Moldova
Roadmap on Innovation and Technology Transfer

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Moldova: Innovation and Technology Transfer Roadmap

1. Background to the roadmap.

UNECE is supporting the governments of Eastern Europe and South Caucasus (EESC) in promoting innovation and ensuring sustainable economic development of the sub-region. In 2021-2022 they supported the Sustainable Development Review of Moldova (2022) (hereafter Review). As a follow up to the Review, UNECE is assisting the policymakers of Moldova in fostering innovative development of the country through a dedicated capacity-building exercise, drawing extensively on the findings of the Review, with the aim of ensuring increased capacity for implementation of its recommendations.

Review chapters 3: Enhancing the national innovation system and its governance, 5: Developing Innovation and Technology Transfer Infrastructure in Moldova and 6: Leveraging the diaspora for innovation-driven sustainable development ,made a number of recommendations to support the development of Innovation and Technology Transfer. In alignment with current policy priorities, the Ministry of Education requested that some of these recommendations be taken forward into a more detailed roadmap with the view of putting them into implementation through the **National Programme for Research and Innovation (2024-2027)**.

The specific I&TT related recommendations from chapters 3,5 and 6 and their anticipated timeframe were:

Chapter 3: Enhancing the national innovation system and its governance

> **Recommendation 3.3.1** Establish a National Innovation Council to coordinate and strategically guide innovation policy formulation and implementation

Chapter 5: Developing innovation and technology transfer infrastructure in Moldova

> **Recommendation 5.1.1** Review the current law on scientific and technological parks and innovation incubators to better stimulate demand and boost the project pipeline.
>
> **Recommendation 5.2.1** Link innovation and TT infrastructure more closely to priority sectors identified under Smart Specialization efforts.
>
> **Recommendation 5.3.1** Establish a national technology transfer office.
>
> **Recommendation 5.3.2** Require PROs to establish a clear intellectual property (IP) policy.
>
> **Recommendation 5.4** Adopt a clear regional focus for innovation and TT infrastructure.

Chapter 6: Leveraging the diaspora for innovation-driven sustainable development

> **Recommendation 6.2.1:** Integrate diaspora engagement across relevant policy areas through policy documents and programmes
>
> **Recommendation 6.4.1:** Establish the DSG under the auspices of the DRB and with support from consulates abroad to streamline scientific collaboration
>
> **Recommendation 6.5.4:** Enhance and maintain trust in diaspora policy development through systematic engagement with diaspora members, including clear and transparent policy mechanisms and implementation tools

Each individual roadmap that follows:

- translates each recommendation in to a concrete **strategic goal (SG)** with a timeframe of 3-5 years and sets clear indicators to show that the designation has been measurable achieved;
- identifies possible **barriers and hazards** that might prevent the goal being reached;
- identifies possible **tools and alliances** from the ecosystem and environment that may help the goals to be achieved;
- Sets an **initial direction** (near term objective), with a timeframe of 1-2 years and lays out a possible **Action plan** that starts the initiative on the road to the final destination and that drawn on tools and take in to consideration the hazards.

The strategic goals and associated indicators are agreed with Moldovan authorities. Barriers and hazards have been identified through focus groups of stakeholders. The initial directions take in to consideration resources available and the feasibility of each action based on the barriers, hazards, tools and alliances.

In is anticipated that each action plan that can be implemented through policy actions.

2. Individual Roadmaps

SG1: Technology Transfer represented on the National Innovation Council (NIC)

Recommendation 3.3.1 Establish a National Innovation Council to coordinate and strategically guide innovation policy formulation and implementation.

KPIs

TT is visible in innovation policy.

Background to the action

The Review identified a number of shortcomings in the nascent National Innovation System (NIS) related to implementation and coordination of policy actions across all economic sectors and levels of government. In particular, Moldova presently lacks a common understanding and strategic vision of innovation as a driver of the nation's economic growth and sustainable development. Innovation governance is still evolving and is currently somewhat underdeveloped and not as streamlined as it could be. While key legislative and institutional building blocks are in place, policy efforts are fragmented across a number of ministries and agencies that lack systematic synergies. Furthermore, all levels of government and the institutions that play a role in innovation lack the capacities to effectively design, implement and monitor innovation policies that include and systematically engage with all the relevant stakeholders.

A National Innovation Council (NIC), or similar ministerial body, tasked with developing and putting into practice a holistic perspective on innovation across policy areas, is a widely used tool to tackle the issue of fragmented innovation policy governance that is a natural consequence of the crosscutting nature of innovation. Such a body helps to remove barriers to spontaneous, bottom-up collaboration among innovative actors. An NIC coordinates, aligns and ensures synergies among various stakeholders engaged in innovation policy design and implementation, facilitates action across all policy domains and levels of government, enables systematic engagement of stakeholders and promotes the dynamism and agility needed to respond to emerging challenges and opportunities.

Such councils are often anchored at the ministerial level, chaired by the Prime Minister, and supported by a strong secretariat. This provides innovation policy issues with a much higher profile and keeps them as important agenda items both within the Government and within government agencies, i.e. in the entire state apparatus.

The scope of issues covered by a NIC is determined by the widely accepted definition and strategic vision of innovation to drive socioeconomic development. Councils targeting innovation outcomes and considering science and research as components of innovation has proven to be a viable approach to unlock the benefits of innovation for the economy and society as a whole, going beyond scientific and research considerations alone. Determining the best diversity of council membership is also essential: too broad a membership can inhibit effective decision making, while too narrow participation can reduce inclusiveness.

International experience in this regard, such as the Swedish Innovation Council, the Swiss Science and Innovation Council as well as the Georgian Research and Innovation Council, offers good comparative examples to help find the right balance adapted to the national context and innovation governance challenges.

The council should be supported by a clear mandate with matching resources, a comprehensive strategy and supporting secretariat.

Initial direction: A clear timeline and plan is agreed to establish the NIC that makes provision to include representatives from the Technology Transfer (TT) community.

Hazards and barriers (to achieving this goal)

- Lack of support from the top e.g. Prime Minister's Office.
- Lack of consensus among the main stakeholder groups on how the Council should be structured and governed as well as composition and topics to be covered.
- Intervention of other more pressing actions e.g. related to national security.

Tools and Alliances (to help achieve this goal)

- Support and endorsement from major political alliances including the EU.
- International experience such as the Swedish Innovation Council, the Swiss Science and Innovation Council and the Georgian Research and Innovation Council.
- Capacity building from UNECE.

Initial direction

A clear timeline and plan is agreed to establish the NIC that makes provision to include representatives from the TT community

Proposed Action Plan

- Secure the support of the Prime Minister and establish a secretariat
- Determine the composition of the council based on International Best Practice
- Agree the scope of issues to be covered by the Council
- (As required – bring the Council in to being through a legal act)

Task owner:

Tbd **MER (?)**

Milestones:

- Support of the PM confirmed
- Secretariat appointed
- Council members defined
- (Legal act adopted)

Timeline/ resources needed:

TBD

Summary Roadmap: Technology Transfer represented on the National Innovation Council

Destination (Strategic Goals – 3- 5 year timeframe)
SG.1. Technology Transfer represented on the National Innovation Council. Possible KPIs: ➢ TT is visible in innovation policy.

Tools and alliances (Ecosystem/ +Environment)	**Barriers and hazards (Ecosystem/ +Environment)**
• Support and endorsement from major political alliances including the EU. • International experience such as the Swedish Innovation Council, the Swiss Science and Innovation Council and the Georgian Research and Innovation Council. • Capacity building from UNECE.	• Lack of support from the top e.g. Prime Minister's Office. • Lack of consensus among the main stakeholder groups on how the Council should be structured and governed as well as composition and topics to be covered. • Intervention of other more pressing actions e.g. related to national security.

Initial Direction (Near-Term Objectives 1-2 years)
A clear timeline and plan is agreed to establish the NIC that makes provision to include representatives from the Technology Transfer community. **Action Plan** • Secure the support of the Prime Minister and establish a secretariat • Determine the composition of the council based on International Best Practice • Agree the scope of issues to be covered by the Council • Authorise the Council e.g. though a legal Act.

SG2: Revised law on scientific and technological parks and innovation incubators is stimulating demand and boosting the project pipeline.

Review Recommendation 5.1.1 Review the current law on scientific and technological parks and innovation incubators to better stimulate demand and boost the project pipeline.

KPIs:

Under discussion, could include *(green indicate focus group suggestions)***:**

- *Number of actions taken to attract new residents/ hosted companies*
- *Number of resident/ hosted companies*
- *Number/ value of services delivered to companies*
- *Annual increase of new resident/ hosted companies*
- *Number of personnel of residents involved in* R&D&I *activities relative to the total personnel*
- *Annual increase of the personnel of residents involved in* R&D&I *activities*
- *Value of residents production coming from* R&D&I *activities*
- *Number/ value of TT projects implemented by residents*
- *Number of implemented patents from resident/ hosted companies*
- *Revenue from patent implementation*
- *Number of start-up companies resulting from the activities of residents*
- *Number of start-up companies successfully activating during three years from the creation*
- *Revenue from the activities of start-up companies*

Comment: Overall, it is suggested to select a few strategically important indicators. Underlined indicators arguably go beyond measuring this specific goal of 'stimulating demand and boosting the project pipeline'.

