



# Incentives and Skills: Focus on Research Talent

Mutual Learning Exercise on Knowledge Valorisation - Focus on Skills, Intersectoral Cooperation and Incentive Systems

*Second thematic report*

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## **Incentives and Skills: Focus on Research Talent. Mutual Learning Exercise on Knowledge Valorisation - Focus on Skills, Intersectoral Cooperation and Incentive Systems**

European Commission

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# **Incentives and Skills: Focus on Research Talent**

## ***Second thematic report***

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# FORWARD

This report focuses on how to cultivate research talents, which is essential for effectively harnessing knowledge. This principle is emphasised by the Council Recommendation on Guiding Principles for Knowledge Valorisation, which was presented in 2022 and outlines seven key recommendations for this domain<sup>1</sup>. The report explores these principles within the Mutual Learning Exercise (MLE) on Knowledge Valorisation – Focus on Skills, Intersectoral Cooperation, and Incentive Systems, which is supported by the Horizon Europe Policy Support Facility (PSF)<sup>2</sup>. One of the main topics of the MLE is Topic 2b: Focus on research talent. This topic highlights the importance of providing incentives to researchers and their teams through funding opportunities, career progression, and visibility, which are essential for advancing knowledge valorisation efforts. It also emphasises the need for a strong collaboration between academia and business sectors, especially for training early career researchers. Moreover, it advocates for joint structures within Research and Innovation (R&I) labour markets that facilitate talent circulation across sectors. It also stresses the need for demand-driven skills development, reskilling initiatives, and enhanced intersectoral mobility of R&I talent, which can foster cross-fertilisation and growth in knowledge valorisation effects. This report discusses relevant support measures to improve employability and overcome barriers to intersectoral mobility. These measures include best practices for developing careers that are interoperable between sectors within research and innovation, as well as innovative funding opportunities. These measures aim to create a unified framework that supports diversified and evolving careers within research and fosters innovation-oriented approaches and reinforces knowledge valorisation.

One of the main topics addresses the importance of providing incentives to researchers and their teams through funding opportunities, career progression, and visibility, which are essential for advancing knowledge valorisation efforts. The main lessons learned, conclusions, and recommendations, as highlighted in the report, include:

- Researchers should acquire a diverse skillset that can help them meet the needs of the industry and society and help them to valorise their research output. This includes, in particular, methods and skills for entrepreneurship as well as intellectual assets management.
- A culture of trust, simplified processes, and continuous collaboration can foster an environment conducive to intersectoral mobility and knowledge valorisation.
- Tailored incentives, notably in career progression, are essential for motivating researchers at different stages of their careers to participate in this process.
- Establish recognition mechanisms of the skills, competencies, and achievements of researchers across different sectors.
- Strengthen funding opportunities supporting research and innovation projects that have a strong connection to industry needs and/or societal benefits (e.g., sabbatical or other forms of incentives for intersectoral collaboration, including public and non-profit sectors; industrial PhDs).

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<sup>1</sup> Council Recommendation on [the guiding principles for knowledge valorisation](#)

<sup>2</sup> [MLE on Knowledge Valorisation- Focus on Skills, Intersectoral Cooperation and Incentive Systems](#)

# 1. Introduction

## 1.1. Scope, Purpose, and Structure of the Report

This report represents the consolidated findings, insights, and recommendations gathered during the Mutual Learning Exercise (MLE) meeting on Topic 2B – Incentives and Skills, held in Vienna on the 19th and 20th of June 2023. The exercise aimed to establish a platform for constructive discussion and share practical strategies that EU Member States and associated countries have adopted, or are contemplating, to reinforce the role of research talent in knowledge valorisation and foster an environment of lifelong learning and intersectoral mobility.

The report's primary objective is to provide an overview of the key takeaways from the discussions and distil them into tangible action points that could serve as guidelines for policy enhancements in Member States and associated countries. The report further builds on the Discussion Paper<sup>3</sup> published before the meeting. The report captures the multi-faceted aspects of nurturing research talents, the implications of incorporating demand-driven skills development – notably skills for knowledge valorisation – the significance of promoting intersectoral mobility, and the challenges faced in these areas. It seeks to evaluate the effectiveness of various incentives and identify opportunities for promoting collaborative engagement across different sectors, fostering stronger academia-industry relations.

The report's structure ensures comprehensive coverage of all pertinent aspects of the topic. Chapter 1 introduces the report's theme, setting the stage for the detailed discourse to follow. Chapter 2 delves into skills and mindsets, whereas Chapter 3 focuses on incentives and support needs. Chapter 4 focuses on the researcher's career framework and its different aspects. Chapter 5 focuses on conclusions and recommendations to Member States, associated countries, and organisations. The survey results and associated best practice examples are presented in Annexes.

The report serves as a critical resource for stakeholders across all Member States and associated countries, irrespective of their policy development stage, in the context of research talent nurturing and knowledge valorisation. It offers a structure as well as main aspects and tools to support mapping the needs and prioritisation of actions at the national or organisational level, to ultimately promote and strengthen the role of research talent in knowledge valorisation. An attempt has been made to provide a directional roadmap for Member States and associated countries to align their research talent strategies with the emerging demands of the knowledge economy.

## 1.2. Meeting overview and survey methodology

The primary purpose of the country visit was to focus on incentives and skills and intellectual assets management as a cross-cutting topic.

The first day took place at the Federal Ministry of Education, Science and Research in Vienna, Austria. Intellectual assets management formed the basis of discussions during the first half of the day. Incentives and Skills for researchers were the focus of the second half of Day 1 and Day 2.

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<sup>3</sup> Discussion Paper Topic 2b- Incentives and Skills: [Focus on Research Talent](#)

To stimulate a robust exchange of perspectives among the Member States and associated countries, the proceedings incorporated a selection of best practices and examples from Austria, supplemented by specific examples from Belgium, Bulgaria, and Greece. Further, the country representatives were organised into five distinct breakout groups to provide their insights on critical questions outlined in the Discussion Paper.

The second day took place at the SBA Research Center for Information Security<sup>4</sup>. Presentations of several case studies, such as the Industrial PhD, Lab visit, Ludwig Boltzmann Career Center, and ISTA tech transfer, were provided.

To systematically gather feedback on the central topics, a survey was administered among the country representatives of the MLE. The survey was initiated before the meeting and kept open for two weeks after the meeting, thereby ensuring ample opportunity to collate responses. The survey recorded a total of 13 responses from 10 MLE country representatives. These results were not part of the meeting but documented in the Annex of this report.

## 2. Skills and Mindset

Skills and mindset are essential for knowledge valorisation. Researchers need to develop not only technical and scientific skills, but also transversal and entrepreneurial skills that enable them to identify, protect, manage, and exploit their intellectual assets, collaborate effectively with different stakeholders, communicate and disseminate their results to various audiences, and contribute to innovation and societal challenges. Moreover, researchers need to adopt a mindset that embraces diversity, interdisciplinarity, and intersectorality, and also seeks value creation outside the academic environment. Such skills and mindsets can be fostered through formal and informal education, training, mentoring, and coaching, as well as through incentives, recognition, and rewards.

This section will focus on the discussions at the MLE meeting, where several strategies were identified that can support the development of such skills and mindsets conducive to knowledge valorisation.

Specific focus was given to transferable skills, especially those acquired for careers outside academia. These skills can boost a researcher's adaptability by enabling them to apply their knowledge in various contexts and sectors. This can help them excel in the academic, industrial, and public sectors, as well as in civil society. Moreover, these skills can improve the interactions between different sectors and facilitate the effective use of research outcomes by various stakeholders. This can lead to a more diverse workforce that has more mobility and fluidity among sectors and accelerates knowledge uptake in industry and society. During the meeting, several questions were asked to participants, focusing on skills. Those questions are included in the Discussion Paper. The broader categories of skills were discussed during the meeting and are summarised below.

- **Communication and dissemination:** These skills enable researchers to share their findings effectively with a wide range of audiences, such as peers, policymakers, customers, and the public. This can foster a broader understanding and application of their research.

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<sup>4</sup> [SBA Research Center](#)



- **Intellectual assets management:** The Guiding Principles<sup>5</sup>, as well as the Code of Practice<sup>6</sup> on IAM, emphasise developing skills for the IAM of researchers and other valorisation actors to better leverage scientific knowledge, thereby enhancing its impact and value for society. In line with these EU guiding documents, the participants discussed the need to encourage researchers to adopt a broader understanding and utilisation of intellectual assets in knowledge valorisation, fostering a holistic perspective on intellectual assets and their value.
- **Skills to enable open science:** Data management, data sharing and other relevant skills enable researchers to practice open science, which is the movement to make scientific research, data, and dissemination accessible to all levels of society. This can increase the transparency, reproducibility, and impact of their research.
- **Business skills:** These skills enable researchers to navigate the business world effectively and engage in open innovation. They include entrepreneurship, project management, problem-solving, networking, adaptability, and cultural awareness.
- **Soft skills:** These skills complement the technical expertise of researchers. They include critical thinking, ethics and integrity, creativity, leadership, negotiation skills, etc.
- **Intermediary skills for knowledge valorisation:** Specific skills and training are needed for professionals in technology scouting, knowledge brokering, and knowledge valorisation. Upskilling and intersectoral mobility contribute to opening new career opportunities for researchers and building innovation support capacity, notably in knowledge-producing public and private institutions and enterprises. Intermediaries play a vital role in assisting researchers and contributing to their skills development and valorisation activities.

