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Policy and legal context, governance, and funding

Mutual Learning Exercise on Knowledge Valorisation Incentives and Skills

Topic 2a Discussion paper

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Policy and legal context, governance, and funding

Mutual Learning Exercise on Knowledge Valorisation Incentives and Skills

Discussion Paper

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Table of Contents

1. Introduction 4

1.1. Scope of the topic 4

2. Policy framework for knowledge valorisation 6

2.1. Concepts and systemic framework 6

2.2. Strategic approach to implementation 7

3. Policy support instruments and incentives for knowledge valorisation 9

3.1. Funding instruments: opportunities and constraints 10

3.1.1. Grants and subsidies for collaborative R&D projects 10

3.1.2. Performance agreements and performance-based funding for universities, research organisations and research funding institutions based on a set of indicators 11

3.1.3. Public funding for intermediaries and networks 11

3.1.4. Funding related with innovation cycle phase (e.g. Proof-of-Concept) 11

3.1.5. Vouchers 12

3.1.6. Technology Infrastructures 12

3.1.7. Joint Laboratories 12

3.1.8. Public support to academic spin-offs and start-ups 12

3.1.9. Fiscal/Tax incentives 13

3.2. The diversity of incentive schemes 13

3.2.1. Remove legal and administrative barriers 13

3.2.2. Intellectual Assets Management 14

3.2.3. Standardisation 14

3.2.4. Open innovation platforms and programmes 14

3.2.5. Intersectoral mobility 15

3.2.6. Skills development for knowledge valorisation 15

3.2.7. Research assessment, career progression of researchers and remuneration 16

3.2.8. Awards and recognition for researchers/ Prizes/ Seals 16

Summary 17

References 18

List of figures and tables

Figure 1: Valorisation Channels and Tools (European Commission, 2020) 5

Table 1: Types of interactions between policy instruments 8

1. Introduction

The Guiding Principles for Knowledge Valorisations set out a common line on **policy initiatives for improving knowledge valorisation in the European Union**. "The aim of the Recommendation on the guiding principles for knowledge valorisation is to adopt a common line on policy principles and measures for national, regional and local policy makers to maximize the transformation of research and innovation results into solutions that benefit society".[1]

This Discussion Paper is the fourth in a series within the Mutual Learning Exercise (MLE) on **"Knowledge Valorisation: Focus on Skills, Intersectoral Cooperation and Incentive Systems"**. The purpose of this MLE is to exchange information and experiences as well as to identify good practices, policies and programmes that support the translation of research results and knowledge into value for society. The ultimate goal is to provide the MLE participants with tools for putting the new **Guiding Principles for Knowledge Valorisation** into practice.

1.1. Scope of the topic

In recent years Member States' efforts to support research and technology transfer are notable, reflecting a commitment to advancing knowledge and innovation. However, the evolution towards a knowledge valorisation approach stands as the next strategic imperative. This paradigm shift acknowledges the indispensable roles played by various stakeholders, including **Academia, Industry, Private Investors, Public Authorities, and Civil Society**. Recognising these contributions as vital components of a collaborative ecosystem is pivotal for unlocking the full potential of research endeavours.

While there are significant differences in how individual EU Member States (MS) construct a response to this challenge, there are certain commonalities as to what constitutes good policy instruments. In 2020, the European Commission published a report[2] on **valorising channels and tools** (Fig.1) to be addressed in promoting the uptake of research outcomes. These channels not only point out academia-industry joint research and mobility and the creation of research-driven spin-offs and start-ups but emphasise the role of intermediaries and citizens as well as Intellectual Assets Management (IAM), standardisation, knowledge dissemination and policy uptake. Tools were organised according to each channel, and funding instruments, innovative governance models and/or legislation are transversal issues to all of them.

The stakeholder consultation on the Guiding Principles for knowledge valorisation revealed that most of the tools listed in the questionnaire were considered relevant for knowledge valorisation by more than 50% of respondents, demonstrating how crucial it is to have a broad range of policy tools for knowledge valorisation[3].