Background to the action

Under the Law on Science and Technology Parks and Innovation Incubators No. 138-XVI of 21 June 2007, fiscal incentives were offered to the residents of science and technology parks (STPs) and innovation incubators (IIs). Additionally, residents at such locations also benefited from reduced rent for their production facilities and offices as well as a provision whereby 95 per cent of their patent costs were covered by the State Agency on Intellectual Property (AGEPI).

A number of STPs and IIs were created after the adoption of the respective law in 2007. However, with the introduction of the revised Law in 2018 the fiscal incentives were lost and no recent activity has been published by any of these two types of infrastructure. Several of them report that they now exist only 'on paper' and the minimum market demand they need to function does not exist. This suggests that the loss of the original fiscal incentives for residents may mean that they are no longer able to compete with other forms of infrastructure e.g. the industrial parks and business incubators. This situation also suggests that co-location with or access to knowledge based partners and services are not a sufficiently compensatory incentive for private-sector or start-up engagement.

During the 2022 Review stakeholder engagement it was suggested that the current law on STPs and IIs could be improved by including financial incentives, similar to those offered in its 2007 version. This is seen as potentially beneficial as it would encourage more use of STPs and IIs located within universities. This would also be an important step towards creating a 'level playing field' with the various industrial parks and business incubators who enjoy tax incentives. There is a high degree of confidence that amending the law in this manner will produce benefits based on the experience derived from the law on IT parks.

However, the Review suggested that other incentives should be offered and that run in parallel to the financial ones. The rational for this approach is that enterprises and start-ups should take a decision to (re)locate to such infrastructure based on the knowledge-based services of its host,

proximity to a knowledge provider and the benefits to be gained from proximity to other similar companies. Solely offering financial benefits will not necessarily attract the type of enterprises that are best suited to benefit from the environment and forge long term relationships with the associated university. Indeed, by only offering financial incentives there is a danger that IIs will start competing with business incubators while STPs compete with industrial parks for residents. Rather than simply offer improved financial benefits for tenants and clients of the infrastructure, the law should also consider if an organisation should be able to offer a minimum level of innovation support/ knowledge based services in order to qualify for status as a STP/II with associated benefits for users. Benefits for tenants and clients should be strongly directed at those that support innovation e.g. patenting and other forms of IPR and access to other R&D&I services.

Input from the Focus Group 1 meeting

Discussions with the focus group suggest that there may be wider issues than simply the lack of fiscal incentives in the legislation. For example, the issue may be related to the incomplete implementation of the existing Law, e.g. the state budget that has actually been available having been lower than originally foreseen, as well as a general lack of other associated funding instruments, needed to allow the incubators and parks to function in a sustainable way. It has also been suggested that there is a general lack of demand from the private sector for services which will also impact on sustainability. Some concrete issues have also been raised e.g. ownership of infrastructure purchased under project. But examples of Parks and Incubators that are operating successfully have also been cited, e.g. at **Balti State University,** along with a suggestion that they have perhaps been willing to embrace new and more innovative operating models rather than being constrained by traditional 'Park' and 'Incubator' approaches e.g. developing Fablabs and working with Tekwill. It has also been suggested that the type and size of business that would engage with such infrastructure is important and that researchers at larger state owned businesses may be key players rather than small SMEs. Finally, it has been suggested that the Law itself is not fundamentally lacking but the time that has been available to see results may have been too short to really judge the situation.

Hazards and barriers (to achieving this goal)

Identified though focus groups/ stakeholder consultation *(green indicate Focus group suggestions)***:**

- Lack of a clear point of responsibility to coordinate the stakeholders.
    - Many different groups are affected by the legislation, not just those who traditionally sit under the MER, e.g. the Ministry of Infrastructure.
- Lack of complementary instruments and measures.
    - The Law will may not be able to stimulate by itself, even if it receives the promised State Funding. Other measures/ support mechanisms will be needed to support incubators and STPs and they should be able to rely on sustainable funding.
    - The Law may not properly work if it is based on State Funding solely. There is a risk of just pumping money from the public sector to the private sector, thus creating the premises for unfair competition.
    - The Law may not function properly without creating a more comprehensive innovation ecosystem suitable to the economy of the Republic of Moldova with adjusted financial and investment instruments for innovative (technological) business (business angels, private equity funds, crowdfunding, etc)
    - The Law may not function properly without being integrated in a normative institutional-legal-financial frame for innovative business.
- Poor state of existing Parks and incubators.
    - Existing infrastructure now very poor. If it cannot be renovated then a revised law may not help. (This implies a need for other policy instruments to support the legislation).

- Lack of a clear understanding of the needs of the private sector and the 'absorption capacity' of the parks.
    - This issue might be overcome by the CoC (Chamber of Commerce) if they could engage with a Business Needs Analysis and help the MER to get a feel for the real potential of the infrastructure.

Tools and Alliances (to help achieve this goal)

Identified through focus groups/ stakeholder consultation *(green indicate Focus group suggestions)***:**

- CoC
    - May be able to help assess needs and demands of the private sector and with a mapping and evaluation of existing facilities.
- New measures that will be implemented in the regions:
    - The Ministry of Infrastructure and Regional Development will fund actions in the future that will cover professional development and creation of services.
- Ministry of Education and Research able to assess and perform mapping of R&D&I infrastructure available at universities, that could be shared with STPs and innovation incubators, and used by resident/ hosted companies under specified conditions.
- NARD able to share the experience in previous operating the STPs and IIs (strengths and weaknesses).
- State Agency on Intellectual Property with a wide expertise in intellectual property management.

Initial direction: Existing law on scientific and technological parks and innovation incubators is comprehensively reviewed and changes proposed if their need and benefit can be clearly demonstrated.

Proposed Action Plan

1. Formation of a small task force in the MER to implement the action.

The MER will lead this task. The person with overall authority needs to be at a sufficiently high level to interaction with counterparts at other organisations e.g. Ministry of Economy and Ministry of Regional development and Ministry of Finance. High level specialists in jurisprudence, economy, and finances must also be included in the task force.

Outcome: a clear point of responsibility for the action.

2. Comprehensive consultation with all the main the stakeholders to identify the root causes of the 'problem' that might be addressed through amended legislation including the need for fiscal incentives to create a level playing field with similar organizations, (industrial parks and business incubators) and additional benefits specific for STPs and IIs e.g. support for patenting and knowledge based services.

The consultation process needs to be comprehensive and evidence based. It is important to consult with existing Parks and Incubators including those that are active and positive about their situation, those that are active but seem to be struggling and those that are currently not functioning. Also to be consulted are target 'clients' for both Parks and Incubators. If specific barriers are identified by the supply and/or demand side then these should be comprehensively probed to make sure that the 'root cause' of the problem has been identified. It is important to ensure that problems are real and can be realistically addressed through changes to legislation.

Wider stakeholder consultation should also involve a more in-depth investigation of possible enables that may address barriers e.g. forthcoming funding from other Ministries for projects that could be utilised by the Parks and Incubators.

Outcome: A clear picture of the root cause of the 'deficiencies' in the existing legislation and a decision as to if the best solution is new legislation or if the current law needs more time to take effect or better linkage to other policy actions and the commercial sector. This decision will also be influenced by the results of tasks 3 below.

3. Review of the business need, current provision of infrastructure and estimated 'adsorption capacity'.

A review of the supply and demand should be carried out in parallel to the investigation into the perceived deficiencies of current legislation. This activity should include a 'mapping' of current Parks and Incubators and their present levels of activity as well as their potential for increased activity if demand from the commercial sector was increased/ more funding became available.

Outcome: A clear picture of the current state of Science Parks and Incubators including their hard infrastructure, soft-service portfolio, level of activity and potential for increased supply of services (absorption capacity). The report should help the MER to take an informed decision as to if current legislation is seen to be having a real impact on the current situation and potential for expansion.

4. Assess and perform mapping of R&D&I infrastructure available at universities, that could be shared with STPs and innovation incubators, and used by resident/ hosted companies under specified conditions.

Outcome: A clear picture of the current state of the R&D&I infrastructure at universities including their capacity of providing facilities to resident/ hosted companies of STPs, IIs for addressing their needs in such instruments.

5. Collection of verifiable data to help support the case for amendment (baseline performance).

Indicators of performance should be defined and collected. If an indicator does not yet exist then the potential to generate it should be investigated or a proxy/ alternative should be proposed.

Outcome: A clear picture of current performance with the potential to monitor the effect of change in the external environment e.g. the introduction of new legislation.