However, for these skills and experiences to be fully integrated into a researcher's career trajectory, they need to be recognised as relevant contributions to their research pursuits. Researchers are more likely to invest in acquiring new skills if they understand how they can impact and benefit their research outcomes. For example, a researcher who acquires entrepreneurial skills can use their research findings more effectively by creating innovative products and services that bring their research to the market.

Professional development opportunities need to reflect this dynamic by aligning with researchers' main work and interests, so that they see them as integral parts of their career advancement, rather than as disconnected requirements. Moreover, a broad approach is needed in PhD programmes that go beyond focusing only on core research areas and instead integrate a wider range of experiences and skills. This can provide doctoral candidates with the knowledge and experiences that prepare them for diverse career paths. One of the best practice examples mentioned during the visit is the LBG Career Center in Austria. It provides targeted skills development for improving the career prospects of pre-docs and post-docs in Austria both in and outside of academia.

## 2.1. ResearchComp for the development of knowledge valorisation skills

As seen above, knowledge valorisation requires researchers to have a set of transversal skills that enable them to communicate, collaborate and innovate across different sectors and

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<sup>5</sup> [The guiding principles for knowledge valorisation](#)

<sup>6</sup> [Code of Practice on the management of intellectual assets for knowledge valorisation in the European Research Area](#)

disciplines. However, these skills are often not sufficiently developed or recognised in the current research and innovation system.

ResearchComp<sup>7</sup> is a new European competence framework for researchers developed by the European Commission, and it contributes to closing this gap, by helping researchers assess and develop their own transversal skills, as well as to plan their career development. ResearchComp is based on the taxonomy of transversal skills for researchers that was included in the 2022 update of the European Skills, Competences and Occupations (ESCO) classification<sup>8</sup>.

ResearchComp consists of seven competence areas, 38 competences and 389 learning outcomes along four proficiency levels. Several competences are highly relevant for knowledge valorisation activities. Each competence has a descriptor and a set of learning outcomes that describe what a researcher should be able to do at each level. Researchers can use ResearchComp to identify their strengths and weaknesses, set their learning goals, and monitor their progress.

ResearchComp can also be used by other actors in the research and innovation system, such as higher education institutions, training providers, employers, and policymakers. For example, higher education institutions and training providers can use ResearchComp to design or adapt their training offers to meet the needs of researchers and to foster their intersectoral mobility (ISM). Employers can use ResearchComp to recognise the value of researchers' transversal skills and to attract and retain highly skilled talents. Policymakers can use ResearchComp to support the development of policies and initiatives that enhance researchers' competences and careers.

By providing a common language and a common understanding of researchers' transversal skills, ResearchComp aims to foster interoperable careers for researchers in all relevant sectors of society, as well as to increase the impact and value of research for society and the economy.

## 2.2. Culture of entrepreneurship

To ensure successful knowledge valorisation, it requires a culture of entrepreneurship that encourages and fosters the creation and exploitation of new opportunities, the innovation and adaptation of existing solutions, and collaboration and cooperation among different actors in the research and innovation ecosystem. A culture of entrepreneurship is a culture that values creativity, innovation, initiative, autonomy, responsibility, risk-taking, learning, and achievement. A culture of entrepreneurship can be developed and nurtured through various means, such as education, training, mentoring, networking, media, policies, and incentives. The culture of entrepreneurship can obtain knowledge valorisation by stimulating the generation, diffusion, and application of knowledge in various ways. For example:

- A culture of entrepreneurship can inspire researchers to pursue novel and original ideas that can lead to breakthroughs and discoveries. It can also motivate researchers to share their knowledge with others and seek feedback and support from peers, mentors, investors, and customers.
- It can facilitate the transfer of knowledge from research to practice by creating opportunities and incentives for researchers to collaborate with entrepreneurs,

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<sup>7</sup> The European Competence Framework for Researchers ([ResearchComp](#))

<sup>8</sup> [ESCO Classification](#)

businesses, industries, and other sectors. It can also help researchers to identify the market needs and demands for their research results and to adapt them accordingly.

- It can help researchers to focus on knowledge valorisation by providing them with a vision, a mindset, and a skill set that are conducive to creating impact from their research.

As mentioned in the Discussion Paper, EntreComp<sup>9</sup> can provide deeper insights into the different types of entrepreneurship skills. EntreComp is a framework that describes the knowledge, skills, and attitudes that people need to be entrepreneurial and create value for others in different contexts. It consists of 15 competences organised into three areas: Ideas and Opportunities, Resources, and Into Action.

There are several best practice examples that were discussed during the Vienna meeting. This includes the Innovation & Entrepreneurship 1-year master program in Belgium as well as Vlerick Entrepreneurship Academy. The details are described in the Annex.

In addition, as mentioned in the Discussion Paper, in Austria, there are several organisations including the Innovation Incubation Centre (i2c)<sup>10</sup> that provides structured training to researchers for entrepreneurships.

### 2.3. Lifelong learning

Lifelong learning is the continuous process of acquiring and updating knowledge and skills throughout one's professional career. It is essential for researchers to engage in lifelong learning, as it enables them to adapt to changing contexts, solve complex problems, and create value from their research results. The meeting discussions highlighted four key aspects of lifelong learning: support, sharing, networking, and tools.

- **Support:** Researchers need a supportive ecosystem that provides them with opportunities and incentives for continuous learning and skills improvement. Such an ecosystem should create pathways for researchers to interact with multiple sectors, such as academia, industry (e.g., REBECA Mentoring program<sup>11</sup>, details in the Annex) and government, and to benefit from their feedback and guidance. A supportive ecosystem should also foster a culture of innovation and problem-solving, where researchers are encouraged to seek new perspectives and challenge existing norms.
- **Sharing:** Researchers need a collaborative environment that enables them to share their knowledge and learn from others. Such an environment should promote synergy and innovation in the research community by facilitating the exchange of ideas across boundaries and disciplines. Sharing knowledge can also enhance the quality and impact of research outcomes by ensuring their relevance and applicability to different contexts and stakeholders.
- **Networking:** Researchers need a network of contacts that provides them with access to diverse sources of information and opportunities. Such a network should expand their understanding of different domains and sectors, as well as stimulate their learning and

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<sup>9</sup> The Entrepreneurship Competence Framework ([EntreComp](#))

<sup>10</sup> [Innovation Incubation Center, TU Wien](#)

<sup>11</sup> [Researchers Beyond Academia Mentoring Programme \(REBECA\)](#)

development. Networking can also help researchers find partners, mentors, investors, and customers for their research projects and ventures.

- **Tools:** Researchers need a variety of tools that assist them in assessing and developing their knowledge and skills. Such tools should be accessible, flexible, and tailored to their individual needs. Examples of tools include online platforms that offer training courses, webinars, podcasts, blogs, forums, and other resources on various topics related to research. Another example is the use of micro-credentials, which are short-term qualifications that certify specific skills or competencies. Micro-credentials can help researchers to bridge their skills gaps, to enhance their expertise, and to stay updated on the latest developments in their field.

In addition, the importance of national accreditation agencies and open science strategies in promoting lifelong learning was also discussed during the Vienna meeting. These entities play a crucial role in recognising and accrediting various learning opportunities supporting ongoing development for researchers and fostering a culture of lifelong learning. Initiatives such as allowing entrepreneurs without PhDs to teach at universities or inviting guest lecturers to discuss technology topics are examples of efforts aimed at diversifying learning experiences and promoting lifelong learning.

## 2.4. Lessons Learned

- Researchers in the public research sector are currently lacking opportunities, incentives, and obligations to acquire additional skills needed for intersectoral mobility and knowledge valorisation. These skills include entrepreneurial skills and intellectual assets management. The employing organisation holds a significant responsibility in creating a supportive environment for knowledge valorisation and in the development of relevant skills.
- Researchers need to see how acquiring these new skills is not a burden but can benefit their work. For instance, a researcher who learns entrepreneurial skills can better see the potential of how to use their findings to create and sell products or services or start a new business. Appropriate awareness raising is needed.
- PhD programs benefit from incorporating skills-building beyond their core research domains. This could include exposure to experiences beyond academia (e.g., through industrial PhDs), as well as transversal skills that are useful across a range of domains, such as the ones identified by ResearchComp.
- Despite the potential benefits of upskilling and intersectoral mobility, there remains a shortage of individuals with the necessary intermediary skills for knowledge valorisation. This not only limits career options for researchers but also hinders the development of innovation support capacities.

## 3. Incentives and Support

Researchers are the source of new ideas, technologies, and discoveries that can shape our world. However, for additional value, the generated knowledge also needs to be applied and used in different contexts and sectors. This is why it is crucial to valorise the knowledge. However, knowledge valorisation is not easy, and researchers often face difficulties and challenges in collaborating with industry and society to accelerate the uptake of science-based knowledge and solutions. That is why incentives and support are essential for

researchers to valorise their knowledge and make an impact. This chapter examines how incentives and support can help researchers to engage with industry and government, and how they can foster academia-business collaboration, including through intersectoral mobility schemes and entrepreneurship.

To foster an environment that encourages knowledge valorisation activities within a company or institution, it is important to consider the impact of organisational policies and culture. By aligning these factors with the goals of knowledge valorisation, an organisation can create a supportive and conducive atmosphere for researchers, innovators, and entrepreneurs, ultimately leading to greater success.

During the Vienna meeting, the importance of creating a motivated research and innovation environment was emphasized. The discussions resulted in four key strategies that can help us achieve this goal.