[1] https://research-and-innovation.ec.europa.eu/research-area/industrial-research-and-innovation/eu-valorisation-policy/knowledge-valorisation-platform/guiding-principles-knowledge-valorisation-implementing-codes-practice_en

[2] Research & innovation valorisation channels and tools (European Commission, 2020)

[3] European Commission, Directorate-General for Research and Innovation, Eerola, I., *Stakeholder consultation on the guiding principles for knowledge valorisation – Report of the results*, Publications Office, 2021, https://data.europa.eu/doi/10.2777/87803

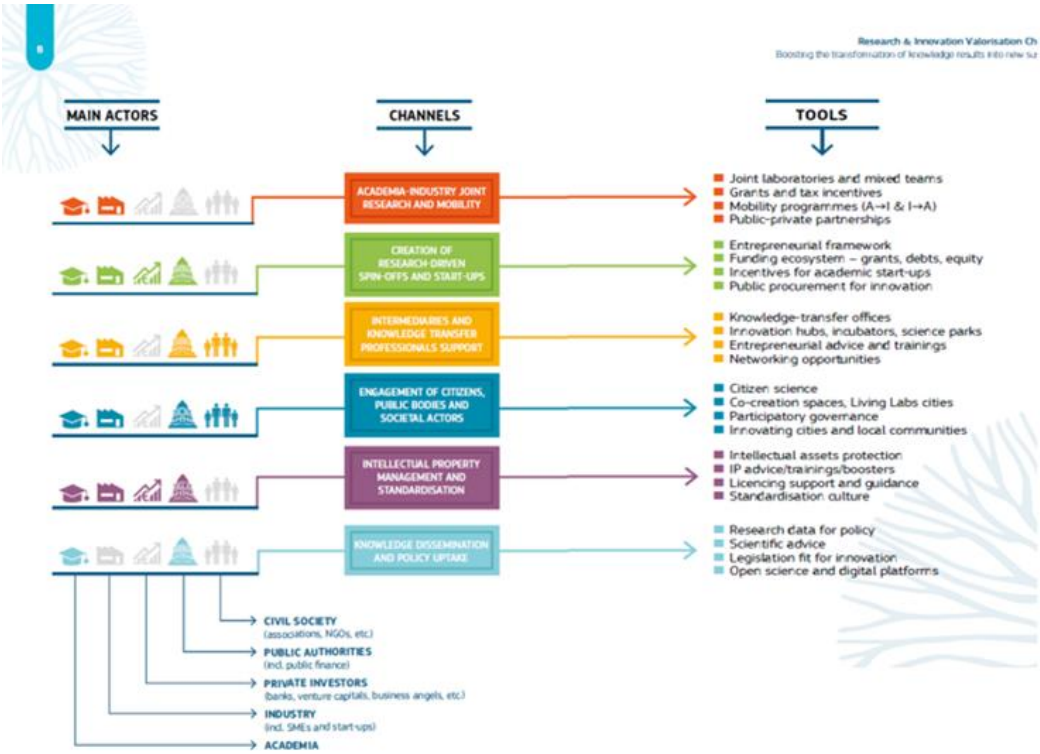

Figure 1: Valorisation Channels and Tools (European Commission, 2020)

Moreover, the recent European Commission report on the implementation of the ERA Policy Agenda[4] identified the most frequently used policy instruments by Member States to endorse ERA Action 7 on knowledge valorisation. Not surprisingly, the report revealed that *direct financial support*, including project grants, institutional funding for public research, and credits or loans for firms, is the most commonly employed instrument.

1.2. Purpose of the Discussion Paper

This Discussion Paper focuses on the national/regional policy framework and governance models for knowledge valorisation and the use of funding instruments to embed a knowledge valorisation culture, especially in public research and innovation activities.

The Discussion Paper aims to prepare participants for the upcoming MLE meeting in Madrid, Spain (January 2024), unveiling some of the most common **national support mechanisms and strategies** to engage the wide range of actors in valorisation activities. During this meeting, the focus will be on discussing the significance of adopting a comprehensive approach to knowledge valorisation, underpinned by a long-term national strategy. We will delve into conversations surrounding the diversity of incentives and explore the most promising instruments aimed at bolstering and sustaining knowledge valorisation efforts.

[4]European Commission, Directorate-General for Research and Innovation, Andriescu, M., Collier, N., *ERA monitoring 2023 – 18-month review of the implementation of the ERA policy agenda ('EU-level report')*, Andriescu, M.(editor), Collier, N.(editor), Publications Office of the European Union, 2023, https://data.europa.eu/doi/10.2777/499744

2. Policy framework for knowledge valorisation

2.1. Concepts and systemic framework

In the ever-evolving scenery of societal challenges, **delivering more value** from Research & Innovation (R&I) investments and strengthening knowledge valorisation stands as a crucial catalyst for addressing pressing issues and steering communities towards sustainable futures. As societies grapple with the complexities of climate change, resource depletion, and rapid technological advancements, policymakers debate on how to create an environment that supports R&I, fosters knowledge valorisation, and ensures inclusive and sustainable growth.