Depending on the outcome of the consultation:

If it is determined that there is benefit from redrafting the current Law then the following steps are proposed:

6. Appointment of a legal advisor to draft the revised law.
7. Drafting of a revised law that addresses the root cause of present deficiencies and need for revision.
8. Consulting of the draft law with major stakeholders including STPs, IIs and their potential clients.
9. Further amendment and/or request for adoption at national level
10. Monitoring of KPis against baseline indicators to assess effect.

Task owner:

MER

Milestones:

- Consultation process completed.

- Decision taken on the need and benefit of redrafting legislation.
- (Revised Law drafted)
- (Revised Law adopted)

Timeline/ resources needed:

TBD

Summary Roadmap: Law on scientific and technological parks and innovation incubators

Destination (Strategic Goals – 3- 5 year timeframe)
SG.2. Law on scientific and technological parks and innovation incubators is stimulating demand and boosting the project pipeline. Possible KPIs: ➢ *Number of resident/ hosted companies* ➢ *Number/ value of services delivered to companies* ➢ *Number of personnel of residents involved in* R&D&I *activities relative to the total personnel* ➢ *Annual increase of the personnel of residents involved in* R&D&I *activities* ➢ *Value of residents production coming from* R&D&I *activities* ➢ Number/ value of TT projects implemented by residents ➢ Number of implemented patents from resident/ hosted companies ➢ Revenue from patent implementation ➢ Number of start-up companies resulting from the activities of residents ➢ Number of start-up companies still operation after 3 years ➢ Revenue from the activities of start-up companies

Tools and alliances (Ecosystem/ +Environment)	**Barriers and hazards (Ecosystem/ +Environment)**
• Chamber of Commerce able to help assess needs and demands of the private sector and a mapping and evaluation of existing facilities • New measures that will be implemented in the regions (Ministry of Infrastructure and Regional Development) • Ministry of Education and Research able to assess and perform mapping of R&D&I infrastructure available at universities, that could be shared with STPs and innovation incubators, and used by resident/ hosted companies under specified conditions • NARD able to share the experience in previous operating the STPs and II (strengths and weaknesses) • State Agency on Intellectual Property with a wide expertise in intellectual property management	• Lack of a clear point of responsibility to coordinate the stakeholders. • Lack of complementary instruments and measures. • Low involvement of the private and state enterprises in R&D&I activities • Lack of financial instruments for creating a viable innovation ecosystem suitable to the economy of the Republic of Moldova (business angels, private equity funds, crowdfunding, etc) • Lack of concepts, how to elaborate a normative basis to make workable the identified financial instruments

Initial Direction (Near-Term Objectives 1-2 years)
Existing law on scientific and technological parks and innovation incubators is comprehensively reviewed and changes proposed if their need and benefit can be clearly demonstrated based on the evidence base. **Action Plan** 1. Formation of a small task force in the MER to implement the action. 2. Comprehensive consultation with all the main the stakeholders to identify the root causes of the 'problem' that might be addressed through amended legislation including the need for fiscal incentives to create a level playing field with similar organizations, (industrial parks and business incubators) and additional benefits specific for STPs and IIs e.g. support for patenting and knowledge based services. 3. Review of the business need, current provision of infrastructure and estimated 'adsorption capacity'. 4. Collection of verifiable data to help support the case for amendment (baseline performance). Depending on the outcome of the consultation: 5. Appointment of a legal advisor to draft the revised law. 6. Drafting of a revised law that addresses the indentified the root cause and need for revision. 7. Consulting of the draft law with major stakeholders including STPs, IIs and their potential clients. 8. Further amendment and/or request for adoption at national level. 9. Monitoring of KPis against baseline indicators to assess effect.

SG3: Innovation and TT infrastructure is tied to priority areas identified under the S3 actions

Review Recommendation 5.2.1 Link innovation and TT infrastructure more closely to priority sectors identified under Smart Specialization efforts.

KPIs

Could include:

- Number and amount of sector focused investments that link to S3 priorities
- Number of different types of infrastructure (hard and soft)

Background to the action

There are encouraging signs that Moldova is continuing to diversify and embrace new approaches to TT and innovation infrastructure and to include emerging priority sectors in these efforts. However, this sector-specific refinement approach is currently focused on the IT sector with the Tekwill initiative and the independent start-up and acceleration support offered at the many hubs in Chisinau being very IT-centred. This has left several other sectors with important innovation potential such as health and agriculture without proper innovation support.

Sector-specific TT and innovation support mechanisms can be instrumental in encouraging innovation in sectors identified under S3 efforts as having substantial potential for spill-overs at the sub-national and national levels. This approach has become increasingly commonplace in the EU where incubators, accelerators and STPs are tailored to the needs of a sector, while more general support is provided under the mandate of SME agencies and traditional business incubators. Some established entities that serve as good examples in this regard include[1] the CleanTech Incubator (EU), the Green Incubator (Ukraine), the Bucharest Carbon Incubator/ Accelerator (Romania), the Prague AI Startup Incubator/ Accelerator (The Czech Republic) and the EBRD Ukraine Climate Innovation Voucher, to name but a few.

The S3 exercise in Moldova offers an opportunity and a strong starting point to plan for more sector specific support that could be funded in the future via national, EU or donor programs. This may ultimately link to more support at sub-regional level (see Recommendation 5.4).

Hazards and barriers

- War in Ukraine.

The war in Ukraine has lead to a significant loss of confidence by investors who have suspended their funding activities. This situation is hard to influence but it may mean that virtual infrastructure may become a stronger focus for some time.

- Reform of the PRO sector

This is an ongoing process that is likely to take precedence over other activities until it is completed. However, in the long term, the creation of larger PROs (Public Research Organisations), including universities, may offer opportunities for strengthening sector specific technology transfer activities.

- Lack of information regarding value chains

Sector related value chains have been suggested as a way for Moldova to improve its competitiveness. However, there is a lack of information as data to help address the issue. (See also above).

- Low communication between members of the quad helix

[1] See Review for full information on these initiatives.

The different actors in of the quad helix (science, policy, industry, and society) do not find it easy to locate each other and to communicate. There is a lack of platforms that would bring them together and help to disseminate more information. As a result, it is hard for any group to know what is needed or could be supplied by others by others and also what should be offered.

- Lack of political will and necessary understanding of the public servants of R&I sector and how it works to prioritize R&I and carry out adequate reforms.

RDI (Research Development and Innovation) is a specialised area and there are still an insufficient number of public sector employees who understand it well and can see how to integrate it in to wider policy actions e.g. regional development.

- Lack of funding for CTTs and Innovation administration

Funding for specialised infrastructure like Centres for Innovation and technology transfer is low. It is also hard to secure the funds to pay for the necessary support actions that need to take place in new facilities including administration and similar positions.

Tools and Alliances

- The ongoing S3 process

Moldova has committed to developing an S3 (Smart Specialisation Strategy) and this is now reflected in the **National Research and Innovation Programme of Moldova for the years 2020-2023**. The impetus for defining and adopting a S3 is likely to increase with EU candidate status. The S3 will identify specific priority niches based on an assessment of strengths as well as the entrepreneurial discovery process. This process and the resulting strategy will provide a very strong starting point for focused investment in to innovation related infrastructure using national, EU and donor funding.

- Cross Border funding for S3 related activities

Cross border funding actions with Ukraine, Romania and the Danube region are taking an S3 approach and focusing their funding on priority sectors. These offer an opportunity to drive forward with a sector specific approach.

- Private investment for promising sector based opportunities

There is a global trend for the private sector to support early stage incubation and acceleration of innovative start-ups. This is likely to be followed in Moldova

- Existing initiatives that could act as the starting point or model for similar initiatives focused on other 'sectors'.

Moldova has a number of existing initiatives that have focused on the IT sector as well as cross border and transnational actions (e.g. North RDA CINEMA project for the creative industries). These may offer starting points or models for sideways expansion/ replication into other sectors.

Initial direction: Identify one or more pilot actions that can be launched that support the S3 strategy.

Proposed Action Plan.

1. Gap Analysis: Mapping of current provision of hard and soft services, aimed at the S3 priority sectors, combined with a needs analysis from the priority sectors.
2. Identification and capture of Good Practice examples that meet needs.
3. Proposed development plan based on prioritisation of needs and possible funding opportunities and to include a plan for existing I&TT infrastructure to refocus and specialise and measures to encourage international linkages to similar activities abroad (mentoring and twinning), including with the EU.
4. Pilot action(s) linked to the S3.

Deliverables/ Milestones

- Report into gap analysis on I&TT infrastructure for the priority sectors.
- Proposed development plan with clear funding needs linked to pilot actions.