- **Funding:** Early career researchers need more funding to support their innovative ideas and knowledge valorisation efforts. They often face financial barriers that limit their creativity and potential. In addition, early career researchers may not have established a reputation or network within their field yet. Funding for knowledge valorisation will help researchers grow individually and contribute to a diverse and dynamic research and innovation ecosystem. It will also encourage them to collaborate with different sectors early on by offering tailored grants. It is worth noting that funding is also needed for mid-career or senior researchers. However, they have many experiences and resources and have access to established networks and partnerships with the public and private sectors. Spin-off Fellowships<sup>12</sup>, as well as other similar programs in Member States and associated countries, are good examples of such funding.
- **Incentives:** Researchers from industry need more incentives to return to academia or to support training and upskilling activities. They often move to industry because of better pay and resources. To attract them back, we need a balanced incentive system that rewards them both financially and intellectually, in addition to a proper evaluation of their experiences in industry and business. Such incentives could include research autonomy, leadership roles, or opportunities for research commercialisation. Further incentives for researchers are co-ownership of intellectual property and royalty sharing. We also need to revise the reward systems based on publications in academia, as they hamper sectoral mobility. The participants referred to the Coalition of Advancing Research Assessment (CoARA)<sup>13</sup> as an essential process and tool in that respect. For mid-career researchers, the opportunity to influence and innovate can be a strong motivation to return to academia.
- **Secondments:** Researchers need more opportunities to work in different sectors and environments. This can foster a culture of intersectoral collaboration and mutual learning. This is especially valuable for senior researchers who have extensive knowledge and expertise. They can share their insights across sectors and stimulate innovation and inspiration for younger generations. Under Horizon Europe, MSCA<sup>14</sup> offers secondments in industry as well as in other sectors.
- **Mobility:** Researchers need more mobility schemes that support geographical, cross-disciplinary, and intersectoral movement. Researchers also need their mobility experiences to be properly valued. This can help them gain an international perspective and exposure to different disciplines. Exposure to different researcher environments,

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<sup>12</sup> [Spin-off Fellowships](#)

<sup>13</sup> [CoARA, Coalition of Advancing Research Assessment](#)

<sup>14</sup> [Marie Skłodowska-Curie Actions \(MSCA\)](#)

cultures, and perspectives will enable them to develop their skills and mindsets. Generally, mobility programs can benefit all types of researchers in different ways. However, early career researchers can be more prone to mobility, which can have a longer potential impact. Researchers can benefit from learning from different contexts and cultures, while, at the same time, the receiving organisation can benefit from their knowledge of the latest research results. Mid-career researchers can benefit from leading collaborative projects across borders and disciplines. Senior researchers can benefit from guiding projects with diverse partners and stakeholders. It is worth noting that social security may be a challenge for mobile researchers. It is important to ensure the compatibility and transferability of pensions for mobile researchers. In addition, obtaining work permits for researchers, especially those from non-EU countries, in the EU can be difficult and can impede scientific collaboration. To overcome these challenges, a specialised visa such as the "Scientific Visa" designed for mobile researchers could be introduced. This visa would simplify the administrative process and provide researchers with the stability they need to conduct impactful cross-border scientific work, creating a more favourable environment for international collaboration. In Austria, such an option exists as the "Settlement Permit-Researcher"<sup>15</sup>.

### 3.1. Academia-business cooperation

Academia-business collaboration is a key factor for knowledge valorisation. Generally, the aim of such cooperation is to share knowledge, resources, and expertise for mutual benefit. It can bridge the gap between theory and practice and is essential for knowledge valorisation. It is important to note that the MLE topic 3 – Intermediaries and particularly topic 4 – Networks and Processes deal with this aspect of knowledge valorisation in detail<sup>16</sup>. Apart from the already mentioned strategies, the following points were discussed at the Vienna meeting:

- **Campus programmes:** These are initiatives that bring together researchers and industry partners on campus to work on joint projects, share facilities and resources, and exchange ideas and feedback. These programmes can help researchers to understand the real-world implications of their work and to apply their research results in commercial settings. They can also help businesses to access cutting-edge research findings that can improve their products or services. These programmes can create a vibrant ecosystem where both academic institutions and industries can thrive together. One such example is the COMET centre<sup>17</sup>, where Day 2 of the Vienna meeting took place. The details are mentioned in the Annex.
- **Cooperative doctoral programmes:** These are programmes that combine traditional academic learning with hands-on industrial experiences for doctoral candidates. These programmes can give researchers a comprehensive view of the whole process from research to application. They can also help researchers to develop diverse skills and experiences that enhance their adaptability in an ever-changing work environment. The Industrial PhD in Austria is a good example of such a doctoral program. The MSCA Industrial Doctorate Network<sup>18</sup> is another good example.
- **Physical space:** It should be noted that physical spaces play a crucial role in facilitating effective cooperation between industry and academia. Shared workspaces or innovation

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<sup>15</sup> <https://oead.at/en/to-austria/entry-and-residence/settlement-permit-researcher>

<sup>16</sup> See [Discussion Papers and Thematic Reports](#) on Intermediaries and Networks and Processes available on the MLE on Knowledge valorisation

<sup>17</sup> [Competence Centers for Excellent Technologies](#)

<sup>18</sup> [MSCA Industrial Doctorate Network](#)

parks serve as meeting points where professionals from both sectors can interact, exchange ideas, and work together on innovative projects. By tailoring these spaces to meet the needs of industry professionals and researchers, productivity can be enhanced, resulting in more frequent and meaningful interactions that ultimately improve the quality and impact of collaborative efforts. Adopting a user-centric approach in designing physical spaces for industry-academia collaborations can greatly enhance their role in promoting intersectoral mobility and knowledge transfer. These technology platforms enable the industry to test, design, scale-up, certify, and ensure interoperability of their innovations. They also foster collaboration and knowledge exchange between industry and academia. Xista Science Ventures<sup>19</sup> in Austria provides such a platform.

### 3.2. Intersectoral mobility schemes

Intersectoral mobility drives innovation, knowledge exchange, and skills diversification among researchers. Creating strong support systems to encourage and assist researchers in navigating these opportunities is essential for fostering a collaborative research environment. In addition to traditional intersectoral mobility, bi-directional mobility where researchers can move from industry to academia is also crucial. It emphasizes the reciprocal flow of researchers between sectors. During the Vienna meeting, discussions focused on tools which can support intersectoral mobility, namely:

- **Role models:** Role models can inspire researchers to pursue intersectoral collaborations. These examples can motivate emerging researchers to consider intersectoral mobility as an attractive option for their career paths.
- **Coaching and mentoring:** Coaching and mentoring can guide researchers through intersectoral collaborations. These are experienced mentors who can provide advice, insights, and support to researchers who engage with different sectors. This personalised support can empower researchers to explore intersectoral collaborations confidently. As mentioned above, the REBECA mentoring program is a good example focusing on such collaboration.
- **Practitioners:** Practitioners are professionals from for instance spin-offs, other companies, or the non-academic sector in general, who can be involved in training programmes to share their experiences and challenges on knowledge valorisation and entrepreneurship with researchers. This can bridge the gap between research and industry and foster mutual understanding and learning.
- **Career services:** In the current academic environment, employment in another sector outside research is not always seen as a positive career evolution. Researchers who use these opportunities for learning and growth should be supported, for example by career services that foster a culture of career mobility. This can encourage more researchers to engage in intersectoral collaborations without worrying about setbacks in their careers.
- **Networking projects:** Networking projects are another powerful tool for facilitating intersectoral mobility. These initiatives create platforms for researchers to interact with professionals from different sectors, fostering relationships that can lead to fruitful collaborations. Such networks can also expose researchers to diverse perspectives,

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<sup>19</sup> <https://xista.vc/>



enriching their thinking and opening new avenues for research and innovation. Examples of such R&I networks will be further discussed in Topic 4 (Networks & Processes).

Bi-directional mobility refers to the movement of researchers between different sectors. As indicated in the Discussion Paper, bi-directional mobility can enhance researchers' skills, knowledge, and competencies. It can broaden their perspectives as well as their network and employability. During the Vienna meeting, the following points were discussed concerning bi-directional mobility:

- **Communicate the benefits:** It is important to show how bi-directional mobility benefits each sector by sharing success stories, case studies, or testimonials from researchers who have moved across sectors successfully.
- **Build trust and reduce bureaucracy:** Bi-directional mobility requires a supportive and flexible environment that allows researchers to move between different sectors, including from industry to public research, disciplines, or countries without too much hassle or bureaucracy. It means that possible legal barriers should be removed, the processes involved in bi-directional mobility should be clear, easy, and fast, and researchers should be trusted to do their work without excessive supervision or control. This can help create a positive and collaborative culture that encourages long-term partnerships and mutual learning.
- **Provide sabbaticals:** An effective way to promote bi-directional mobility is to offer researchers opportunities for sabbaticals in industry or the public sector. Sabbaticals allow researchers to work in different environments where they can face real-world challenges and gain valuable skills and experiences. These can enrich their teaching and research practices and contribute to knowledge valorisation.

### 3.3. Incentives & funding for entrepreneurship

It is crucial to create and foster an entrepreneurial culture among research teams. Training, coaching, and mentoring play a crucial role in this process, which is briefly mentioned in Section 2 above.