EU Member States adopted the Council Conclusion on Guiding Principles for Knowledge Valorisation in December 2022[5] under the Czech Presidency. They confirmed their commitment to 'research valorisation as a tool for economic and industrial recovery and resilience' during a policy debate at the Competitiveness Council of 8 December 2023 under the Spanish Presidency. The Belgian Presidency plans to adopt Council Conclusions on improving the valorisation of research results[6]. The importance of knowledge valorisation, and of putting in place the right conditions for researchers to transform research results into innovative solutions, are both underlined in the Council Recommendation on a European framework to attract and retain research, innovation, and entrepreneurial talents in Europe, adopted in December 2023.

In national policy, the **co-existence and the interconnected nature of Science/Research, Technology, Innovation, and Industry policies** underscores the importance of a **collective understanding of concepts** and a **shared uptake of principles.** Support for knowledge valorisation takes place at the interface between these different policy areas, reflecting the complexity of the issue. It is the subject of interventions of different national ministries and institutions, shared competences between national and regional levels, a combination of horizontal general measures and more thematic or sector-specific schemes.

Value creation: it asserts, involves the **public sector setting direction**, **bringing different actors together** to co-create value, and needs dynamic capabilities for experimentation and adaptation. A mission-based approach, involving direction setting and purpose for collaborative innovation, followed by the exploration of new ways to engage civil society through cross-actor, cross-sector, and cross-disciplinary interactions, is a possible role of governments (Mazzucato, 2022).

Knowledge valorisation is the process of **creating social and economic value from knowledge** by linking different areas and sectors and by transforming data, know-how and research results into sustainable products, services, solutions, and knowledge-based policies that benefit society.[7]

Decentralised political and implementation structures may pose coherence challenges, making it crucial to **adopt a comprehensive and coordinated approach** guided by a visionary perspective and strategic instruments for effective and sustainable policy design. Limited financial resources are a particular challenge and require a nuanced approach that

[5] Council Recommendation (EU) 2022/2415 of 2 December 2022 on the guiding principles for knowledge valorisation
[6] Belgian Presidency programme
[7] https://research-and-innovation.ec.europa.eu/research-area/industrial-research-and-innovation/eu-valorisation-policy_en#why-do-we-need-an-eu-valorisation-policy

encourages collaboration and strategic decision-making across ministries and funding agencies. Prioritisation and coordination among these entities are essential, as is the **exploration of alternative funding sources** to address funding limitations. The utilisation of EU funds, particularly the Recovery and Resilience Facility (RRF), represents a highly relevant funding instrument for EU Member States.

Modernising the policy toolkit is critical to embed and incentivise the creation of value from knowledge and the implementation of appropriate instruments, with a vision-driven approach and sustainable financing models. Long-term results rely on political commitment, establishing **medium to long-term policies** tied to capabilities, and fostering public-private sector collaboration for sustained support.

The **proper legal landscape and instruments** are also crucial for success. An adequate and supportive legal framework and removing administrative barriers is imperative for the strategic use of regulatory instruments and creating a conducive environment to obtain the expected results.

Open questions to debate in the MLE workshop in Madrid:

- How can policy makers embed knowledge valorisation in an existing or new national R&I strategy? Would it be preferable to develop an independent knowledge valorisation strategy?

- What other policies can be employed to establish a sustainable knowledge valorisation strategy and what are the main enabling conditions for its implementation?

- How should the legal framework be structured to support knowledge valorisation? What specific legal and administrative barriers need to be addressed?

- How can ministries and associated funding agencies align their interventions to ensure a coherent, long-term, and stable strategy, as well as the proper distribution and efficient utilisation of available funds?

2.2. Strategic approach to implementation

A national strategy can establish a structure for supporting and investing in knowledge valorisation. Formulating a strategy requires embracing complexity and uncertainty, urging a pluralistic approach actively **involving all stakeholders**. Recognising their diverse perspectives and expertise, extending beyond Science and Technology to include Social Sciences, Humanities, and the Arts, adopting a portfolio approach and fostering creativity are also required.

The design of such a strategy should be mindful of the **country's unique context** involving informed decision-making through strategic intelligence, including diagnoses, prospective studies, and gap analyses. Establishing clear, yet adaptable, goals, defining policy instruments and corresponding indicators is essential. Integrating transparent **monitoring and evaluation** mechanisms enhances the efficient utilization of limited resources. Pilot experiences are valuable for trying new instruments, allowing for adjustments before widespread implementation.

Acknowledging the nuanced **interplay between policy instruments** and understanding how different instruments work together or potentially counteract one another within the broader policy framework is essential to the design and implementation of policies.