Timeline/ resources needed:

TBD

Summary Roadmap

Destination (Strategic Goals – 3- 5 year timeframe)
SG.1. Innovation and TT infrastructure is tied to priority areas identified under the S3 actions. Possible KPIs ➢ Number and amount of sector focused investments that link to S3 priorities ➢ Number of different types of infrastructure (hard and soft)

Barriers and hazards (Ecosystem/ +Environment)	**Tools and alliances (Ecosystem/ +Environment)**
• *War in Ukraine and associated suspension of funding.* • *Ongoing reform in the PRO sector.* • *Lack of information regarding value chains* • *Low communication between quad helix* • *Lack of political will and necessary understanding by public servants of the R&I sector and how it works, to prioritize R&I and carry out adequate reforms;* • *Lack of funding for CTTs and administrative support*	• *The ongoing S3 process that will identify specific priority sectors* • *S3 related X-border funding opportunities (Ukraine, Romania, Danube region)* • *Private investment in to start-up programs* • *Existing initiatives that could act as the starting point or model for similar initiatives focused on other 'sectors'.* •

Initial Direction (Near-Term Objectives 1-2 years)
Launch of pilot actions linked to the S3 1. Gap Analysis: Mapping of current provision of hard and soft services, aimed at the S3 priority sectors, combined with a needs analysis from the priority sectors. (Some info already exists). 2. Identification and capture of Good Practice examples that meet needs. 3. Proposed development plan based on prioritisation of needs and possible funding opportunities and to include a plan for existing I&TT infrastructure to refocus and specialise and measures to encourage international linkages to similar activities abroad (mentoring and twinning), including with the EU. 4. Launch (pilot) action(s) e.g. establish platforms to bring together the quad helix.

3.1 SG3: A national technology transfer office (NTTO) is established.

Review Recommendation 5.3.1 Establish a national technology transfer office.

(Possible) KPIs

(Green indicates Focus Group suggestions):

- No. Projects being commercialised (size of pipeline)
- No. of patents filed (national and international)
- No. Sale/ licensing agreements (national and international) executed;
- Size of licensing revenue generated;
- No. of start-ups created based on the technology pipeline
- No. of start-ups created from NTTO technology operating three years after their creation

NB: the baseline will be zero and the targets must be feasible. Hazards and barriers to realising results should be carefully considered.

Background to the action

The least developed type of innovation infrastructure in Moldova is that which supports classical TT from the public to the private sector and facilitates research commercialization through sale and licensing of intellectual property rights. While funding is present for TT activity from NARD in the form of TT grants, there is very little institutional support to validate research results and transfer them to the market. Such validation and transfer processes require specialized skills to assess the market for a new product and help the research team to refine it to meet market needs. Furthermore, funding is required for intellectual property (IP) actions, technology adopter identification and the negotiation of transfers. These are typical activities for a Technology Transfer Office (TTO) and the quality of the skills and experience of its personnel is critical for the success of such activities.

Moldova is not currently investing heavily in public research. However, there are 'pockets of excellence' within the economy, scattered across different sectors and institutions. Individually, these are unlikely to provide a sufficiently strong innovation pipeline to allow any single organization to employ a team with the diverse skills needed to successfully develop and/or commercialize innovative technology based on research results. Establishing a TTO with one or two generalists who can manage a small number of mildly innovative projects will not lead to the office developing the skills needed to realize the full potential of any significant R&D projects that arise in the future. In this situation, there is often a focus for TTO staff on awareness-raising and educational activities for researchers to initiate culture change. While these are important activities to stimulate TT, they require very different skills than those needed to sell technology to the business sector.

Against this background, there is merit in pooling the various technology pipelines from multiple PROs to attain the critical mass of research outputs necessary to sustain a national TTO. This 'hub and spoke' model can make it economically viable to recruit the highly specialized individuals needed to formulate and implement a strong IP strategy, undertake market research as well as negotiate and execute licensing deals. Such a construction also makes it possible for contributing PROs to get access to a patent fund for their research results. Examples of NTTOs that have been established in the wider region e.g. Republic of Georgia, offer some good practice stating points and useful lessons learned.

Hazards and barriers

*Identified through focus groups/ stakeholder consultation (**green indicates Focus Group suggestions**):*

- Lack of support from PROs and their researchers for an external TTO.

- Low innovation potential of current research results
- *Lack of an accessible/ affordable pool of skilled human resource to manage and operate the NTTO and generate success stories.*
- *Lack of funding for both the pilot and the follow on action/ sustainable funding/ patient investment model.*
- *Lack of a suitable legal structure that fits the Moldovan legislative framework and/ or lack of consensus on where the NTTO should be situated if part of a larger organisation e.g. NARD.*
- *Lack of (domestic) demand for the research results.*
- *Lack of high-tech processes in public and private companies, small and medium-sized enterprises.*
- *Lack of innovative potential in public and private companies, small and medium-sized enterprises.*
- *Lack of a complex innovation ecosystem of which NTTO should be an element.*

Tools and Alliances

Identified through focus groups/ stakeholder consultation

- Regional success stories (TTPP Georgia)
- Coordinated financial assistance from international partners, including the World Bank, IMF, the EU, and the EBRD.
- Existing patent portfolios at PROs
- Experience at NARD
- Support of National Council
- New NCPs for Horizon
- National Council

Initial direction: Direction: Feasibility study and action plan for a NTTO is prepared.

Proposed Action Plan.

Phase 1

1. Feasibility study including a costing to establish and operate an NTTO for a minimum of 3 years.

A feasibility study will be critical. It should attempt to draw on experience from the MITA TTPP. It must cover:

- technology supply and associated support.
  - commitment to the concept from strong research performing PROs.
- human resource
  - feasibility of securing specialised skills including availability and cost
- funding and operational model.
  - If the activity is to start as a pilot then the issue of long term sustainable funding needs to be considered.
- Location, governance structure and legal format.
- Agreement would need to be reached as to where the NTTO would be located, its legal format and how this would influence funding it and how it would be governed.

Output: Feasibility study laying out the pros and cons of taking an NTTO forward.

Phase 2

If the feasibility study is positive then the following further steps are foreseen:

2. Identification and securing of finance

This might come from the State budget but it might also be part of donor funded activities.

3. Recruitment of a team

Recruitment of the skills needed for research commercialisation may be difficult from the domestic pool. Skills may exist in the private sector and in the Diaspora. This might be considered when costing the activity. It is important to consider this too when agreeing the legal status of the NTTO as it may need to be independent of academic salary scales to be able to recruit the right people.

4. Launch of a call for projects.

The call for projects is likely to be competitive e.g. ensuring that results with the highest potential for international commercialisation are selected, alongside clear commitment from the researchers to support the commercialisations process. The evaluation and selection criteria therefore need to be selected carefully.

Milestones

- Feasibility study, including financial plan, is accepted and funding secured for associated policy measure.
- Team is recruited
- Office is launched with call for projects.

Timeline/ resources needed:

TBD

Summary Roadmap: National Technology Transfer Office (NTTO)

Destination (Strategic Goals – 3- 5 year timeframe)

A national technology transfer office is established.

KPIs:

- *No. Projects being commercialised (size of pipeline)*
- *No. of patents filed (national and international)*
- *No. Sale/ licensing agreements (national and international); size of revenue generated.*
- No. of start-ups created based on the technology pipeline
- No. of start-ups operating three years after their creation

Barriers and hazards (Ecosystem/ +Environment)

- *Lack of high-tech processes in public and private companies, small and medium-sized enterprises*
- *Lack of innovative potential in public and private companies, small and medium-sized enterprises*
- *Lack of support for the concept by PROs and researchers.*
- *Low innovation potential of current research results*
- *Lack of (domestic) demand for the research results*
- *Lack of an accessible/ affordable pool of skilled human resource to manage and operate the NTTO.*
- *Lack of funding for both the pilot and the follow on action/ sustainable funding model.*
- *Lack of a suitable legal structure that fits the Moldovan legislative framework and/ or lack of consensus on where the NTTO should be situated if part of a larger existing organisation.*
- *Lack of a complex innovation ecosystem of which NTTO should be an element*

Tools and alliances (Ecosystem/ +Environment)

- Regional success stories (GITA in Republic of Georgia)
- Coordinated financial assistance from international partners, including the World Bank, IMF, the EU, and the EBRD.
- PROs with an existing patent portfolio
- National Council
- NARD
- New NCPs for Horizon

Initial Direction (Near-Term Objectives 1-2 years)

ID.1. Feasibility study and action plan for a NTTO is prepared.

Action Plan

Phase 1

1. Feasibility study including a costing to establish and operate an NTTO for a minimum of 3 years.

Possible Phase 2

1. Identification and securing of finance
2. Recruitment of a team
3. Launch of a call for projects.

3.2 SG4: PROs have adopted a clear intellectual property (IP) policy.

Review Recommendation 5.3.2 Require PROs to establish a clear intellectual property (IP) policy.

(Possible) KPIs

- No. IP Policies adopted/ % of (public) PROs with a policy in Moldova.

Background to the action

Although IP rights are not currently much used by Moldovan PROs to commercialise their research results, clear legal ownership of results lays the foundation for transfer and commercialisation. This situation hold true both for commercialisation by a PRO or through a centralised NTTO model or even if researchers have been offered 'professors privilege' under national or organisational regulations. Ownership of results, and how they will be commercialised along with how any financial benefits will be shared between different stakeholders is best encapsulated in an Intuitional IP Policy. This should reflect national law and intuitional culture and preference. Without such a document, technology adopters and financial investors are reluctant to engage in transfer. Lack of a clear framework for ownership and benefit sharing can also act as a deterrent to researchers who wish to commercialise their technology and who wish to see legitimacy and agreed reward from their efforts.

