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Moving forward in the Euro-Mediterranean Research and Innovation partnership. The
experience of the MIRA project

Technology transfer experiences in the Mediterranean

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Abstract. One of the important outputs of the MIRA project has been the creation of the Euro-Mediterranean Innovation Space (EMIS). This concept has allowed to initiate a number of activities among interested stakeholders in the Mediterranean who meet and discuss the framework conditions necessary to create such a Space. A case in point is represented by the TT activities organised to this effect. MIRA organised an exploratory forum in this regard in Brussels, Belgium (February 2010); other forums were organised in Casablanca, Morocco (December 2011), in Tunis, Tunisia (June 2012) and in Larnaca, Cyprus (October 2012). The Brussels event identified four key issues namely: Identification and mapping of the key barriers and the success factors; Knowledge Transfer policies and strategies; Innovation strategies and entrepreneurship in a Euro-Mediterranean context; Building knowledge and technology transfer capacities. A number of recommendations were drawn up based on the personal experiences of the participants coming from both sides of the Mediterranean. One important issue which emerged is the need to have clear achievable aims at two levels, both national and regional; more importantly, these aims must be designed in a way that they are complementary to each other.

Keywords. Innovation – Technology transfer – Research networks – Mediterranean region.

Les experiences de transfert de technologie en Méditerranée

Résumé. *L'un des résultats importants du projet MIRA a été la création de l'Espace euro-méditerranéen de l'innovation (MIRA). Compte tenu de ce concept, les acteurs intéressés dans la région méditerranéenne se sont engagés dans de nombreuses activités pour définir le cadre des conditions nécessaires pour la création d'un tel espace. Citons, à titre d'exemple, les activités TT (transfert de technologie) organisées à cet effet. MIRA a organisé un forum exploratoire à Bruxelles, en Belgique (Février 2010) ; d'autres forums ont été organisés à Casablanca, Maroc (Décembre 2011), à Tunis, Tunisie (Juin 2012) et à Larnaca, Chypre (Octobre 2012). La réunion de Bruxelles a permis d'identifier quatre questions essentielles à savoir : l'identification et la cartographie des principaux obstacles et les facteurs de succès, les politiques et les stratégies de transfert des connaissances, des stratégies d'innovation et l'entreprenariat dans un contexte euro-méditerranéen, le développement des connaissances et des capacités de transfert des technologies. Un certain nombre de recommandations ont été élaborées sur la base des expériences des participants provenant des deux côtés de la Méditerranée. Une question importante qui a été mise en évidence est la nécessité d'avoir des objectifs clairs, réalisables à deux niveaux, national et régional, et, surtout, complémentaires.*

Mots-clés. *Innovation – Transfert de technologie – Réseau de recherche – Région méditerranéenne.*

I – Introduction

MIRA has played a critical role in promoting the transfer of technology and helping train scientific and technical staff by increasing participation in joint research projects. MIRA has launched a pilot action which focused on developing an overview of the national technology transfer structures, policies and strategies in Euro-Mediterranean countries. A number of activities were organised under the MIRA patronage to discuss Euro-Mediterranean Technology Transfer (TT) to identify the barriers hampering technology transfer and innovation which are shared among EU and Mediterranean countries. These events also helped identifying training needs in relation to TT tools and methods as well as identifying the range of expertise available in the partner countries.

A number of interesting results emerged from an event organised in Brussels in February 2010. This event was attended by a number of experts from both sides of the Mediterranean and space was given to elaborate the discussion on the issues outlined above and to provide a number of recommendations which will eventually feed into the overall result of the TT effort of MIRA on the following points:

- Key Issue 1: Identification and mapping of the key barriers and the success factors of TT

- Key Issue 2: Knowledge transfer policies and strategies

- Key Issue 3: Innovation strategies and entrepreneurship in a Euro-Mediterranean context

- Key Issue 4: Building knowledge and technology transfer capacities.

For any attempt to identify the needs for an increased Transfer of Technology and valorisation of results, one needs to comprehensively look at the region, to identify the main barriers and success factors of TT (Key Issue 1) to be able to truly give a full picture of the situation. The barriers for Technology transfer in the Mediterranean include: lack of communication and trust; lack of skills in TT; lack of management skills; wrong academic incentives; risk aversion and lack of early-stage financing; lack of a legal framework; lack of information on the market needs; and companies unwilling to participate (financing, secretive information). These barriers call for solutions to be found; the following is being proposed:

a) Key Recommendations (Key Issue 1)

- Develop *a clear vision* with clear objectives and aims which are achievable

- improve measures and conditions to ensure *Capacity-building* in the field on both sides of the knowledge transfer

- increase *TT incentives* and support through specific programmes/projects with clear and targeted aims

- establish *communication channels* which allow for the free circulation of information, particularly on success stories.

It is perceived that there is a lack of clear policy orientation and of resources to effectively deal with knowledge transfer policies and strategies (Key Issue 2); therefore, there is an unbalanced excellence throughout the Mediterranean. Furthermore there is also lack of information on the market needs, lack of early stage financing as well as the absence of a risk-taking culture which is paramount for the success of TT activities to move ahead. The recommendations to overcome these problems have been narrowed down to two essential and complementary actions, namely:

b) Recommendations (Key Issue 2)

- *Diffusion of knowledge*: Bridge knowledge of different types of intermediaries at different levels along the value chain clearly spelling out the range of actors involved and address bottlenecks between the knowledge generation and application

- *innovation and regulatory policies* need to be designed and adapted to fit the framework conditions. Setting core objectives and priorities is a key issue to be addressed.