Determining the **selection and combination of instruments in a "policy mix"** is an intricate process, and the resulting effects are deeply influenced by the specific context. Beyond composing the policy mix, it is crucial to recognise that different combinations of instruments can lead to diverse outcomes. When designing policies, composed by a selection of different instruments within a policy mix, it becomes imperative to recognise that there will be interactions - both positive and negative - among its elements.

The following table synthetizes five types of interactions between policy instruments: precondition, facilitation, synergy, contradiction, or complexity.

Type of interaction	Description
Positive interactions	
PRECONDITION	X is necessary in order to implement Y (i.e., policy instruments need to be introduced in a specific order)
FACILITATION	X increases the effectiveness of Y, but Y has no impact on X
SYNERGY	X increases the effectiveness of Y and vice versa
Negative interactions	
CONTRADICTION	X decreases the effectiveness of Y and vice versa
COMPLEXITY	Using too many policy instruments results in confusion for target groups, operational difficulties and increased administrative costs

Table 1: Types of interactions between policy instruments[8]

Subsequently, it is essential to contemplate the **governance model** that will oversee policy implementation. In addressing the multifaceted nature of contemporary challenges and the multiplicity of actors involved, governance models confined to a single government area or agency, might prove insufficient. Recognising this need for adaptability and dynamism, the concept of *'tentative governance'* has emerged. Tentative governance embodies provisional, flexible, revisable, dynamic, and open approaches, emphasizing experimentation, learning, reflexivity, and reversibility as key components (Kuhlmann et al., 2019). Governments with tentative governance approaches will adopt the role of facilitating and coordinating agent, balancing an appropriate degree of flexibility, while maintaining sufficient funding and stability.

[8]Adapted from OECD (2019a), "Science-Industry knowledge exchange. A mapping of policy instruments and their interactions", *OECD Science, Technology and Industry Policy Papers*, No. 66, OECD Publishing, Paris, https://doi.org/10.1787/66a3bd38-en.

By weaving together, a comprehensive strategy, the appropriate policy mix of instruments and a well-structured governance model, societies can create an **ecosystem** that not only encourages knowledge valorisation but also ensures that public research and innovation activities contribute meaningfully to societal progress.

Open questions to discuss during the MLE meeting in Madrid:

- How can different instruments be combined in a policy mix to foster knowledge valorisation? Is it possible to define a core set of instruments that should always be part of a knowledge valorisation strategy/action plan regardless of the specificities of national R&I systems?
- How can policymakers deal with potential negative interactions between policy instruments?
- What governance models should be implemented?
- Which monitoring and evaluation mechanisms should be considered?
- What are the challenges and strategies of advanced innovators to reform continuously, adapt to new developments and avoid overcomplexity? What are the challenges and strategies of catching-up innovators to build knowledge valorisation capacity and avoid errors?

3. Policy support instruments and incentives for knowledge valorisation

Implementing a strategy for knowledge valorisation involves adopting policy **support instruments and incentives** ensuring a whole **ecosystem approach** and considering **all stakeholders** involved.

Public policies aimed at supporting knowledge valorisation encounter an increasingly complex landscape of actors, characterised by a multitude of intermediary organisations (see MLE Topic 3 – Intermediaries Discussion Paper and Thematic Report), networks (see MLE Topic 4 – Networks Discussion Paper and Thematic Report), and individual players.

In this evolving context, it becomes crucial to carefully **analyse the incentives that exist and should be created** for the various actors and determine their rules and limits. A new strategic orientation to knowledge valorisation in public funding is needed.

Tailoring support mechanisms is a critical aspect of fostering effective knowledge valorisation. This entails a nuanced understanding of the distinct missions and strategic objectives of both **individuals and institutions**, considering the unique goals of researchers, research teams, innovators, and other individuals alongside the needs of organisations, such as Higher Education Institutions (HEIs) and research/intermediary/civil society entities as well as industry.

Public support mechanisms can strategically embrace both **results-based** and **project-based** funding models, ensuring complementarity and adaptability. Results-based funding can incentivise tangible outcomes, while project-based funding allows for innovation, exploration, and mission uptake.

A holistic perspective on funding mechanisms necessitates the examination of funding sources across different levels, including **regional, national, and international** arenas, capitalizing on existing instruments and preventing potential overlaps. Regional funding may cater to localised initiatives and encourage the emergence of regional ecosystems; national funding can support broader projects aligned with smart specialisation strategies and national priorities; and international collaboration can amplify the scale and impact of knowledge valorisation efforts in response to global challenges.

The balance between **short-term and long-term** funding schemes is paramount. Short-term funding addresses immediate needs, while long-term support is indispensable for sustained valorisation of research results, including as a result of more attractive and sustainable opportunities for the individuals involved in the knowledge valorisation process. Moreover, recognising the importance of both **direct and indirect** incentive mechanisms is key. Direct funding supports specific projects, while indirect instruments, such as providing access to technology infrastructures or capacity-building programs, creates an enabling environment for knowledge valorisation.