National legislative frameworks that regulate ownerships of 'employee inventions' also apply to PROs making the PROs the legal owner. However, there is very little evidence of the existence of IP policies at Moldovan PROs despite a previous initiative funded through TEMPUS. Although the law may be used to establish ownership it would be good if an internal IP policy document laid out revenue sharing in the case of successful commercialisations. It would also be beneficial if IP policy made clear provision for use of an NTTO or similar support organisation.

The lack of any reported 'need' for such policies suggests that a simple light-touch regulation that makes clear the current legal situation would be appropriate and would facilitate use of a NTTO to commercialise the strongest results. A number of IP Policy Good Practice templates exist, particularly those developed by WIPO under their universities initiative. WIPO has also previously supported development (customisation) and adoption of such policies.

Institutional IP Policy would pave the way for increased legitimate and incentivised academic entrepreneurship and facilitate the use and success of a NTTO.

Some countries make development of an IP policy compulsory for a PRO to access research funding or add it to the list of positive attributes to be considered when assessing organisational performance. However, making it compulsory can have unintended results. For example, if the PRO is not able to take on the responsibility of commercialisations then it can stifle existing academic entrepreneurship and actually reduce technology transfer.

The fact that Moldova has had a previous initiate to develop IP Policy and this does not seem to have had a strong effect needs to be considered in any future initiative e.g. by commencing with a small study as to why the initiative was not more successful.

Hazards and barriers

*Identified through focus groups/ stakeholder consultation (**green indicates Focus Group suggestions**):*

- Lack of interest from institutions in revisiting an idea that has been explored previously via projects.
- Resistance from researchers who see this as a threat to informal professors privilege
- Lack of interest from institutions in prolonging action of patents after their expiration
- Lack of interest from institutions in licensing patents

Tools and Alliances

*Identified through focus groups/ stakeholder consultation (**green indicates Focus Group suggestions**):*

- Support from MER for institutional policy linked to use of a NTTO or future funding.
- Support from WIPO.
- Success stories e.g. Technical University patent sale - Tronciu Vasile
- Development of a network of TTOs.

Proposed Action Plan

1. Review of the current status and national and intentional Best Practice.

The review should confirm the status of IP Policy at all the main research performing universities and institutes. It should also identify any national good practice and practice that is considered to be particularly revenant from Peer countries.

2. Investigation as to why the previous initiative (TEMPUS) seems to have yielded only one adopted IP Policy.

In parallel with looking at current status, an investigation should take place in to why the TEMPUS project does not seem to have been more successful in getting PROs to adopt policies.

Output: Status report including a clear conclusion on why the activity has not been more successful in the past and recommendations on how to address the barriers/ resistance in a future initiate.

Assuming that the investigation yields a clear way forward:

3. Formation of a working group of PROs (possible inclusion of the WIPO University IP Policy group)

The working group should include the AGEPI as well as legal professionals able to draft internal regulations for PROs. It should also involve stakeholders from the PRO management and research base (academics) as well as business. The latter group will be important to consult as they will also be 'using' the policy if they want to engage in tech transfer with the PROs. It may also be possible to involve the WIPO universities initiate. NARD would also be a good stakeholder to involve in this activity as they have a good over-view of science-business relationships and the needs of technology transfer projects.

4. Drafting of model IP Policy for customisation by all Moldovan PROs.

It may be possible to draft a simple model IP Policy that reflects national law but that makes provision for TT support from external organisations e.g. a NTTO. It will be important that any such document does not simply follow international Best Practice (e.g. as proposed by WIPO), but also take in to consideration the reasons why the TEMPUS initiative did not resulted in more IP regulation adoptions by the project partners.

The model IP policy should be suitable for adoption with minor adaptation by Moldovan PROs.

5. (Possible Ministry requirement that all public PROs develop and adopt such a policy)

To be very carefully considered. Examining both national and international experience may be beneficial to ensure that such a more does not have unforeseen repercussions.

6. Adoption of IP Policies by participating PROs.

This is a critical step. Commitment to adopting the policy needs to be maintained throughout the activity to avoid a repeat of the TEMPUS outcomes.

Milestones:

- Model policy is published
- Individual institutional policies are adopted

Timeline/ resources needed:

TBD

Summary Road Map: IP Policy

Destination (Strategic Goals – 3- 5 year timeframe)
SG.5. PROs have adopted a clear intellectual property (IP) policy. KPIs ➢ Total number of IP Policies adopted. ➢ % of PROs with a policy in Moldova.

Barriers and hazards (Ecosystem/ +Environment)	Tools and alliances (Ecosystem/ +Environment)
• Lack of interest from institutions in revisiting an idea that has been explored previously via projects. • Resistance from researchers who see this as a threat to professors privilege • Timing - current reorganisation(Institutes being adsorbed in to universities)making other actions a higher priority for PROs. • Lack of interest from institutions in prolonging action of patents after their expiration • Lack of interest from institutions in licensing patents.	• Support from MER for institutional policy linked to use of a NTTO or future funding. • Support from WIPO. • Success stories e.g. Technical University patent sale. • Development of a network of TTOs.

Initial Direction (Near-Term Objectives 1-2 years)
ID.1. Model IP Policy is drafted for customisation by all PROs. 1. Review of the current status and national and intentional Best Practice. 2. Investigation of why previous initiative (TEMPUS) seems to have yielded only one adopted IP Policy. 3. Review of the current status and national and intentional Best Practice. 4. Drafting of model IP Policy for customisation by all Moldovan PROs. 5. (Possible Ministry requirement that all public PROs develop and adopt such a policy) 6. Adoption of IP Policies by participating PROs.

SG5: A clear regional focus for innovation and TT infrastructure has been adopted.

Recommendation 5.4 Adopt a clear regional focus for innovation and TT infrastructure.

KPIs:

- Number and diversity of recognised I/TT infrastructures outside the capital.
- Contribution from infrastructure to local economic growth

Background to the action

Similar to the benefits that flow from providing sector-specific infrastructure, there are benefits in developing infrastructure that is tailored to a particular region. Regions often have a clear natural focus for their innovation activities, e.g. food and agriculture or textiles, as well as their own HEI strengths and business needs. If regional strengths and needs are not sufficiently met by suitable infrastructure, the regions will become increasingly less competitive and skills progressively lost as skilled workers migrate to better-supported sectors or new locations in Moldova or abroad.

There is a current strong government focus on providing virtual innovation infrastructure to organizations in the capital, particularly incubation and acceleration services for the IT sector and, in line with this, physical infrastructure has tended to be concentrated in a small number of locations. A promising development here is that the need for more geographically spread physical infrastructure is being partially addressed through the 12 planned multi-functional platforms and the 3 planned ITTCs. It is also encouraging to see Tekwill's success in scaling-up at the sub-national level and that Start-up city Cahul, which is clearly regional in nature, has plans to expand into other regions (e.g. Comrat).

Customization of infrastructure that supports national development strategies is a useful way to encourage a bottom-up approach to local innovation and TT. This customization process can include enabling regions to design schemes for virtual infrastructure that cater to their local needs and strengths while still aligning with the goals of the national innovation strategy. Poland serves as a good example in this regard, where regional development agencies (Marshal Offices) have been designing their own pilot schemes to help TT and KT (Knowledge Transfer) from PROs to private enterprises. This approach was adopted to increase the competitiveness of each region based on the strengths of local high schools and universities while meeting the specific needs of local companies.

Moldova already has some good examples of regional initiatives tied to Innovation and Technology Transfer, e.g. the development of the Center for Innovation and Technology Transfer of the North Development Region in Balti[2]. There is also a Regional Development Fund although this currently does not have a clear budget line for Innovation actions. The Regional Development Agencies and local universities are a good starting point to strengthen this initiative, especially it is can also be linked to **Recommendation 5.2.1**.

Hazards and barriers

*Identified through focus groups/ stakeholder consultation (**green indicates Focus Group***

- Lack of statistical data available to RDAs and others on innovation activity and performance

The lack of data means that there is no strong evidence base for stakeholders to use when identifying needs, designing regional actions and monitoring impact. This may also have a negative effect on investment confidence.

[2] See https://gov.md/en/content/construction-center-innovation-and-technology-transfer-north-development-region-started

- Lack of PROs outside the capital to act as a legitimate hub for development of Innovation and TT activities under the MER.

There has been a lack of regional PROs that can act as a hub for local enterprise innovation. This situation may change with the consolidation of the PRO and reform of the sector.

- Limited number of enterprises who can implement at regional level/ a lack of opportunities for students to transfer and realise their skills

The number of enterprises outside the capital who have good absorption capacity for specialised knowledge is low. This means that students graduating with specialised knowledge can find it hard to find placements or secure jobs outside the capital.