Launching a new start-up requires careful consideration of numerous critical factors. Among these, identifying exploitable research results, evaluating market viability, creating a comprehensive business plan, safeguarding intellectual property, and securing funding are all key components. To facilitate these processes, various entities, such as technology transfer offices and accelerators, play crucial roles. These entities provide invaluable support and resources to help future entrepreneurs navigate the complex landscape of start-up creation. By leveraging these resources and carefully planning each step of the process, aspiring entrepreneurs can increase their chances of success and bring their innovative ideas to fruition. During the Austria country visit, one such presentation from the Regional Technology Transfer Centre East focused on providing such facilities. In addition, several types of intermediaries, as presented in the MLE country visit to Sweden, also support such activity.

The next logical step is to seek funding and investments for entrepreneurship ventures. Funding and incentives can help researchers and entrepreneurs to overcome financial barriers, to access resources and feedback, and to exploit their research results commercially.



When it comes to funding for researchers, government funding, for example through accelerators, is one of the major sources to help entrepreneurs with knowledge valorisation. Governments provide funding to start-ups and small businesses through various programs and grants. These programs and grants are designed to provide financial support to entrepreneurs who are developing innovative products or services that can benefit society. Examples from Member States include the Spin-off Fellowship in Austria and the Innovation Platform in Greece, among many others.

In addition to providing funding, government programs can also provide entrepreneurs with access to resources and expertise that can help them grow their businesses, for example, access to accelerators and innovation space. One example was mentioned during the second day of the Vienna meeting, where XISTA (details in the Annex) presented their services.

Incentives can also play a crucial role in boosting entrepreneurship in terms of knowledge valorisation. One of the most common incentives for entrepreneurs is tax incentives. Tax incentives can be provided to start-ups and small businesses that are developing innovative products or services. Tax incentives can help young entrepreneurs reduce their tax liability, which can free up resources that can be used to grow their businesses. Another type of incentive that can help entrepreneurs is mentorship. Mentorship is the process of providing guidance and support to entrepreneurs by experienced business leaders. Mentors can provide entrepreneurs with valuable advice and guidance on how to develop and grow their businesses. They can also provide entrepreneurs with access to networks and resources that can help them to succeed.

Apart from the above-mentioned sources, another source of funding for entrepreneurs is venture capital. A venture capitalist is an investor who provides capital to start-up businesses in exchange for an ownership stake in the company. Venture capital is a critical source of funding for entrepreneurs because it is a significant source of early-stage financing. In addition to providing funding, venture capitalists also provide valuable advice and guidance to entrepreneurs. They have significant experience in identifying and investing in successful start-up businesses, and their expertise can help entrepreneurs develop and grow their businesses.

### 3.4. Lessons Learned

- It is essential to provide specific funding to research-based entrepreneurship as well as to promote intersectoral mobility to ensure knowledge valorisation.
- Tailored incentives are crucial in driving the engagement of researchers at different career stages. Different researchers have different goals and expectations. Incentives should be designed to suit their needs.
- There is a need for closer collaboration between academia and industry. Researchers should be encouraged to work in different sectors and collaborate with industry partners to gain a wider perspective on the needs of society and industry and contribute to impactful knowledge valorisation benefitting society and the economy.
- Bi-directional mobility accelerates knowledge transfer and valorisation. More emphasis on the mobility of researchers from industry to public research would benefit a vibrant innovation ecosystem. This requires appropriate framework conditions and an open mindset, notably on the side of publicly funded research. Sabbaticals within industry or the public sector can enrich teaching and research practices. Research careers outside academia should also be promoted.

## 4. Careers framework

There are approximately 2 million researchers working in Europe. R& policy makers must ensure that all of these researchers have attractive careers across all sectors of society. For that reason, the European Commission adopted on 13 July 2023 a proposal for a Council Recommendation on a European framework<sup>20</sup> to attract and retain research, innovation and entrepreneurial talents. It recommends several key actions to develop researchers' skills and to foster intersectoral and interdisciplinary careers and entrepreneurship and innovation. It also addresses career development and progression. The proposal is accompanied by a new Charter for Researchers, laying out standards for attractive careers. It aims to improve researchers' working conditions, effectively supports researchers' transversal skills development, and promotes all types of mobility, in particular inter-sectoral mobility. The framework is closely related to knowledge valorisation, as it supports researchers to create value from their knowledge by linking different areas and sectors and by transforming their research results into sustainable solutions that benefit society. In this section, several aspects of the career's framework are discussed.

### 4.1. Recognition of the value of intersectoral mobility and knowledge valorisation in career assessment and progression

Intersectoral mobility and knowledge valorisation are two important factors that should be taken into consideration in career assessment. Intersectoral mobility involves moving between different sectors to gain new experiences, skills, and perspectives, while knowledge valorisation ensures societal benefits of knowledge, which should be sufficiently recognised in terms of personal and professional growth. The Knowledge Ecosystem in the New ERA<sup>21</sup> study highlights the importance of these factors in creating a sustainable and dynamic workforce. The study emphasises the need for individuals to develop a broad range of skills and knowledge, as well as the importance of collaboration and innovation across different sectors.

In terms of career assessment, intersectoral mobility, and knowledge valorisation can help individuals identify new opportunities for growth and development. By gaining experience in different industries, individuals can expand their skill set and develop a more comprehensive understanding of their field. This can also help individuals develop a more strategic approach to career development by identifying areas where they can add value and differentiate themselves from others in their field.

During the Vienna meeting, there were discussions about improving the research assessment system to consider the various roles and factors that researchers engage with during their research. The current system, which heavily relies on counting publications and citations, is perceived to favour traditional research careers in academia. This emphasis on academic-based research portfolios may discourage researchers from exploring other paths or gaining diverse experiences. This might deter researchers from considering intersectoral mobility, making it challenging for them to re-enter the research field after venturing outside academia. Moreover, relying solely on publication counts for career assessments is increasingly seen as flawed. Therefore, there is a need to shift towards a more comprehensive assessment system that appreciates and incentivises the acquisition of new skills that are essential in today's dynamic research world.

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<sup>20</sup> Proposal for a COUNCIL RECOMMENDATION on a European Framework to attract and retain research, innovation and entrepreneurial talents in Europe.

<sup>21</sup> Knowledge Ecosystem in the new ERA

To achieve this, the Coalition for Advancement of Research Assessment (CoARA)<sup>22</sup> should explore fresh approaches to recognise talents beyond publications. This should include various aspects of researcher contributions, not only conventional research but also science communication, policymaking, diplomacy, entrepreneurship, knowledge uptake and commercialisation, and other relevant areas. These approaches will validate the diverse efforts of researchers and encourage intersectoral mobility, lifelong learning, and a more holistic approach to advancing research careers.

## 4.2. Career Path Guidance

In the past, key stakeholders raised the issue of ensuring sustainable research careers and providing career guidance to researchers<sup>23</sup>, such as the MCAA<sup>24</sup> and the Eurodoc<sup>25</sup>. The following steps could be taken to guide researchers' career paths and encourage knowledge valorisation.

- Assess the researchers' current skills, interests, and goals and identify their strengths and areas for improvement.
- Provide information and advice on the different career options and pathways available for researchers who want to valorise their knowledge, such as academia, industry, public sector, civil society, etc.
- Help the researchers develop their professional skills and competencies that are relevant for knowledge valorisation, such as communication, leadership, project management, intellectual assets management, entrepreneurship, etc.
- Encourage the researchers to engage with various stakeholders and potential users of their knowledge, such as policymakers, industry partners, customers, citizens, etc., and to seek feedback and collaboration opportunities.
- Support the researchers to explore and exploit the potential of their knowledge assets, such as data, publications, patents, prototypes, etc., and to protect and valorise their intellectual assets.
- Facilitate the researchers' mobility and transition between different sectors and countries and help them overcome any barriers or challenges they may face.
- Recognize and reward the researchers' achievements and impact in knowledge valorisation activities, such as patenting, licensing, spin-offs, consultancy, policy advice, or social innovation.

## 4.3. Eliminating legal barriers

The ability of researchers to turn their innovative ideas and academic research outcomes into practical applications, entrepreneurial ventures, and meaningful societal impact can be significantly impacted by legal barriers to knowledge valorisation in Europe. In particular, intersectoral mobility, which involves the movement of researchers and professionals between academia, industry, and other sectors, as well as entrepreneurship, faces various

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<sup>22</sup> [CoARA](#)

<sup>23</sup> [Declaration on Sustainable Research Career](#)

<sup>24</sup> [Marie Curie Alumni Association \(MCAA\)](#)

<sup>25</sup> [European Council of Doctoral Candidates and Junior Researchers \(Eurodoc\)](#)

legal complexities that can hinder the process. In this section, some of these barriers are described.

Researchers often face challenges when it comes to intersectoral and geographical mobility. Moving sectors or completing a secondment can be difficult due to various legal complexities such as the employment contract, legal restrictions on non-compete clauses, social security issues, and labour law and immigration requirements. In some Member States, collective bargaining agreements exist for each sector (e.g., academia/university, semiconductor industry, metal industry, medical industry, etc). Such agreements with their specific provisions could pose problems for the (temporary) mobility of researchers from one sector to another (e.g., industry to academia). Additionally, legal restrictions on non-compete clauses and their broader interpretation may also pose a challenge. Social security during a secondment or movement may also hinder mobility. Pension rights may also risk being affected. Labour law, immigration, and work permit requirements may also hinder mobility across countries or sectors. Greece has implemented measures to address these issues by creating a legal framework for industrial PhDs and intersectoral mobility. The new law for higher education provides for the conduct of an industrial PhD and the creation of university research and innovation centres which promote intersectoral mobility.