The **state aid framework** needs to be considered when designing instruments for fostering groundbreaking initiatives close to the market. While these rules have been set up to prevent distortions to competition, compliance with them is sometimes perceived as a restriction on the design and implementation of new support mechanisms.

3.1. Funding instruments: opportunities and constraints

Despite the potential of knowledge valorisation as a catalyst for progress and inclusive growth, barriers persist, hindering the transformation of scientific breakthroughs into practical applications to address societal challenges. A persistent "funding gap" or "Valley of Death" exists between basic research and commercialisation. To bridge this gap, various public funding schemes have emerged globally (assuming different names, including Proof-of-Concept (PoC) or translational funding (Munari et al., 2021)), aiming to alleviate financial constraints, facilitating Intellectual Property (IP) rights protection, prototype building or market analysis activities, and reducing uncertainty, making projects more viable for potential clients and more able to attract additional subsequent funding, from public or private sources.

While not providing an exhaustive list, examples of funding programs, under different titles, are listed below.

3.1.1. Grants and subsidies for collaborative R&D projects

The most widespread instrument to incentivise the private sector (may include companies and non-profit organisations) and research institutions to engage in collaborative projects. Private sector stakeholders seek for risk-mitigation, cost-sharing and gaining access to external knowledge. The incentive's structure varies based on the characteristics of each country and economic framework, encompassing direct funding for small or large consortia, sector-specific or mission-oriented calls.

Some challenges regarding this instrument include the difficult access for start-ups, a predominant focus on research activities with less emphasis on PoC, prototyping, and demonstration, and unclear IP management.

Despite its challenges, this collaborative approach presents opportunities for establishing sustainable models of academia-industry collaboration, fostering long-term partnerships.

Research indicates that subsidised research cooperation can significantly enhance innovation efficiency.

3.1.2. Performance agreements and performance-based funding for universities, research organisations and research funding institutions based on a set of indicators

HEIs have continually adapted to evolving governmental visions and prevailing socioeconomic influences more recently underscoring the crucial role of applied research. The modern role of HEIs incorporates a comprehensive "**third mission**," integrating their primary educational and research missions with knowledge transfer, entrepreneurship, and industry partnerships.

Performance-Based Funding of HEIs, research organisations and research funding institutions is a mechanism that policymakers deploy to **incentivise the quality and impact of research**. However, when universities are concerned, distinguishing between "basic" and "applied" research funding, as well as addressing the **third mission funding** related to societal impact, is not clear. Although universities may create mechanisms to incentivise researchers to engage in knowledge valorisation efforts (awards, prizes, revenue and equity sharing), research activities that determine their career progression directly influences their (lack of) motivation and behaviour (van de Burgwal, 2019).

3.1.3. Public funding for intermediaries and networks

The challenges in funding intermediaries and networks revolve around the role of public financial intervention in supporting these actors, along with considerations regarding their purpose and ownership models.

There is a diversity of intermediaries with different funding models, ranging from public funding, e.g. those solely funded by universities or research institutes, to those with mixed (public/private) funding or private funding. As mentioned in *Topic 3 – Intermediaries Thematic Report*, the motivations, incentives, and funding models are fundamentally different for academic-based intermediaries, such as Technology/Knowledge Transfer Offices (TTO/KTO) and university-based incubators, and non-academia intermediaries. Moreover, academic-based intermediaries often handle the responsibility and management of certain funding instruments, including PoC funds.

Policies and practices to foster the establishment and maintenance of networks may also encompass public funding schemes. Leveraging existing funding instruments and ensuring these measures are open to multi-stakeholder activities, having sufficient budgets and maintaining a longer-term perspective is vital for sustainable network building (see MLE Topic 4 – Networks Discussion Paper and Thematic Report).

3.1.4. Funding related with innovation cycle phase (e.g. Proof-of-Concept)

Funding programs aimed at demonstrating the technical and commercial feasibility of discoveries and inventions, including PoC, feasibility studies, or prototyping funding, play a pivotal role in addressing funding and motivational gaps faced by early-stage valorisation projects and researchers. PoC schemes emerge as critical instruments in enhancing the maturation and innovation potential of technologies originating from academic research, fostering early-stage academic engagement and the ability to attract additional developmental funding.

The challenge involves determining the optimal level of incentives and preventing redundancies in funding allocation among various funding agencies and institutions that address the same research areas and target the same beneficiaries.

