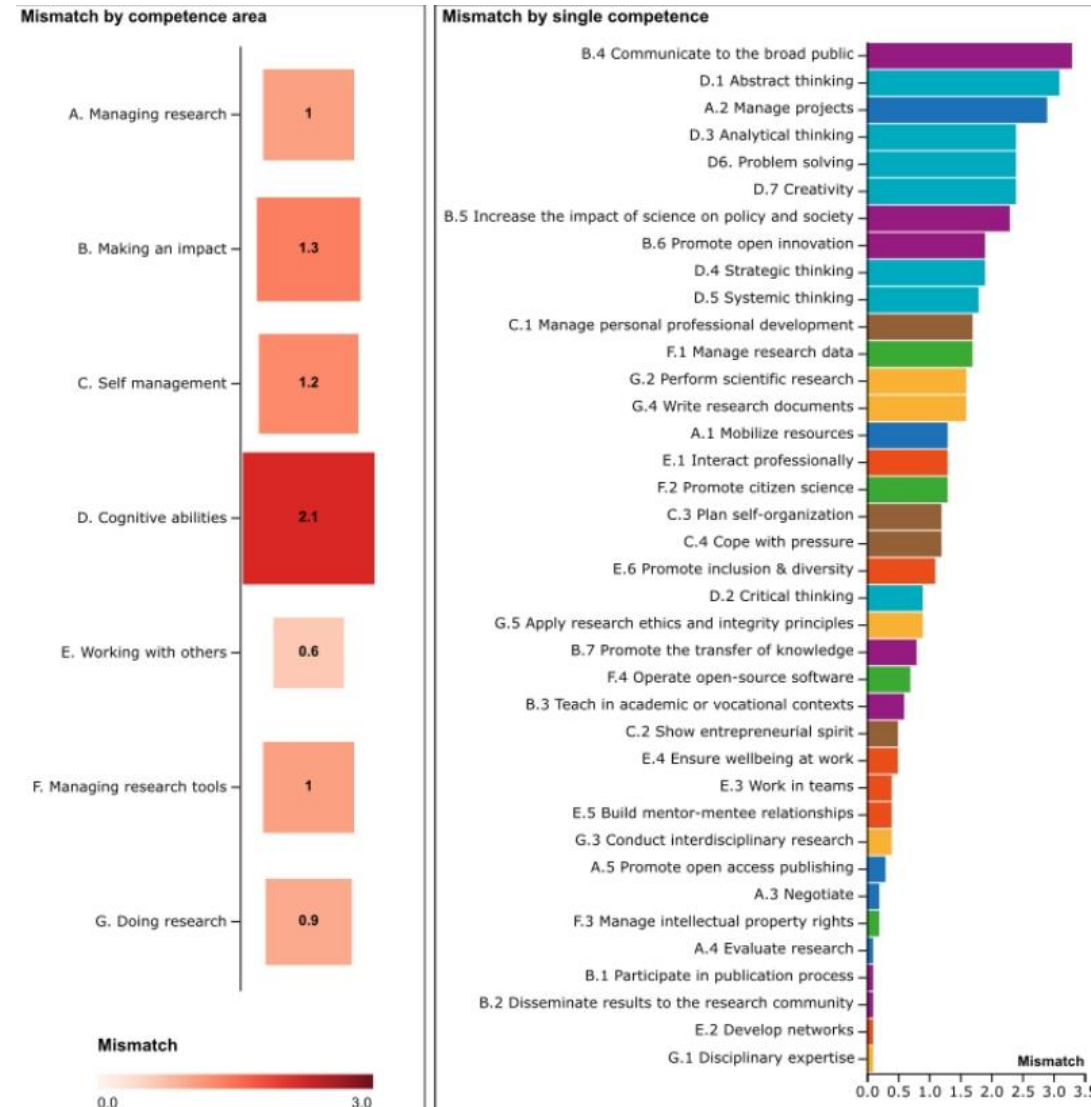


# Predictive Study

## Mismatch Between Employer Priorities vs. Researcher Self-Assessment

### Notable Gaps:

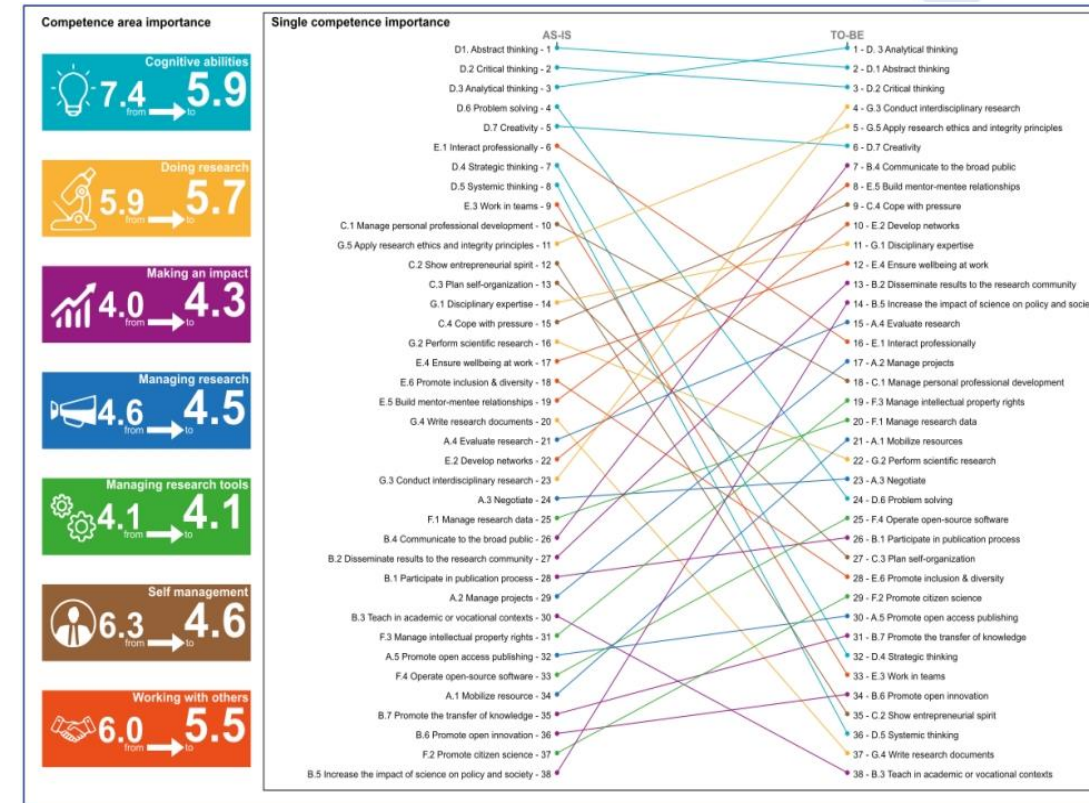
- Writing Research Documents: Researchers rate themselves lower than employer
- Interdisciplinary Research: Employers see this as more critical than researchers do
- Project & Stakeholder Management: Researchers underestimate its importance



# Predictive Study

## Shifting Researcher Competence Priorities Over the Next 5 Years

- **Cognitive Abilities** ↓ – Expected decline in importance (7.4 → 5.9) as AI and interdisciplinary collaboration become more prominent.
- **Self-Management** ↓ – Major decrease (6.3 → 4.6), possibly due to better institutional support structures.
- **Working with Others** ↓ – Reduced emphasis (6.0 → 5.5), suggesting a shift towards more specialized collaborative skills.
- **Doing Research** ↓ – Slight decline (5.9 → 5.7), reflecting an increasing focus on research impact rather than the process.
- **Managing Research (Stable)** – Minor change (4.6 → 4.5), indicating continued relevance of project management.
- **Managing Research Tools (Stable)** – No change (4.1), showing the ongoing importance of technological proficiency.
- **Making an Impact** ↑ – Increase in importance (4.0 → 4.3), highlighting a shift toward societal and policy engagement.



# Predictive Study

## *Future Competences*

### Essential Competences for Future Researchers

- **Digital & AI Literacy** – Mastery of AI-driven research tools, big data, and automation.
- **Entrepreneurial & Innovation Skills** – Competence in securing funding, research commercialization, and technology transfer.