Entrepreneurship, on the other hand, faces challenges such as intellectual assets management (see the MLE IAM Discussion Paper and Thematic Report for more information), regulatory compliance, and employment rights. Depending on the industry and country, startups may face regulatory compliance challenges for specific sectors such as healthcare and biotechnology. Labour law and employment rights may also pose a challenge. In Greece, the legislation has been changed to facilitate the creation of spin-off companies. The new law provides incentives to higher education institutes and public research organisations to support and invest in spin-off companies, facilitate researchers to work in their spin-off companies, and regulates intellectual property issues among researchers and their institutions. Another challenge was the lack of an official definition and registry for innovative startup companies in Greece. To solve this issue, a new national registry for innovative startups was established (Elevate Greece). These examples are discussed in detail in the Annex. It is important to recognise how legal obstacles can affect the day-to-day work of researchers, academics, and entrepreneurs who are transitioning between sectors or working to turn their creative ideas into profitable businesses. By taking into account challenges, it is possible to create a more supportive environment for these knowledge-driven ventures across Europe.

#### 4.4. Lessons Learned

- Intersectoral mobility and engaging with industry and society for knowledge valorisation is not sufficiently recognised in performance evaluations, career assessments, and the progression of researchers. A novel approach is needed that acknowledges the diversity of roles and tasks a researcher undertakes.
- Trust forms the bedrock of long-term collaboration, and a culture of trust, simplified processes, and continuous collaboration can foster an environment conducive to intersectoral mobility and collaboration.
- A favourable legal framework and clear administrative processes are a prerequisite for efficient knowledge exchange and uptake. Targeted reforms can remove obstacles and unleash the innovation potential of publicly funded research, notably through academic spin-offs, intersectoral mobility, and cooperation with industry. (see the MLE Topic 2a on

Incentives and Skills: policy and legal context, governance and funding Discussion Paper and Thematic Report for more information).

- Researchers should be provided with career path guidance enabling them to seek satisfying careers outside academia, thereby also serving as important conduits for knowledge dissemination and uptake.

## 5. Conclusions & Recommendations

In conclusion, creating a vibrant knowledge valorisation ecosystem requires cooperation across different fields and sectors. This requires cultivating research talents, skills, and opportunities for learning and cooperation. Tailored incentives are essential for motivating researchers at different stages of their careers to participate in this process. Researchers should acquire diverse skillset that can help them to manage their intellectual assets better and meet the needs of industry and society. Support systems for researchers in intersectoral mobility and strategies for collaborative engagement are also vital components of a vibrant knowledge valorisation ecosystem. A culture of trust, simplified processes, and continuous collaboration can foster an environment conducive to intersectoral mobility and collaboration as well as faster uptake of science-based solutions to tackle societal challenges.

The following recommendations are based on the discussions during the Vienna meeting, as well as on the proposal for a Council Recommendation on a European framework to attract and retain research, innovation, and entrepreneurial talents in Europe. Best-case examples of these recommendations are mentioned in the Annexes.

- Establish a European Researcher's Passport that recognises the skills, competencies, and achievements of researchers across different sectors and countries and facilitates their mobility and career progression.
- Implement already existing tools and policies, such as the European Competence Framework for Researchers (ResearchComp).
- Design courses and programs within academic institutions that educate researchers on entrepreneurship, business development, intellectual assets management and knowledge valorisation in line with the Guiding Principles.
- Ensure appropriate training and skills development of intermediaries, in particular those closely linked to universities and public research organisations. Further details<sup>26</sup> of intermediaries are provided in the Discussion Paper and Thematic Report on Topic 3.
- Consider knowledge valorisation, intersectoral mobility, and entrepreneurship as important factors for future performance evaluations, career assessment, and progression of researchers, including in the context of the CoARA initiative<sup>27</sup>. The current researcher assessment system is inadequate. A more comprehensive system that recognises and rewards diverse contributions and experiences is needed to foster a sustainable and dynamic research workforce as well as more value creation from research.
- Foster a change of mindset at research institutions that is more supportive of knowledge valorisation activities of researchers and recognises their engagement with society and industry.

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<sup>26</sup> [MLE Discussion Paper and Thematic Report on Topic 3](#)

<sup>27</sup> [CoARA, Coalition of Advancing Research Assessment](#)

- Set up coaching and mentorship programs that connect experienced entrepreneurs, industry experts, and successful knowledge valorisation pioneers with young researchers.
- Create Funding Opportunities:
  - Support research projects that have a strong connection to industry needs or innovation potential with grants or subsidies.
  - Introduce specific funding for academia-business cooperation and networking.
  - Create graduate schools or dedicated training programs for early career researchers (doctoral candidates, postdocs, research and innovation managers) to ensure focused upskilling addressing the needs of non-academic sectors (e.g. industry)
  - Create different intersectoral mobility schemes covering the various needs of research talent and knowledge valorisation, including promoting bi-directional mobility and industrial PhDs.
- Provide incentives:
  - Create incentive schemes for researchers and innovators that reward their participation in knowledge valorisation activities, such as patenting, licensing, spin-offs, cooperation with industry and societal actors, consultancy, policy advice, or social innovation.
  - Enable sabbaticals or other forms of intersectoral collaboration, including with the public and non-profit sectors.
  - In the context of bi-directional mobility, special focus should be given to facilitate researchers' movement from the industry/private sector to academia to ensure talent circulation in all directions, as well as to mainstream involvement of non-academic experts in the training of next-generation researchers.
  - Give tax incentives for startups that come from academic research, such as lower tax rates or grants for early-stage business development.
- Strengthen infrastructures/capacities for intermediaries and networks (See Topic 3 'Intermediaries' and Topic 4 'Networks and Processes' for more information)
- Support the intersectoral mobility of researchers and innovators by creating more opportunities for exchanges, secondments, internships, and collaborations between academia, industry, the public sector, and civil society. Legal, administrative, and cultural should also be removed. Support the implementation at the national level of the standards for attractive, sustainable and interoperable research careers as laid down in the upcoming council recommendations on a European framework for research careers (Adoption foreseen on 8<sup>th</sup> of December)

## 6. Annexes

### 6.1. Survey results and best practices – Skills and Mindset

#### 6.1.1. Survey Results

The responses from MLE country representatives regarding the alignment of existing training and education programs with their countries' industrial needs were particularly noteworthy.

Almost half, or 46% of respondents, believe that current programs moderately align with industrial requirements, while nearly 39% feel there is a lack of alignment. Only 8% either perceive a high level of alignment or express uncertainty about the situation.

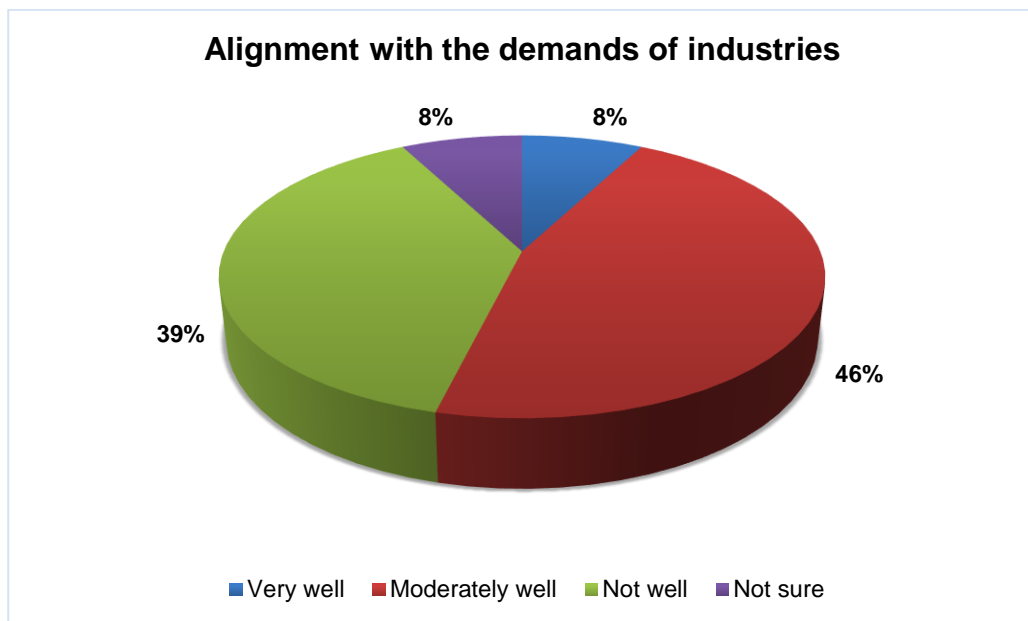


Figure 1: Survey responses to the question – How well do existing training and education programs align with the demands and needs of industries in the respective country or organisation

#### 6.1.2. Best Practices for demand-driven skills development

During the Vienna meeting and in the survey, MLE country representatives provided numerous best practices for consideration and shared their experiences. These included the following:

LBG Career Center (Austria)<sup>28</sup>: The LBG Career Centre, founded in 2017 and financed by Austria's National Foundation of Research, Technology & Development, aims to boost career prospects of pre- and post-doctoral students in and outside academia. The Centre emphasises career development, intersectoral career orientation, and leadership development, along with community building and networking. Notably, it offers specialised programs focused on targeted skills development and cross-institutional networking via

<sup>28</sup> Ludwig Boltzmann Gesellschaft (LBG) Career Center



internships, serving as a competence hub for innovative, individualised career paths. The Centre, which collaborates with around 45 diverse organisations, is well regarded by Austria's research community for its role in facilitating intersectoral mobility and fostering a progressive scientific culture.