3.1.5. Vouchers

Vouchers are a swift and easy instrument to stimulate collaborative innovation, initiating a positive cycle between the demand for innovation and the supply of innovative solutions. This instrument can target various beneficiaries, including companies (mainly young SMEs and start-ups), researchers, entrepreneurs, or others, and spans different phases of the innovation process. It typically offers modest financial support for activities such as IP protection, prototyping, market validation, or startup creation. Additionally, it may be accompanied by other support mechanisms, such as coaching or mentoring.

3.1.6. Technology Infrastructures

Technology Infrastructures are **facilities, equipment, capabilities, and support services** required to develop, test and upscale technology to advance from validation in a laboratory up to higher TRLs prior to competitive market entry. They can have public, semi-public, or private status. Their users are mainly industrial players, including SMEs, which seek support to develop and integrate innovative technologies towards commercialisation of new products, processes, and services, whilst ensuring feasibility and regulatory compliance'.[9]

These infrastructures often cater to specific sectors or technologies, serving as testing grounds for companies to test, validate, refine and **scale-up** new disruptive technologies in real-world environments. Their focus typically extends to higher Technology Readiness Levels (TRLs). Regional asymmetries in distribution, difficulties in international accessibility, and potential risks associated with the duplication of organisations or underutilisation of facilities may impede optimising the effectiveness and impact of technology infrastructures on innovation and technological advancement.

3.1.7. Joint Laboratories

Joint Laboratories, sometimes called collaborative, co-created, or competence centres, are collaborative institutions jointly operated by both research institutions and private companies. Co-founded and co-funded by the public sector and by the company, these entities serve as platforms for shared research and valorisation activities and dedicated facilities, providing long-term partnerships and science-supporting services to both partners.

The management of joint laboratories presents unique challenges, specifically concerning **governance models and identity issues**, emphasizing the criticality of establishing proper management structures to ensure the efficient performance of these collaborative entities.

3.1.8. Public support to academic spin-offs and start-ups

[9]European Commission, Directorate-General for Research and Innovation, *Technology infrastructures – Commission staff working document*, Publications Office, 2019, **https://data.europa.eu/doi/10.2777/83750**

Public Seed and Venture Capital Funds play a pivotal role in fostering innovation, addressing critical gaps in **early-stage financing** often overlooked by traditional financial institutions.

The limited availability of private funding for knowledge valorisation activities poses a significant barrier to the effective commercialisation of research results. To overcome this challenge, public institutions, including universities and research organisations, have strategically established seed and venture capital funds (such as university seed funds), to bolster translational research and promote academic spin-offs.

The Spanish *INNVIERTE Programme* of the Centre for the Development of Industrial Technology (CDTI) aims to foster, through public-private venture capital, the development and consolidation of innovative companies with great capacity for economic growth and technology-based companies that are in the very early stages of development and that rely on the knowledge developed in research organisations.

3.1.9. Fiscal/Tax incentives

Fiscal or tax incentives for companies investing in Research and Development (R&D) are important instruments of economic policies. The latest OECD study on the impact of R&D tax incentives with the participation of 21 countries indicates a sizeable impact on business R&D: about 1 unit of R&D tax support is associated on average with around 1.4 units of R&D investment[10].

Knowledge transfer and valorisation can be enhanced by, for example, tax credits that specifically address companies that engage in collaborative research or purchase services from universities, research organisations or even spin-offs, considering subcontracts as eligible expenses. Favourable tax regimes may also foster intersectoral mobility like industrial PhDs.

In developing effective policies, it is imperative for policymakers to design tax incentives that **strategically align with national innovation goals**. Such incentives can take the form of tax credits, deductions, or accelerated depreciation for R&D expenditures, providing tangible benefits that spur investment in knowledge valorisation.

Open questions to be discussed in the MLE workshop:

- What funding schemes are more relevant to implement the Guiding Principles in knowledge valorisation?
- What would be a good balance between funding research and funding knowledge valorisation?

3.2. The diversity of incentive schemes

In the context of incentive schemes, policymakers may consider **regulations** and a panoply of **soft instruments**, contributing to a complex framework that instils (or refrains) knowledge valorisation and creates a new mindset, trust, and mutual understanding.

3.2.1. Remove legal and administrative barriers

[10]OECD (2023), "The Impact of R&D tax incentives: Results from the OECD microBeRD+ project", *OECD Science, Technology and Industry Policy Papers*, No. 159, OECD Publishing, Paris, https://doi.org/10.1787/1937ac6b-en

Recognising the impact of legal barriers and **promoting a conducive legal framework and transparent administrative processes** are essential for facilitating efficient knowledge exchange and valorisation. During the MLE meeting in Austria, for example, Greece presented significant changes aimed at addressing regulatory obstacles, establishing a legal framework to enhance the intersectoral mobility of researchers and facilitate the creation and registration of spin-offs and start-ups, implementing several new laws (see the Topic 2b Thematic Report on Incentives and Skills: Focus on Research Talent).