- Lack of local ecosystem/ local services /critical mass

Overall, the innovation and technology transfer ecosystem outside Chișinău is still very weak and lacks critical mass. There are few existing services for innovation or TT that could act as the basis for expansion or good practice transfer.

- Lack of funding allocated to regional actions.

Although a Regional Development Fund exists it does not currently reflect any innovation and technology transfer aspect. It is more focused on general regional development with some sectors being more recognised e.g. tourism.

- Small replicating funds from international partners

Funds available from international partners for local activities tend to be very small and often they simply replicate what is happening at national level rather than leaving any options for regional specialisation.

Tools and Alliances

Identified through focus groups/ stakeholder consultation (green indicates Focus Group)

- Result of the S3 entrepreneurial discovery process if they uncover regional opportunities

Although the S3 development may consider Moldova at a NUTS 1 level the EPD (Entrepreneurial Process of Discovery) may well uncover niche strengths and opportunities for innovation at 'local level'. These could be taken forward in to local actions by involving 'local' PROs and the RDA.

- Consolidation of the PROs (reform of the sector) and some good regional HEIs e.g. Comrat University.

The reform of the HEI and PRO sectors offer an opportunity for a region to gain stronger access to R&D&I activities in the future, even if the source is a new parent located at a distance.

- Good practice examples of existing or planned regional programs

Existing initiatives that have expended beyond the capital or that are already active in a region and offer a transferable good practice e.g. Tekwill, Start-up city Comrat, ADR Gagauzia – KT partnership program. Such programs could be examined and adopted by other regions if they can also secure the necessary funding.

- RDAs and their development plans, aimed at the RDF.

The development plans of RDAs offer a potentially very strong opportunity to design and implement regional level Innovation and TT actions, particularly if they are linked to a regional development fund.

- New measures that will be implemented in the regions (Ministry Transportation and Regional Development).

There are ongoing plans for new funding actions at sub-national level that may offer opportunities for R&D&I.

Initial direction: Design of pilot actions

Proposed Action Plan.

If all actions need to be managed centrally

1. Execution of a needs analysis that examines the need for more I/TT support outside the capital and also the potential for PROs outside the capital to host such an initiative. This may be linked to work on the S3.
2. Identification of Good Practices and operational models from ongoing initiatives that started in the capital and were transfer successfully to the wider country and that offer the basis for further expansion to the wider regions. These should include an identification of critical framework condition for successful transfer.
3. Compilation of a priority list of actions, budget and associated timeline to develop and implement.

If a mechanism exists or can be created for budget being 'managed' at regional level e.g. the RDF and a budget line for Innovation/ TT actions:

1. Examination of possible mechanisms (instruments) that would enable regions to design their own support programmes to provide more virtual innovation infrastructure and to support local innovation capacities.
2. Establish a stakeholder groups to design actions that reflect local strengths and, align with the national strategy for innovation and leverage the opportunities offered through physical infrastructure such as the various multi-functional platforms and planned ITTCs.
3. Design and cost pilot actions
4. (Launch pilot actions)

Milestones:

If all actions need to be managed centrally

- Needs analysis identifying need for, location and 'host' for an action.
- Good practice examples and transformational pathway agreed
- Priority list agreed and action plan formulated

If there is a mechanism for budget being 'managed' at regional level

- Mechanisms for regional actions identified
- Regional stakeholder groups formed
- Pilots designed and costed

Timeline/ resources needed:

TBD

Summary Roadmap

Destination (Strategic Goals – 3- 5 year timeframe)

SG.2. A clear regional focus for innovation and TT infrastructure has been adopted as part of the national regional Strategy.

KPIs:

- Number and diversity of recognised I/TT infrastructures outside the capital.
- Contribution from infrastructure to local economic growth

Barriers and hazards (Ecosystem/ +Environment)

- *Lack of statistical data available to RDAs and others on innovation activity and performance*
- *Lack of PROs outside the capital to act as a legitimate hub for development of Innovation and TT activities under the MER.*
- *Limited number of enterprises outside the capital who can undertake innovative activities.*
- *Lack of opportunities for students to find employment outside the capital'*
- *Lack of local ecosystem/ critical mass/ local services*
- *Small funds from international partners, particularly for infrastructure projects and what is available often it replicates work done at national level.*

Tools and alliances (Ecosystem/ +Environment)

- *Result of the S3 entrepreneurial discovery process if the EPD identifies sub-national level opportunities.*
- *Consolidation of the PROs (reform of the sector) and some good regional HEIs. e.g. Comrat University.*
- *Good practice examples of existing regional programs e.g. ADR Gagauzia – KT partnership program.*
- *RDAs and their development plans, aimed at the RDF.*
- *New measures that will be implemented in the regions (Ministry Transportation and Regional Development).*

Initial Direction (Near-Term Objectives 1-2 years)

Design of pilot actions

1. Needs analysis that examines the need for more I/TT support outside the capital and also the potential for PROs outside the capital to host such an initiative. This may be linked to work on the S3.
2. Identification of Good Practices and operational models from ongoing initiatives that started in the capital and were transferred successfully to the wider country and that offer the basis for further expansion to other regions. These should include an identification of critical framework condition for successful transfer.
3. Compilation of a priority list of actions, budget and associated timeline to develop and implement.

SG6: Diaspora engagement reflected in policy documents (e.g. NDS)

Review Recommendation 6.2.1: Integrate diaspora engagement across relevant policy areas through policy documents and programmes (e.g. a national development strategy).

KPIs

Could include:

- Number of statements that are reflected in policy documents and measures.

Background to the action

Assuming that it can be sufficiently mobilized and targeted, the diaspora's potential contribution as a driver for innovation-driven sustainable development in Moldova is already well recognised. However, existing engagement mechanisms are not able to systematically utilize this potential. To achieve significant and widespread diaspora participation in innovation, it is important to integrate diaspora engagement across relevant policy areas through policy documents and programmes (e.g., explicitly referring to the substantial potential of the diaspora to boost innovation and contribute to solving socio-economic challenges in the NDS; designing programmes on skills development, validation and recognition for labour migrants).

Achieving this action will require the relevant Ministries to each make a clear statement of their desire and purpose of engaging with the Diaspora. Individual statements can then be translated in to actions and policy measures.

Hazards and barriers

Identified though focus groups/ stakeholder consultation.

- Lack of a universally accepted definition of 'diaspora'
- Lack of clear understanding of what the potential and value is from different types of diaspora. This is linked to:
    - Lack of a clear mapping of the 'diaspora' to capture their 'profiles' (who are the scientific diaspora actors – academics? scientists?, and what can they offer);
    - Challenges in tracking and contacting the diaspora abroad, particularly those who hold Romanian citizenship and so are not known to Moldovan embassies.
    - Lack of a clear Needs Analysis, linked to concrete demands (and not artificial ones) that also reflect market forces so policy actions do not artificially support initiatives that are not working;
    - A need for a better understanding of the knowledge transfer mechanisms for both 'supply' and 'demand' sides.
- Lack of analysis to improve understanding of why previous initiatives have not been successful.
- Possible lack of alignment between the top-down approach of national policy makers defining needs and a bottom-up approach e.g. PROs defining their needs.
- Too strong a focus on policy making and not policy implementation.
- Lack of realistic expectations of when diaspora support from abroad can really have an effect on a national policy initiative. (There is sometimes no capacity to provide concrete answers to complicated questions via the diaspora).
- Too strong a focus on STEM and not sufficient involvement of Social Science, Arts and Humanities (SSAH).
- Bureaucratic and complicated mechanisms to implement projects.

Tools and Alliances

Identified though focus groups/ stakeholder consultation

- Diaspora Relations Bureau (DRB) and in particular their existing indicators which assess the level of integration of diaspora priorities into broader policy and could be further extended to measure policy impact;
- University Rectors + University strategic development plans – which could include a clear indication of how engagement with diaspora would be valuable;
- Alumni Associations at the Universities;
- Think tanks and government initiatives working on diaspora engagement plans and policies;
- CoC andiIndustry – to support dissemination and awareness raising. (D Russo Task Force)
- Ministry of Education and Research and Ministry of Economy
- Examples of specific diaspora policy interventions that have worked abroad and that fit closely to a well identified need.

Initial direction to achieve the goal.

Suggestion 1 (Based on a proposal from by Aleksandr Gevorkyan and adapted after the Focus group meeting): *All relevant Ministries to individually formulate a clear statement of their desire and purpose of engaging with the Diaspora, based on improved understanding of Moldovan needs and Diaspora profiles. Individual statements to then be translated into actions and policy measures.*

Action Plan

1. Needs Analysis

Launch of a 'bottom up' Needs Analysis' (NA) involving PROs and other stakeholders and preferable led by the DRB. The NA should be linked to the strategic plans for PROs and should reflect identified trends and market forces. Ideally it would encompass STEM and AHSS and also reflect the views of the private sector.

Result: A clear Needs Analysis that is linked to the strategic planning of PROs and the views of the private sector.