Multiple initiatives (Flanders, Belgium): Flanders has implemented numerous successful initiatives for demand-driven skills development. These include engaging stakeholders in shaping doctoral school programs and hosting networking events. Other strategies include training by Knowledge Transfer Offices (KTTOs), collaboration on research projects involving industry and non-profit organisations, and creating spaces where university researchers and potential spin-offs work side-by-side in pre-incubators and incubators. They also promote strategic collaboration through Research Centres and Clusters. Furthermore, they have online talent pool platforms for Ph.D. candidates<sup>29</sup> to explore their potential and established short training modules by KTTOs and Doctoral Schools in universities. In addition, there are year-long 'master'-type trainings focused on Innovation and Entrepreneurship offered by various institutions, including the Antwerp Management School<sup>30</sup>, Vlerick Entrepreneurship Academy<sup>31</sup>, and Solvay Brussels School, providing comprehensive skills enhancement for those interested in Biotech and MedTech ventures. These initiatives collectively drive skills development that are aligned with market needs.

Industrial PhD Call (Greece): To enhance capacity, the Law for Higher Education enables Industrial PhDs and promotes University Research and Innovation Centres. The Industrial PhDs call announced in 2022 served to bolster opportunities for research teams.

REBECA (Spain): The Researchers Beyond Academia (REBECA) mentoring programme, piloted in 2019 by five EURAXESS TOP IV partners<sup>32</sup>, aims to broaden career outlooks for PhD candidates considering non-academic paths. It matches early-stage researchers with seasoned professionals outside academia, offering opportunities for intergenerational and intersectoral networking, skills development, and reflection. After the first phase, the programme was relaunched in 2020, offering six months of interaction in 2020-2021. The programme significantly improved knowledge of non-academic career options among the 80 participating pre- and post-doctoral researchers, according to participant surveys. The programme, which also included various training sessions, has successfully facilitated career exploration beyond academia for young researchers. The FECYT funded the programme<sup>33</sup>.

DSII (Finland)<sup>34</sup>: The Doctoral School of Industry Innovation (DSII) in Finland bridges academia and industry by facilitating doctoral research that addresses real-world challenges presented by industrial partners. Over a four-year contract, doctoral candidates work closely with these partners, acquiring specialised knowledge and business acumen. Furthermore, the DSII creates a platform for candidates to learn innovative methods from a community of industrial experts, fostering skills development and hands-on experience on demanding key topics.

Industrial PhD<sup>35</sup> (Norway): Companies seeking to enhance their research expertise and activity may apply for funding for a doctoral project. The Industrial PhD scheme allows businesses to collaborate with universities on a doctoral project that directly relates to a

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<sup>29</sup> [PhD Talent Pool Flanders](#)

<sup>30</sup> [Innovation & Entrepreneurship – 1 year master training](#)

<sup>31</sup> [Vlerick Entrepreneurship Academy](#)

<sup>32</sup> [REBECA 2019 Program](#)

<sup>33</sup> [REBECA 2020 Program and Report](#)

<sup>34</sup> [Doctoral School of Industry Innovations](#)

<sup>35</sup> [Industrial PhD in Norway](#)

company's activities. The employee-doctoral candidate undergoes specialised training in the company's challenges, while the partnership increases the firm's overall research expertise. The scheme benefits three parties: the company obtains enhanced core activities and services, the candidate gains a PhD with business-related insights, and the degree-conferring institution gets to build a collaborative relationship with the company. The scheme also provides funding for candidates to conduct part of their research at an overseas institution. Significant project changes should be reported through My RCN web.

Experience-based master's in public administration (Norway)<sup>36</sup>: The Master's programme in Public Administration focuses on addressing major societal issues of our era, studying how governmental and administrative bodies can effectively contribute to their resolution. This experience-based programme offers practical knowledge to tackle contemporary challenges in public service.

OFFPHD (Norway)<sup>37</sup>: The Public Sector PhD Scheme (OFFPHD) aims to enhance research in public entities, encourage researcher employment in the public sector, and foster academia-public sector collaboration. The Research Council, which stimulates research and innovation in the public sector, offers support for doctoral projects. These projects should generate applicable insights, addressing areas with substantial knowledge and innovation needs, and should align with the public entities' R&D and innovation strategy. The scheme serves as a catalyst to foster the development of practical knowledge and encourage innovation within public bodies.

Cooperative Doctoral Programme (Hungary)<sup>38</sup>: The Cooperative Doctoral Programme, overseen by the Ministry for Innovation and Technology, encourages students in STEM fields to integrate the latest scientific research into societal and economic benefits. The initiative facilitates doctoral research collaboration between academia and industry, offering generous scholarships and funding for research activities, networking, and knowledge transfer. The main aim of the programme is to increase the number of employees working in the RDI segment for the STEM fields.

Hungarian Startup University Programme<sup>39</sup>: This programme is a novel initiative aiming to foster an entrepreneurial mindset among university students nationwide. Combining theoretical and practical knowledge, the programme provides a practical guide to business startups, encompassing market analysis, business plan creation, and investor pitching. While not solely focused on generating startups, the program aims to inspire innovative thinking. It offers students a monthly scholarship for promising project ideas, which can be presented to potential investors upon course completion.

## 6.2. Survey Results and best practices – Incentives and Support

### 6.2.1. Survey Results

The findings from the survey underscore the crucial incentives that hold immense potential in boosting knowledge valorisation efforts. The first notable incentive revolves around recognition in research assessments, highlighting how academic acknowledgement plays a central role in promoting real world application of research findings. Moreover, organisational policy alongside culture significantly influences the creation of a supportive environment that

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<sup>36</sup> Experience based Master of Public Administration

<sup>37</sup> Public Sector PhD Scheme (OFFPHD)

<sup>38</sup> Cooperative Doctoral Program

<sup>39</sup> Hungarian Startup University Programme

facilitates knowledge valorisation activities. Figure 6.2.1 visually captures the types of effective incentives for knowledge valorisation according to the MLE country representatives.

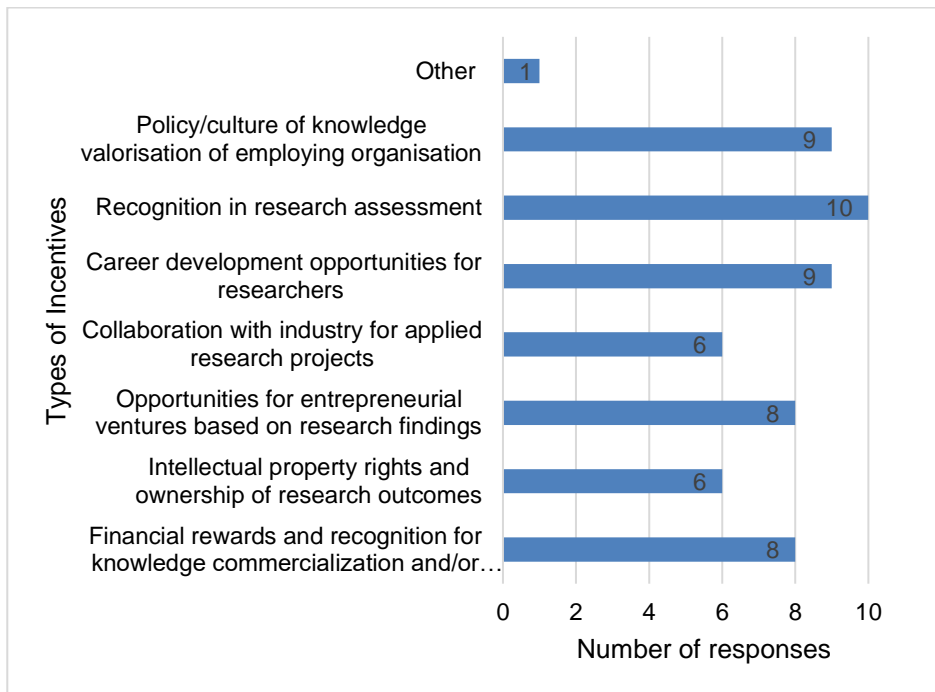


Figure 2: Types of effective incentive for knowledge valorisation according to the country representatives.

Additionally, researchers perceive career development opportunities and financial rewards as strong motivators, further underscoring the relevance of both personal and monetary incentives in driving innovation. Furthermore, entrepreneurial opportunities are deemed vital considering a growing trend among researchers exploring business ventures. This underscores the importance of bridging the gap between academia and the marketplace to foster fruitful knowledge valorisation.

### 6.2.2. Best Practices - Incentives and Support

MLE country representatives shared several best practices during the Vienna meeting as well as in the survey. These are described below.

Spin Off fellowships (Austria)<sup>40</sup>: The Austrian Spin-Off Fellowship Programme, funded by the Federal Ministry of Education, Science, and Research. This programme aims to incentivise commercialisation of academic research through spin offs. It supports researchers at Austrian institutions in developing their findings to meet user needs and establish start-ups. Researchers benefit from full funding allowing them to focus on their research and pursue new career paths. Research institutions also gain from increased interest in exploitation, knowledge transfer, and long-term returns generation. The programme provides grants of up to EUR 500,000 for projects lasting 12 to 18 months. So far, it has supported 24 projects and

<sup>40</sup> [Spin off fellowships](#)

42 fellows, resulting in the creation of 16 spin-offs across Austria. These success stories have been recognised with significant startup awards.