The accelerated pace of technological progress frequently encounters challenges with existing regulations or their absence. Consequently, new frameworks, such as **regulatory sandboxes**, are emerging to address this dynamic environment. A regulatory sandbox serves as a structured framework established by governments to facilitate controlled, small-scale testing of innovations. The underlying motivation is to incentivise innovators to conduct **testing within a controlled environment**, providing regulators with valuable insights into emerging technologies. While regulatory sandboxes offer significant benefits, including the potential for streamlined rule-making and improved supervision policies, there is also a need for a robust legal framework to prevent misuse or abuse. This is particularly significant in sectors with stringent regulatory requirements, such as healthcare, biotechnology, or when dealing with the application of Artificial Intelligence.

3.2.2. Intellectual Assets Management

The shift from protecting IP rights to Intellectual Assets Management represents a profound transformation in how organisations approach and leverage their intellectual assets (see dedicated Discussion Paper). This evolution recognises that the traditional focus solely on legal protection and ownership of IP is insufficient in the dynamic landscape of innovation and knowledge-driven economies. In this context, policymakers play a crucial role in **facilitating and encouraging the implementation of the Code of Practice on the management of intellectual assets**[11] through, inter alia, awareness raising, skills development and the provision of advisory services. By integrating the principles of intellectual assets management into existing policies, they can ensure that these are recognised as a strategic component of national and regional R&I strategies.

3.2.3. Standardisation

Standardisation is a key policy instrument to help valorise research results and to bring them to market at scale across the European Single Market and internationally. The **Code of Practice on standardisation**[12] emphasizes the use of standards to increase the uptake of research results in the single market by promoting interoperability through the establishment of uniform criteria as well as the early planning of standardisation in R&I projects.

Furthermore, recommendations for policy and stakeholders include examining the standardisation needs of start-ups and SMEs in R&I projects and Standards Development Organisations to develop service portfolios aligned with R&I activities.

3.2.4. Open innovation platforms and programmes

[11]Code of Practice on the management of intellectual assets
[12]Code of Practice on standardisation

As mentioned in the *Discussion Paper Networks and Open Innovation processes for knowledge valorisation "stakeholders and participants in an Open Innovation ecosystem can include business entities, universities, intermediate public, and private research organisations, but also governmental organisations and agencies as well as citizens, societal interest groups and entities of the financial sector"*.

Open innovation platforms serve as bridges connecting various stakeholders and have evolved from the mere identification of partners or competences into comprehensive engagement platforms for knowledge co-creation. Open innovation programmes can assume several formats, including idea competitions and collaborative product/service design.

Open innovation policies should **facilitate** open science and innovation, **removing legislative barriers** and **stimulating** the active participation of specific actors (researchers, start-ups, non-profit organisations, citizens, and networks) in the innovation process, thus creating new responses to real and pressing technological and societal challenges.

3.2.5. Intersectoral mobility

Intersectoral mobility drives innovation, knowledge exchange, and skills diversification among researchers (see Topic 2b Thematic Report on Incentives and Skills: Focus on Research Talent). Fostering an environment that promotes researchers' mobility necessitates a supportive and flexible framework, enabling seamless transitions between diverse sectors, disciplines, countries, and between research performing organisations and industry, and vice versa.

Financial incentives and the **removal of potential legal barriers**, ensuring that processes governing intersectoral and bi-directional mobility are transparent, straightforward, and expedient should be considered. National governments, HEIs and research organisations comprise a diverse set of laws (e.g., labour, and social security), contracts (e.g., employment contract) and clauses (e.g., exclusivity, non-competition) that may foster or inhibit mobility. Analysing the existence of legal barriers and **creating the proper conditions to facilitate** a more fluid and dynamic interplay between sectors and players (e.g., dual education programmes, role models, practitioners, career services) may unlock the potential for greater mobility.