One of the identified challenges towards increased innovation and entrepreneurship in the Mediterranean (Key Issue 3) is the financial risk associated with the setting up of companies particularly in the Southern Mediterranean. This is coupled with the lack of financial support particularly in the risky start-up phase and difficulties in securing sufficient funds from Investment Banks, business angels and other funding sources. Furthermore, one needs to recognise the problems associated with the entrepreneurial culture in the region. This is very peculiar and thus needs to be threaded carefully to allow space for more creative thinking.

c) Key Recommendations (Key Issue 3)

More international donors: International donors (among which the EC) should help to set up specific support schemes and appropriate instruments to share/minimise risks and help developing further the entrepreneurial culture in the Mediterranean.

- *Development of robust interfaces between Industry and Research*: This stimulates the knowledge flow from research to industry. Innovation parks and research and innovation clusters play an important role.

Similarly to other regions, one of the solutions toward addressing the technology transfer and the valorisation of knowledge is the need for specific capacity building (Key Issue 4) measures in the field. It is recognised that there is lack of data on the experience acquired across Euro-Mediterranean countries and the lack of an inventory of the lessons learned. This is seen as a draw-back since many new industries may not know what capacities do really exist in the region.

d) Key Recommendations (Key Issue 4)

- *Benchmarking* of different TT experiences in the EU-Med using a conceptual structure covering different aspects involved in Technology Transfer. This should include:

- knowledge availability, professional qualifications, IPR issues, existence of interface institutions, mapping of the technology needs and demands as well as regulation and legal issues.

- capitalise on Smart Bridging for knowledge transfer in the Mediterranean taking advantage of the available instruments, such as the existence of expatriates' networks.

No doubt that all of such measures should not be expected to be tackled solely at the national level by individual countries. History has shown (particularly within the European Union) that cross-border cooperation can be an essential factor to overcome common problems and concerns such as the issue of addressing Technology Transfer and the Valorisation of results. For this purpose the EMIS group with the help of carefully chosen experts from the region for both the academia and industry side have discussed and come up with two possible scenarios of having two separate (yet complementary) road maps one at national and the other at regional level.

II – Road map at national level

The importance of having a road map at the national level is to clearly address the national priorities which could be well different to its neighbours. Therefore it is not sufficient to have a regional road map for a country to simply follow that; it is advisable for each country to have (in addition) its own national road map to address key issues and priorities which could be limited to its experience. The main items proposed in this case would be:

- set up long-term vision with clear aims and objectives.
- allow for provisions to ensure brain circulation between researchers regionally, nationally and internationally – measures should include provisions to ease visa restrictions for incoming researchers. Furthermore existing industry should be closely interlinked with research centres and laboratories by providing increased networking opportunities to ensure that clustering may be a continuous process.
- set-up more universities and specialised training institutions to allow a more multi-disciplinary generation which can easily adapt to the changing competitive market to increase the experience at policy level of the institutions.
- omit national funds specifically to address the TT gaps which exist. An example is to provide specific incentives to SMEs doing research with universities and research-driven clusters.
- create new SMEs by promoting in a more effective way university spin-offs and assist such SMEs to develop into high-tech SMEs within 5 years.

III – Road map at regional level

Tackling technology transfer at the regional level may have significant results if complemented with national actions. Regional cooperation opens up new space for Technology Transfer trans-nationally and may be instrumental for achieving specific expertise which is not available within the national territories. Regional cooperation is an instrument for all countries regardless of the size as it allows for a real brain circulation and networking beyond the national borders. It has been highlighted that Regional road maps may be key to achieving regional objectives that should not be seen as the sole solution for the national objectives – the opening up of regional cooperation in the field could give access to a wider diaspora of qualified people, increased interfaces among institutions and new partnerships. The actions proposed are the following:

- setting-up of specialised programmes specifically targeted to the region. In the case of the EC it would be useful to have a specific ERA-NET on Technology Transfer in the EuroMed region;

- set-up partnerships across borders and create clusters which may have the capacity to be linked to the EU and/or global scale;

- have Public and Private technology brokers and use techno-parks as a tool for the developed clusters;

- provide specific incentives for SMEs engaging in trans-national Technology Transfer activities;

- provide funding for effective training of experts and networking amongst key players in Technology Transfer within both sides of the Euro-Med Region.

IV – Role of the EMIS

EMIS (Euro-Med Innovation Space) is currently pursuing efforts to identify the potential for the future development of Technology Transfer. It has organised a number of events under the MIRA patronage and is expected to continue building on the substantial work already carried out so far. The ideas have been many and so have the actions. However, to summarise, EMIS priorities will be on the following identified suggestions:

- creation of a web-based dialogue platform

- use the platform to facilitate interaction with existing programmes on innovation in the Mediterranean Area

- organise 'thematic fora' where researchers, companies and public administration share their views on the issues related to the implementation of the UfM projects objectives and search the possibilities to establish national and, mainly, international 'Research-Driven clusters' as a tool to support technology transfer, the creation of consortia to apply for research funding, and developing training activities amongst others.

References

Noetzel R., Kunze U., Ditgens B., 2013. The research driven cluster initiative. <u>Infra</u>, pp. 229-236.

Webliography

Mira project (2012). *Towards the Euro-Mediterranean Innovation Space – EMIS* http://www.miraproject.eu/euro-mediterranean-innovation-space