Industrial PhD Program (Austria)<sup>41</sup>: Initiated in 2014, the industrial PhD programme promotes vocational research and strengthens the partnership between academia and industry. Half of its funding is specifically allocated for female doctoral candidates. It offers financial support to both companies and non-university research institutions for projects spanning 2 to 3 years. The program has already supported 233 initiatives primarily in ICT and life sciences.

FEMtech (Austria)<sup>42</sup>: FEMtech is a program in Austria that provides internship opportunities for female students in scientific and technological sectors outside academia. The program focuses on enhancing practical knowledge under expert supervision involving students actively in research projects and exposing them to applied research environments. Additionally, these internships can serve as platforms for female students to develop their thesis work at different academic levels such as diploma, masters, or bachelors' theses. FEMtech aims to foster gender balance within technology and science fields by offering female students a head-start on their future career paths.

Xista Science Ventures (Austria)<sup>43</sup>: Xista Science Ventures in Austria operates as an innovation ecosystem empowering researchers to transform their commercial ideas into their own businesses. Xista Science Ventures, with the support of InnovFin Equity and the EU Horizon 2020 Financial Instruments and EFSI, is dedicated to facilitating productive investments in the EU and improving access to financing. Working closely alongside AWS (Austrian promotional bank), Xista Science Ventures operates in conjunction with the PreSeed programme to provide funding for scientific research and commercial preparation of innovative projects. This encompasses covering expenses for various necessities such as studies, concepts, consumables, and human resources. Grants of up to EUR 200,000 are available and disbursed over a period of 18 to 24 months.

Regulatory Changes (Greece): To address regulatory obstacles in Greece, laws (4957/2002, 4864/2021 and 4712/2020) have been implemented. These laws aim to facilitate the establishment of spin-off companies while also encouraging investments in such companies. Additionally, they establish an official registry specifically designed for innovative spin-off companies. Furthermore, tax incentives have been introduced specifically targeting Industrial PhDs.

Calls of University Innovation Ecosystem tenders<sup>44</sup> (Hungary): Initiated by Hungary's NRD Office, the calls seek to stimulate active knowledge transfer between higher education institutions and businesses. The main objective is to promote the commercialisation of scientific findings while fostering participation in EU R&I programs among universities. The development of an online matchmaking platform is currently underway, aiming at aligning universities' RDI services with demand from businesses operating within various industries. This program spans over 36 months with a total budget of HUF 3 billion, involving participation from 23 universities during its initial phase.

MSCA Post-doctoral fellowships non-academic placement<sup>45</sup> (European Commission): The EU Marie Skłodowska Curie Postdoctoral Fellowships offer researchers an optional extended

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<sup>41</sup> [Industrial PhD](#)

<sup>42</sup> [FEMtech Internship](#)

<sup>43</sup> [Xista Science Venture](#): Seed investor program supported by the Institute of Science & Technology Austria (ISTA)

<sup>44</sup> [University Innovation Ecosystem tender](#)

<sup>45</sup> [MSCA Postdoctoral fellowships](#)

period of up to six months dedicated solely towards non-academic placements. This opportunity caters specifically towards researchers interested in engaging with research and innovation projects within non-academic organisations situated either in an EU Member State or a Horizon Europe Associated Country. It is expected that such a placement will enhance the projects' goals, introducing significant benefits or influence on the fellowship. Consequently, proposals for these fellowships must incorporate a requisition for this type of non-academic sector placement.

MSCA Industrial Doctorate Network<sup>46</sup> (European Commission): In contrast to non-academic secondments within various industries, MSCA Industrial Doctorates offer a different placement structure altogether. These unique doctorate programmes cater specifically to PhD candidates aspiring to expand their competencies well outside traditional academic boundaries by immersing themselves within business sectors as well as industries at large. One key objective of these programmes is not only fostering an intimate relationship with those sectors but also cultivating active engagement therein. Through active participation, doctorate students gain invaluable hands-on experience, which grants them insights into the practical applications of their research in the real world. For this purpose, the programme mandates candidates' enrolment in doctoral programmes alongside their guidance under both academic and industrial experts. This carefully integrated approach guarantees a well-rounded, pragmatic, and consequential research experience rooted directly in relevant industry demands.

ERA Talents (European Commission): This instrument under the Widening Participation and Strengthening of the ERA part of Horizon Europe aims to boost the interoperability of careers and employability of R&I talents across sectors via secondments with a focus on widening countries and on methodologies for recruitment, mobility, and career development. ERA Talents projects address the following aspects related to improving training and lifelong learning opportunities for research talent, innovators, and other research and innovation talents, such as research managers or knowledge valorisation officers. In particular: (i) training in skills and competences following specific demand from other sectors (notably the business sector), leading to improved employability of individuals, increased access to knowledge for the host organisation, and overall strengthened interoperability of careers between the sectors involved; skills can particularly include entrepreneurship, use of digital tools, knowledge valorisation, intellectual property rights, and the greening of society. (ii) training to build R&I support capacity in both the academic and non-academic sectors, such as administrative, managerial, and technical staff supporting R&I activities and capacities in their organisations (e.g., data stewards, research managers and administrators, research infrastructure operators, knowledge valorisation officers).

### **6.3. Survey Results and best practices – Intersectoral mobility**

#### **6.3.1. Survey Results**

As highlighted in the Discussion Paper, the major factors for intersectoral mobility were already indicated in a previous study. A survey question was asked to MLE country representatives to identify and assess the influence of different supply-side and demand-side factors impacting intersectoral mobility in their respective countries. The factors are:

- Lack of absorptive capacity in industry

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<sup>46</sup> [MSCA Doctoral Network](#)

- Misconception or lack of awareness on the value of a PhD
- Lack of structural links between academia and industry, including schemes and actions
- Individual preference for an academic research career and lack of awareness of opportunities and diverse career paths outside of academia
- Low recognition of intersectoral mobility in academia for evaluation or career progression
- Lack of insight into own competencies and lack of training for skills to prepare for diverse career paths
- Low overall availability of intersectoral mobility options for researchers, with low sharing of practices among EU Member States

The survey results provide a valuable overview of the factors influencing the intersectoral mobility between academia and other sectors in various countries. The most pronounced concern, shared by 77% of respondents, is the low recognition of intersectoral mobility in academia for evaluation or career progression. This might suggest that traditional academic pathways are still favoured, potentially hindering mobility (and rewarding systems in academia, based on publications/citations' track records remain inherent obstacles for intersectoral mobility!).

Secondly, misconceptions or lack of awareness about the value of a PhD and the absence of structural links between academia and industry were identified as significant obstacles, indicating a communication gap that needs to be addressed. Similarly, personal preferences for an academic career, potentially stemming from a lack of awareness of opportunities outside academia, were identified as a moderately negative factor by 62% of respondents.

There is a shared sentiment about the industry's lack of absorptive capacity and the overall scarcity of intersectoral mobility options. Although these factors were seen to have a positive impact by some respondents, the majority view them as barriers.

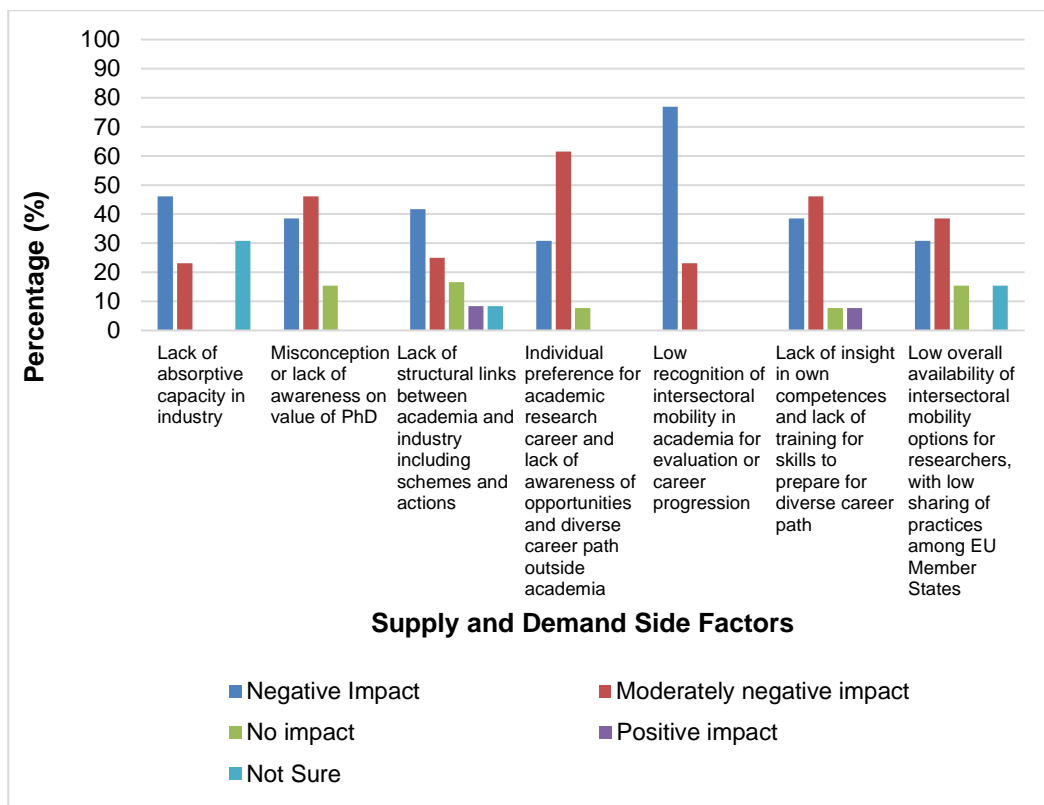


Figure 3: Survey Responses from the question - How do supply-side and demand-side factors in your country influence the movement of individuals between academia and other sectors?