2. Mapping of the Diaspora

This activity needs to commence with an agreement on the definition of the 'diaspora' who will be mapped. It will be used to achieve an improved understanding of the profiles of individuals who meet the definition of 'diaspora' and will identify what they might be able to contribute (value) and their optimum method of engaging in knowledge transfer.

The mapping could incorporate an online 'self-registration' tool. This would help to deal with the issue of the double citizenship of some diaspora members e.g. those holding both Moldovan and Romanian citizenship as well as management over personal data.

Result: A clear overview of different 'profiles', associated 'value' and optimum methods of engagement.

3. Each relevant Ministry to formulate a clear statement of their desire and purpose of engaging with the Diaspora.

Different Ministries will have slightly different aims and objective in involving the Diaspora in their policy actions. Each interested Ministry should start by formulating a statement that clearly explains their interest and commitment to engage with the diaspora and lays out their purpose in doing so from the perspective of innovation and/ or technology transfer. Statements should also make clear who the target group are for inclusion e.g. the level of skills of the target groups ('highly skilled', 'less highly skilled). Statements could be simple e.g. '***We will encourage and invite professors from abroad to…***'.

Result: A set of clear policy statements indicating the direction in which the policy action on diaspora will be taken

4. Each Ministry to translate their purpose into feasible policy actions.

Policy actions may be small in the beginning but must be concrete and feasible and they should clearly reflect the type of group they were aimed at. For example, they might aim to involve diaspora in bringing innovation to agriculture in a certain region. This could start with online workshops delivered by diaspora, investments by diaspora or finding ways to link someone from Moldova who is now working abroad in a formal/ semi-formal collaboration with a company in Moldova.

Result: A set of policy actions that reflect needs and market forces and that can be implemented with budget foreseen so that they do not remain 'on paper'.

5. Each Ministry should set targets and relevant KPIs.

Every action should have a target and progress towards the target should be measurable with indicators that are either already available or that can be set up. KPIs need to be challenging but realistic and achievable. They could target and measure the level of engagement in an activity, or the size of investments and they could be specific to a certain region or sector.

Result: A set of KPIs that are available and can be collected by the DRB.

6. DRB to monitor the KPIs as part of their indicator set.

The DRB is already collecting 64 indicators related to this policy activity. Provided that they have the capacity, they would be a suitable organisation to collect indicators related to this task.

Result: Indicators available to stakeholders.

Milestones:

- Needs assessment completed
- Mapping completed
- Individual participating ministries have each formulated a statement.
- Statements have been translated in to clear policy actions that are visible in policy documents.
- KPIs have been set for individual policy actions.
- DRB published first (baseline) data-set.

Timeline/ resources needed:

TBD

Summary Roadmap: SG.1: Diaspora engagement reflected in policy documents

Destination (Strategic Goals – 3- 5 year timeframe)

SG.3. Diaspora engagement reflected in policy documents (e.g. NDS)

- KPIs: Number of Ministerial Diaspora statements that are reflected in policy documents and measures

Barriers and hazards (Ecosystem/ +Environment)

- Lack of clear understanding of what the potential and value is from different types of diaspora.
- Lack of analysis to improve understanding of why previous initiatives have not been successful.
- Lack of a universally accepted definition of 'diaspora'
- Possible lack of alignment between the top-down approach of national policy makers defining needs and a bottom-up approach
- Too strong a focus on policy making and not policy implementation.
- Duplication of activities and concern about sharing too much information online.
- Lack of realistic expectations of when diaspora support from abroad can really have an effect on a national policy initiative.
- Low priority for Ministries compared to EU membership etc.

Tools and alliances (Ecosystem/ +Environment)

- Diaspora Relations Bureau and in particular their existing indicators.
- University Rectors + University strategic development plans.
- Alumni association at the Universities
- Think tanks and governments initiations working on diaspora engagement plans and policies.
- Chamber of Commerce.
- MER and ME
- Examples of specific diaspora policy interventions that have worked abroad and they fit closely to a well identified need.

Initial Direction (Near-Term Objectives 1-2 years)

ID.2. Formulation of clear Ministerial statements and associated (small) policy actions based on an improved understanding of Moldovan needs and Diaspora profiles.

Action Plan

1. Undertake a bottom up Needs Analysis involving PROs and other stakeholders and ensure that this is linked to their strategic plans.
2. Agree the target group, (define the 'diaspora'), and undertake a strong mapping to identify profiles, value and optimum methods of engagement.
3. Relevant Ministries to formulate a clear statement of their desire and purpose of engaging with the Diaspora.
4. Each Ministry to translate their purpose into feasible policy actions.
5. Each Ministry to set targets and relevant KPIs.
6. DRB to monitor the KIPs as part of their indicator set.

SG7: Diaspora Science Group (DSG) established

Review Recommendation 6.4.1: Establish the DSG under the auspices of the DRB and with support from consulates abroad to streamline scientific collaboration

KPI

Number of meetings/ number of members/ number of distinct activities taking place

Background to the action

Establishing a sound mechanism for systemic and long-term engagement of the diaspora would open new innovative opportunities for Moldova. However, as the present linkages between networks in Moldova and those abroad are frequently based on personal connections and rely mostly on ad hoc engagement opportunities, a more focused effort is needed to ensure their sustainability and realise full potential.

It is proposed to coordinate engagement through a dedicated body - a Diaspora Science Group (DSG) - who could play a leading role in the promotion and fostering of scientific cooperation between Moldovans abroad and scientists, researchers and affiliated groups back home.

The primary goal of establishing the DSG will be to promote and foster scientific cooperation between Moldovans living abroad and scientists, researchers and affiliated groups back home. The mechanism would also assist Moldovan scientists based at home or abroad to promote their findings throughout the academic world. The DSG would be created under the auspices of the DRB but with significant autonomy that would grow as the organization matures, returns positive results and secures various third-party funding.

A secondary goal might be to offer an Advisory group to the Moldovan government. To increase the impact of this group, it would make sense to include non-science actors and social scientists. One approach could be to join diaspora groups with other sectoral groups outside of science and the Moldovan government. This might necessitate a change of name for the group to reflect that it was not limited to 'Science'. If the group was to advise on policy, then it might be necessary to involve national members who could offer feedback on suggestions from those abroad.

In both cases, it would be important that the group is autonomous and clearly independent from government and public sector groups. It also needs to be funded in a sustainable way.

Hazards and barriers

Identified though focus groups/ stakeholder consultation.

- Lack of the hard data on the Diaspora needed to engage with them;
- The potential size of such a group and associated coordination and communication;
- Lack of capacity at the DRB to manage such a (large) group;
- Lack of a holistic long term approach to the initiative, needed to ensure it does not fade away;
- Burn out by diaspora who have been engaged and given their time and energy in the past;

Tools and Alliances

Identified though focus groups/ stakeholder consultation.

- Current initiatives and pilots at the DRB could facilitate the creation of the group;
- Organisations and groups who have prior experience of setting up and running such groups and who could be engaged to manage it for several years, incl. hometown associations;
- Established Moldovan diaspora groups abroad, e.g. NGOs, who could take on a revolving leadership role or work together to help direct the activity ;

- Small pilot actions that would help to establish the operating model and could be scaled up;
- Existing EU diaspora networks and effective practices;
- Stimulating mechanisms that could engage local stakeholders with diaspora, e.g. paid sabbatical for academic staff, short term opportunities abroad for graduate students or call of research proposals engaging local academic institutions as well as industrial partners. The advantage of these types of potential calls over the external ones, such as Horizon Europe is that those can be tailored to the particular goals and needs of local stakeholders.

Initial direction to achieve the goal: Scope the action including a clear funding mechanism

Proposed Action Plan

Suggestion 1 (Based on a proposal from by Aleksandr Gevorkyan and adapted after the Focus group meeting):

1. Agreement on the scope and purpose of the DSG

The first step needs to be an agreement on the purpose and scope of the 'DSG'. Depending on the outcome, e.g. if it has a policy advisory role and involves members from beyond 'Science', there may be a need to change the proposed name.

Result: Purpose and scope agreed and reflected in the name.

2. Formation of a small founding team

The initial team should have critical mass but be small enough to be agile and responsive. Their role will be to develop a viable operating model for the 'DSG' and to identify a funding mechanism that makes the Group sustainable.

Proposed members of the founding group may include: DRB, MER, Alumni association at the Universities, Ministry of Foreign affairs plus several high profile Diaspora individuals.

Result: Founding team in-place and funding mechanism confirmed.

3. Propose regular and ad-hoc methods of engagement.

This action will be linked closely from the proposed operating and funding model and must also reflect the purpose and scope.

For a DSG that is not involved in advisory actions it could include setting up special interest groups e.g. academic disciplines like economists and history or STEM groups. The individual groups would define how they would make contact with groups abroad and how they might 'meet' e.g. via an annual conference/ symposium that unites the full diaspora but leaves scope for smaller meetings by the individual groups.

Result: Type, frequency and methods of integration agreed.