- **Interdisciplinary & Cross-Sectoral Collaboration** – Ability to work across fields and sectors.
- **Policy & Public Engagement** – Active participation in science policy discussions, Open Science, and public dissemination.

### Future Competences Demands by Sector:

- Advanced Digital Skills – **AI proficiency and automation in research**
- Quality Management – **Ensuring research reliability and reproducibility**
- Motivation – **Enhancing researcher engagement and perseverance**
- Work Ethic – **Commitment to ethical, responsible, and diligent research**
- Data Visualization – **Communicating complex research findings effectively**
- Green Skills – **Integrating sustainability and environmental awareness into research**

# Recommendations

*Recommendations for HEIs and Policymakers*

## Integrating Transversal Skills in PhD & Postdoc Training

- Incorporate **structured coursework** on leadership, teamwork, and digital skills.
- Expand **mentorship and career guidance programs**.

## Enhancing Academia-Industry-Policy Collaboration

- Develop **joint training programs** with industry partners.
- Establish **co-supervision models** (one academic, one industry/policy expert).

## Strengthening Digital & AI Training

- Offer **mandatory AI and data science modules** in PhD programs.
- Train researchers on **Open Science and FAIR data principles**.

## Fostering Researcher Mobility & Career Transitions

- Expand **internships and knowledge-transfer programs** between academia and industry.
- Support alternative career paths in **policy, entrepreneurship, and innovation sectors**.





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# Thank you!



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