3.2.6. Skills development for knowledge valorisation

Fostering a knowledge valorisation and entrepreneurial mindset requires cultural change alongside the development of skills and competencies. Entrepreneurship education courses, training programmes, coaching, and mentoring can be implemented to develop researchers' entrepreneurial skills: **communication and dissemination, intellectual assets management, standardisation, skills to enable open science, business skills, soft skills** (critical thinking, ethics and integrity, creativity, among others) **and intermediary skills for knowledge valorisation** (see Topic 2b Thematic Report on Incentives and Skills: Focus on Research Talent), including in **Social sciences, Humanities and the Arts** research areas**.**

Moreover, recognising the competence gaps and the importance of transversal skills in the knowledge valorisation process, it is crucial to provide the implementation of **capacity-building initiatives and specialised training programs** to empower researchers, university staff, intermediaries, and private organisations in the effective practice of knowledge valorisation. These programs serve a dual purpose by not only equipping professionals with essential tools for fostering collaboration and utilising technology scouting and valuation

methodologies but also by reinforcing structures, processes, and practices for the utilisation of research results and scientific knowledge.

A best practice to explore during the MLE meeting in Madrid is *DINA – ITC Programme*[13] for dynamization and training on knowledge exchange and transfer for research, management and technical staff of universities, research organisations, technology institutes, science and technology parks and companies.

3.2.7. Research assessment, career progression of researchers and remuneration

As discussed in the MLE meeting in Austria, the recognition and rewarding of researchers' achievements and impact in knowledge valorisation activities such as inter-sectoral cooperation, patenting, licensing, standardisation, spin-offs, policy advice, or social innovation, is a key issue to tackle from the policy point of view.

Altering research assessment, researchers' career progression and remuneration to consider knowledge valorisation, intersectoral mobility, and entrepreneurship as important factors for future performance evaluations is essential, including in the context of the Coalition of Advancing Research Assessment - CoARA[14] initiative (see Topic 2b Thematic Report on Incentives and Skills: Focus on Research Talent).

Sexenios de Transferencia is a Spanish best practice to consider in this domain.

3.2.8. Awards and recognition for researchers/ Prizes/ Seals

Specific recognitions, either in the form of an award or prize may play a crucial role in influencing behaviour change and encouraging researchers and institutions to pursue knowledge valorisation (see Topic 2b Thematic Report on Incentives and Skills: Focus on Research Talent). Establishing recognition programs for innovations that contribute to priority areas can also motivate researchers and entrepreneurs to align their research with these goals. Providing seals acknowledging the excellence of projects or spin-offs with high success rates in competitive calls (but above threshold) may open the door to new investment mechanisms or facilitate following evaluation rounds.

Other instruments could also have been mentioned in this Discussion Paper, including capacity-building, missions, innovation bootcamps, competitions, co-creation exercises, guidelines and codes of conduct, networking and demonstration events, communication campaigns, awareness raising and other innovative support mechanisms. This **diversity of incentives and funding instruments** to support knowledge valorisation will be the scope of the debate during the Madrid meeting.

Open questions to lead the debate:

- What types of soft instruments are critical to promote knowledge valorisation?
- What are the main policy and regulatory instruments for the creation of a supportive environment that facilitates knowledge valorisation activities?

[13] https://projects.research-and-innovation.ec.europa.eu/sites/default/files/kvp/files/kvp-training-knowledge-exchange.pdf
[14] CoARA, Coalition of Advancing Research Assessment

Summary

The adoption of the Guiding Principles on knowledge valorisation emphasized the imperative of establishing a common line on policy initiatives to encourage all actors within the R&I ecosystem to actively embrace knowledge valorisation. This paradigm shift prompts a reflection on what has changed or requires adjustment in light of this new approach.

The Discussion Paper addresses policy and legal frameworks to instil knowledge valorisation, and advocates for a comprehensive and coordinated approach guided by a long-term vision and clear objectives to guide all ecosystem stakeholders. Recognising limited funding, the exploration of alternative funding sources and the modernisation of the policy toolkit emerge.

The Paper highlights that determining the selection and combination of instruments in a "policy mix" is complex and deeply influenced by the specific context.

Despite exploring numerous instruments, persistent challenges, notably funding and competence gaps, indicate the ongoing need for adaptation and a synergistic approach involving policymakers, research performing organisations, industry, and society.

According to the European Commission report on the ERA Policy Agenda implementation, EU Member States plan to allocate over €47 billion from the RRF to R&I projects, with €11.82 billion directly tied to ERA Action 7 on knowledge valorisation. Could this indicate that Europe has now the necessary conditions to effectively drive and incentivise knowledge valorisation?

What can we learn from each other?

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The Discussion Paper delves into the policy and legal context, that can instil knowledge valorisation, offering insights into a diverse array of policy instruments. It overall discloses some of the most common national support mechanisms and strategies to engage stakeholders in knowledge valorisation, including funding instruments, regulations, and soft instruments. This comprehensive framework encompasses a holistic approach, emphasizing the pivotal role of a collaborative ecosystem in unlocking the full potential of research endeavours.

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