4. Ensure that the Group has a solid financial basis for long term operations

Finding a viable long-term funding model will be critical. Setting up the core team will require some level of funding but it is important that the activity takes a long view to ensure that activities do not come to a halt after 1-2 years. It may be helpful for the core team to investigate how other similar groups are funded e.g. with core Government funding and/or via membership fees. It will be important to remember that members will be making intangible investments and this will be critical to encourage alongside the funding.

Result: Viable long term financial model proposed.

5. Set up KPIs for the DSG.

KPIs need to be approached with care. Seeing tangible ‘results’ from such an initiative can take many years of patient investment. Output indicators may be useful in the early days to monitor activity that captures human interactions. Indicators of results and impact may be introduced after 8-10 years and should not predominate in the early years. Setting up feedback loops will also be an important part of the M&E process although it may not always be a comfortable one.

Milestones

- Purpose and scope confirmed
- Founding group established
- Business plan including funding model captured.

Timeline/ resources needed:

TBD

Summary Roadmap: SG.2: Diaspora Science Group (DSG) established and functioning well

Destination (Strategic Goals – 3- 5 year timeframe)

SG.4. *Diaspora Science Group (DSG) established and functioning well*

- KPIs: (Number of meetings/ number of members/ number of distinct activities taking place)

Barriers and hazards (Ecosystem/ +Environment)

- Lack of the hard data on the Diaspora needed to engage with them;
- The potential size and diversity of such a group and associated coordination and communication.
- Lack of capacity at the DRB to manage such a (large) group
- Lack of a holistic long term approach to the initiative, needed to ensure it does not fade away.
- Burn out by diaspora who have been engaged and given their time and energy in the past and will not be interested to join. (Lack of volunteers and there is too much admin and not enough renumeration)

Tools and alliances (Ecosystem/ +Environment)

- Current initiatives and pilots at the DBR could facilitate the creation of the group
- Organisations and groups who have prior experience of setting up and running such groups and who could be engaged to manage it for several years, incl. hometown associations .
- Established Moldovan diaspora groups abroad, e.g. NGOs, who could take on a revolving coordination/leadership role
- Small pilot actions that would help to establish the operating model and could be scaled up.
- Existing EU diaspora networks and effective practices.

Initial Direction (Near-Term Objectives 1-2 years)

ID.3. Scope the Diaspora Science Group including identification of a viable underlying business model

Action Plan

1. Agreement on scope and purpose
2. Formation of a small founding team
3. Proposed regular and ad-hoc methods of engagement.
4. Ensure that the Group has a solid financial basis for long term operations (underlying business model)
5. Agree meaningful indicators to capture activity and long term indicators for results and impact

SH8: Diaspora engaged at various stages of the innovation policy cycles, including at the local level

Review Recommendation 6.5.4: Enhance and maintain trust in diaspora policy development through systematic engagement with diaspora members, including clear and transparent policy mechanisms and implementation tools

KPI: Under discussion.

Background to the action

It is recognised that trust is an important prerequisite for engagement in any government-led initiative and trust in the institutions and a connectedness to the homeland is needed to effectively engage any diaspora. Fostering these qualities requires both strategic vision and the concrete means to do so.

A lack of trust between the highly-skilled diaspora members and the home country`s public sector institutions was one of the central explanatory variables identified for Moldova's wavering connection with its diaspora and seen as presenting a significant constraint for diaspora engagement. There is a clear need to elaborate policies to maintain contact and enhance trust between the diaspora and Moldova while strategically engaging with Moldovans living abroad to benefit the homeland. To achieve this goals, it is recommended that Moldova develop a diaspora strategy, adopted in consensus with diaspora members along with an action plan that is consistent with the national development and innovation policy priorities. This should send a clear signal about Moldova's pragmatic intentions in engaging with its diaspora and pave the way for improved interactions.

The strategy should focus on how Moldova can broadcast a clear and consistent message to those living abroad of activities taking place 'at home' in order to build and strengthen their trust. This can take place via multiple channels and can feature quite local 'news' and activities e.g. not at the level of the DSG exchanges. The critical factor is consistency.

Hazards and barriers (to achieving the Goal)

Identified through focus groups/ stakeholder consultation.

- Lack of engagement from local groups in the development and implementation of a strategy
- Lack of consensus on the best approach.
- Failure to maintain the approach over a period of time.
- Lack of local digitised data for M&E which lowers transparency and accountability on the use of local resources and creates suspicions and scepticism amongst diaspora members.
- Changes at local level cause problems in consistency (people lost).
- Lack of infrastructure for engagement.
- Too much involvement in 'tree planting' and insufficient attempts to build a community around an idea.
- Lack of existing trust and an unwillingness to engage due to ongoing high levels of corruption on all levels including education, high level of nepotism, cronyism, and favouritism in state and academic institutions.

Tools and Alliances

Identified through focus groups/ stakeholder consultation.

- Planned DSG, existing diaspora groups and ongoing activities
- Hometown associations and coordinated national alliance of hometown associations
- Local groups interested in placing a stronger role in promoting a positive image of Moldova abroad
- Inclusion of social entrepreneurship and education

- Inclusion of diaspora in the decision making process at local level
- Platforms to facilitate communication between diaspora members and local communities.
- International and National-level support mechanisms e.g. Horizon Europe
- Local community development strategies
- Local public authorities
- Livestreaming community discussion sessions.
- Use of simpler and more direct language in documents. (Diaspora members are varied in education – clear language in communications and policy documents will help everyone to engage in policymaking at home).
- Engagement of local libraries and schools to transform them into local hubs for communicating with diaspora members and sharing investment opportunities.

Initial direction: ID.3. Development of a diaspora strategy, adopted in consensus with diaspora members along with an action plan that is consistent with the national development and innovation policy priorities.

Proposed Action Plan

Suggestion 1 (Based on a proposal from by Aleksandr Gevorkyan and adapted after the Focus group meeting):

1. Establish a small group who will drive the action.

This group will be different to the one driving the DSG although there may be some overlap. It should focus on 'local' news e.g. from home town associations rather than specialised academic or professional groups.

2. Agree the 'engagement infrastructure'

Step 2 will be to agree the platforms and methods to be used to disseminate news and events. This does not need to be high maintenance e.g. Facebook or Instagram or Telegram could be used. The more important issue may be the perceived level of 'trustworthiness' of the platform.

Alongside such social media platforms news could also be disseminated by the DRB who could publicise information about engagements taking place through projects.

3. Identify the 'innovation' aspect to be reflected in the stories

In the context of this recommendation, 'innovation' can be understood as inviting people to be involved in 'new' actions. An early focus could be agriculture and IT. In contrast to the DSG, the actions could focus on idea for small projects e.g. those coming from students being rewarded with a small prize or positive promotion.

4. Define KPIs to measure the results of the activity

KPIs in this context need to be very carefully selected because the aspect to be measured is 'trust'. While activity indicators, e.g. number of stories posted will be useful there will be a long term need to identify indicators that suggest that the activity is having the result of creating more trust. This might, for example, be reflected in the number and level of investments being made by diaspora investors in to local projects. However, this might also need changes to be made to the overall investment environment e.g. through Tax credits.

Milestones

- Founding group established
- Presence established on social media

Timeline/ resources needed:

TBD

Summary Roadmap: SG.3:Diaspora engaged at various stages of the innovation policy cycles, including at the local level

Destination (Strategic Goals – 3- 5 year timeframe)
SG.5. *Diaspora engaged at various stages of the innovation policy cycles, including at the local level* KPI: TBC

Barriers and hazards (Ecosystem/ +Environment)	Tools and alliances (Ecosystem/ +Environment)
• Lack of engagement from local groups in the development and implementation of a strategy. • Lack of consensus on the best approach. • Failure to maintain the approach over a period of time. • Lack of local digitised data for M&E which lowers transparency and accountability on the use of local resources and creates suspicions and scepticism amongst diaspora members. • Changes at local level cause problems in consistency (people lost). • Lack of infrastructure for engagement. • Too much involvement in 'tree planting' and insufficient attempts to build a community around an	• Planned DSG, existing diaspora groups and ongoing activities. • Hometown associations and coordinated national alliance of hometown associations. • Local groups interested in playing a stronger role in promoting a positive image of Moldova abroad. • Inclusion of social entrepreneurship and education. • Inclusion of diaspora in the decision making process at local level. • Platforms to facilitate communication between diaspora members and local communities. • International and National-level support mechanisms e.g. Horizon Europe. • Local community development strategies. • Local public authorities.

Initial Direction (Near-Term Objectives 1-2 years)
ID.4. Development of a diaspora strategy, adopted in consensus with diaspora members along with an action plan that is consistent with the national development and innovation policy priorities. **Action Plan** 1. Establish a small group who will drive the action. 2. Agree the 'engagement infrastructure' 3. Identify the 'innovation' aspect to be reflected in the activities and stories 4. Define KPIs to measure the results of the activity (KPIs in this context need to be very carefully selected because the aspect to be measured is 'trust'.

References

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