The survey underscores the need for policy interventions to enhance understanding, develop structural links, and broaden the appreciation for diverse career paths beyond academia.

### 6.3.2. Best Practices – Intersectoral mobility

In both the Vienna meeting and the survey, MLE country representatives presented a wide range of intersectoral mobility best practices for consideration and openly shared their experiences. These are described below.

COMET (Austria)<sup>47</sup>: The COMET (Competence Centers for Excellent Technologies) Programme in Austria epitomises a strategic approach to fostering cooperation between industry and academia, encouraging intersectoral mobility. At the heart of the initiative lies an excellently tailored research agenda, defined jointly by industrial and scientific stakeholders, ensuring the findings are directly applicable to industry.

This wide-ranging programme, supported by an impressive funding of €2.4 billion sourced from various entities such as the federal government, business sectors, the scientific community, and the federal states, aspires to accomplish multiple objectives. It seeks to not only develop and consolidate specialised competencies but also enhance Austria's stature

<sup>47</sup> Competence Centers for Excellent Technologies (COMET)

as a location conducive to business and research activities. Furthermore, it is instrumental in creating and nurturing human resources, laying a strong foundation for scientific and industrial progress.

The COMET network has a broad outreach with 25 established COMET centres, 12 ongoing COMET projects, and 12 COMET modules. This wide network facilitates the dissemination of shared knowledge, encourages cross-disciplinary collaboration, and enhances workforce mobility, contributing to the country's innovative and economic growth. Overall, the COMET Programme is a noteworthy initiative in promoting scientific advancements, fortifying industrial connections, and augmenting intersectoral mobility.

Regional Knowledge Transfer Center East (Austria)<sup>48</sup>: The Knowledge Transfer Centres, funded by the National Foundation for Research, Technology and Development, aim to foster all aspects of knowledge and technology transfer, including the humanities, social sciences, and arts. They encompass regional consortia of educational institutions, such as the Transfer Center East in Vienna and Lower Austria. This centre, comprising 9 universities, 4 universities of applied sciences, and around 20 external partners, executes multiple cooperation projects to bolster knowledge valorisation activities. Strengths include facilitating multidisciplinary approaches, peer-learning, and joint awareness campaigns. Despite challenges related to funding, successful initiatives have been undertaken, such as the Innovation Matters project, which encourages interdisciplinary cooperation, open science and innovation methods workshops, and the development of transfer formats addressing societal challenges.

Innovation Platform (Greece): Greece's approach to promoting intersectoral mobility includes the establishment of eight thematic innovation platforms since 2014. These platforms serve as open consultation forums, facilitating interaction between researchers and industry professionals, and fostering dynamic knowledge exchange.

Business Developer (Belgium): The 'Business Developers' initiative for academia in Flanders, Belgium, is crucial in strengthening collaborations between academia and socio-economic entities, made possible through the Industrial Research Funds and interface activities. Business developers are an embodiment of a multi-faceted skill set - they are well-versed in research and commercial cultures, they can ascertain the commercialisation potential of new academic findings, and they comprehend the evolving needs of businesses. Furthermore, their ability to adapt to international networking helps forge partnerships with investors and research funders. Currently, there are 142 business developers across five associations, with AU Ghent (Artevelde University of Applied Sciences) hosting 27 business developers across diverse domains, catalysing innovation and societal impact.

Sofia University (Bulgaria): Under the framework of the National Strategy for Research and Development (2017-2030), the country is prioritising the cultivation and mobility of talented researchers. The establishment of the Centre of Excellence (CoE) in Information and Communications Technology, known as UNITE, serves as a significant milestone in this initiative. UNITE is committed to building Bulgaria's premier ICT CoE with a distributed research infrastructure, promoting a collaborative, dynamic research environment. Activities under UNITE extend from knowledge dissemination through a digital innovation hub to encouraging the mobility of researchers, as well as collaboration on joint projects with private investors and businesses. In addition, the Big Data for Smart Society Institute GATE exemplifies how the principles of cross-sector and international knowledge transfer can be implemented. It has facilitated mobility visits to esteemed international institutions like

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<sup>48</sup> Knowledge Transfer Center East



Chalmers University and the Digital Twin Cities Centre, demonstrating the impact of researchers' mobility in fostering international collaborations and joint research projects.

KOC3.0 (Slovenia)<sup>49</sup>: The Competence Centres for Human Resources Development (KOC) in Slovenia are strategic partnerships formed between companies within the same sector or priority area defined by the Slovenian Smart Specialisation Strategy S4. KOC 3.0, continuing from KOC 2.0, established ten partnerships involving 326 companies through a public tender. The focus areas range from sustainable food production to smart cities, reflecting the nine verticals and the horizontal of the S4 strategy. With a 98% utilisation of the overall budget, the program far exceeded its objective, achieving 29,426 inclusions into training programs, promoting lifelong learning and industry-specific skills.

Several Initiatives (Hungary): Hungary's National Research, Development, and Innovation (NRDI) Office has implemented various initiatives to bolster scientific research and innovation. These include the Cooperative Doctoral Programme, fostering academic-industry collaboration to prepare PhD candidates for both sectors. The Competence Centres initiative<sup>50</sup> seeks to establish high-standard research centres that drive innovation and competitiveness. The Territorial Innovation Platforms<sup>51</sup> aim to create synergies between regional actors to support innovation-driven regional development. The National Laboratories Programme<sup>52</sup> sets up cutting-edge research laboratories with significant scientific and societal impact. NRDI also administers the University Innovation Ecosystem tenders, providing funds to universities to strengthen their roles in the innovation ecosystem. Lastly, NRDI has set up a funding scheme for market-driven Research<sup>53</sup>, Development, and Innovation (RDI) projects, supporting collaborations that focus on commercial applicability and societal benefits. These initiatives form a comprehensive effort to build an innovation-driven economy and society in Hungary.

InnoRenew CoE (Slovenia)<sup>54</sup>: The InnoRenew CoE, co-funded by the European Commission's Horizon 2020 program, the Republic of Slovenia, and the European Regional Development Fund, fosters a dynamic collaboration environment that promotes intersectoral mobility. Its primary objective is to bridge the gap between industry and academia by leveraging these partnerships. The centre provides a platform for innovative research, information exchange, and project development, ensuring a tangible, practical impact on industry.

Multiple programmes (Norway): Since 2016, the University of South-Eastern Norway (USN) has employed 25 experts from regional industry and businesses to enhance their research and development capabilities. These professionals contribute 20% of their time to USN. Additionally, USN offers an industrial master's degree, designed in close collaboration with industry partners. This course allows students to split their time evenly between study and work in a related company, bringing real-world problems back to the classroom for practical learning. Moreover, the hiring of innovation managers at NTNU aims to unlock more innovation potential from research and industry collaborations.

New Schemes (Estonia): Estonia recently launched new programmes aimed at facilitating enterprise-academia and academia-public sector collaborations, complementing the existing academia-enterprise initiative. These novel schemes are designed to foster knowledge exchange, promote innovation, and bridge the gap between these sectors. By integrating

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<sup>49</sup> Competence centres for Human Resources Development (KOC3.0)

<sup>50</sup> Centers of Excellence

<sup>51</sup> Territorial Innovation Platforms

<sup>52</sup> National Laboratories

<sup>53</sup> Support or market driven RDI projects

<sup>54</sup> InnoRenew CoE

academic expertise with industry practices and public policy, these programmes aspire to create more synergistic and effective relationships. As these are new endeavours, the outcomes and benefits will likely be reported in the coming year, providing a more comprehensive understanding of their impact.

MSCA Joint Doctorate<sup>55</sup> (European Commission): MSCA Joint Doctorates epitomize a deeply coordinated method of international, inter-sectoral, and interdisciplinary cooperation in doctoral education. This system culminates in the awarding of either a joint doctoral degree or multiple doctoral degrees from the associated institutions. Crucially, PhD candidates engaged in these programmes receive the benefit of joint supervision and must be formally enrolled in the joint curriculum, ensuring a harmonised and robust educational experience.

MSCA Staff Exchange<sup>56</sup> (European Commission): The Marie Skłodowska-Curie Staff Exchanges promote cross-fertilisation between academic and non-academic sectors, fostering the sharing of knowledge and skillsets. They encourage staff movements in both directions, enabling researchers from universities to gain insights into the business environment, while professionals from the non-academic sector get exposed to academic research. This bidirectional mobility aims to cultivate a symbiotic relationship between the two sectors, enriching the participant's skills and understanding of different work cultures, and in turn, enhancing innovation capacity, research application, and the development of new collaborative networks.

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<sup>55</sup> MSCA Joint Doctorate

<sup>56</sup> MSCA Staff Exchanges

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Knowledge Transfer Center East

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MSCA Joint Doctorate

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National Laboratories

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REBECA 2019 Program

REBECA 2020 Program and Report

Spin off fellowships

Support or market driven RDI projects

Territorial Innovation Platforms

University Innovation Ecosystem tender

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The Thematic report focuses on the lesson learned from the Topic 2b meeting in Vienna on research talents, capacity building and intersectoral mobility for knowledge valorisation. The report highlights the need for fostering intersectoral mobility to bolster innovation in Europe.

*Studies and reports*

