MINUTES OF ERF-FEMISE EXPERT GROUP MEETING ON[1]:
"INNOVATION: TOWARDS A RESEARCH AGENDA TO UNLOCK SOUTH MED POTENTIALS"
JANUARY 18TH 2016 - CAIRO, EGYPT

1. Agenda

9:00-10:00 **Session 1: Introduction and Definition of Innovation and its relation to Development**
Overview and purpose of the meeting

Innovation, Policy and Development: Concepts and Measurement

10:00-12:00 **Session 2: Drivers of Innovation**
How to establish a successful IP policy for universities and research institutes?

Cooperation in Research and Innovation between the South Mediterranean and the European Union

12:30-2:30 **Session 3: Innovation in South Med countries: status and prospects**
Innovation and Institutions in MENA: Practical & Empirical Evidence

Jordan Technology Transfer Network: a cost effective model for the establishment of a national tech transfer program in the South Med

Firm Innovation in the South Med countries: Panel on Innovation in South Med Countries, status and prospects

15:30-17:00 **Roundtable Discussion: Towards a research agenda about innovation in the South Med countries**

2. List of participants

Participant	Affiliation
Ahmed Galal	ERF Managing Director and FEMISE Coordinator and President
Patricia Augier	FEMISE Coordinator and Economist, Institut de la Méditerranée
Jean-Eric Aubert	Former Lead Specialist at The World Bank and the OECD, Founder and President, SIGN Institute France
Anton Habjanič	Director, TechnoCenter at University of Maribor, Slovenija
Heba Gaber	Research and Innovation officer, Delegation of the European Union to Egypt
Tamer Taha	PhD Fellow (UNU-MERIT), & Founder of Istebdaa' LLC. & Yomken.com
Helena Schweiger	Senior Economist, EBRD, UK
Mohamed Al-Jafari	Royal Scientific Society, Jordan
Ahmed Kandil	Expert of intentional relations and head of energy studies program, Al-Ahram Center for Political and Strategic Studies, Al-Ahram newspaper
Mohamed Hekal	Senior Researcher, General Authority for Investment and Free Zones
Maryse Louis	General Manager, FEMISE and Programs Manager, ERF
Constantin Tsakas	General Secretary, FEMISE and General Manager, Institut de la Méditerranée
Hoda Selim	Economist, ERF
Jala Youssef	Researcher, ERF

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3. Minutes

First session: Introduction and Definition of Innovation and its relation to Development

Introduction and overview of the meeting

Dr. Ahmed Galal initiated the meeting by welcoming all the participants. He explained that this meeting about innovation is meant to be a brainstorming session in order to come up with interesting research questions on the topic for the future. He asked participants to introduce themselves.

Dr. Galal said that we know the symptoms of innovation, but how can a country become a better innovator? What are the drivers of innovation? Theories help us to predict the future; but do we have the theories that guide in innovation?

Innovation, Policy and Development: Concepts and Measurement

The key points of Dr. Jean Eric Aubert's presentation were the following:

- Identifying what is innovation and why it matters
- Reviewing countries' innovation capabilities
- Formulating an innovation policy: the key components and strategic implementation

- What is innovation

Dr. Aubert explained that innovation is something new that is being developed and adopted less than five years ago in businesses. It could be defined as diffusion of (modest) newness in the economy in form of new products, new processes, new services, new organisational structures, etc. It is also commercialized and used since more 70% of the new products are based on new technologies. Innovation is needed for maintaining or raising the competitiveness of industries, improving livelihoods, environment, etc.

He added that small improvements matter and that we need to contextualize innovation: we have to start with problems, where there is something that needs to be improved. For example: an application in Saudi Arabia to facilitate women employment: it might be a simple improvement but had a positive impact.

Dr. Aubert discussed an OECD study "Threat to livelihoods: Jobless growth". The world economy is deeply engaged in a long-term growth process that is not generating employment. He concluded that innovation cannot on its own solve unemployment. It can have impact on productivity which will generate income and hence we have to think about the distributional policies to accompany innovation.

- Innovation Measurement

Dr. Aubert introduced the "Global Innovation Index". He considered it the best available innovation database that is updated each one or two years. It takes into consideration many factors: knowledge based, banking, infrastructure...etc. It provides some formal ratios regarding innovation.

When it comes to the relationship between GDP per capita and performance on global innovation index, we find that the top performers are the advanced economies. For Arab countries, they tend to be lower than the average, including the rich ones.

- Innovation context

The innovation system is the interconnection between main actors of innovation: the researchers, the government, the entrepreneurs, etc. The developmental system is the basic institutional foundation in which these actors function. As for the societal system, it is not well integrated in most of the current studies.

In advanced economies, they have fairly good "framework conditions". But innovation is being concentrated in "innovation islands". For the medium income countries, innovation

systems are heterogeneous. Though, there are inspiring success stories. Regarding the low income countries, innovation is considered "frugal"; there are interesting examples but related to day to day life improvements.

- Government role in the context of innovation

Whatever the social context of a country, if the government wants to focus on innovation it should:

  - Support or finance projects (maybe specific programs or large scale programs)
  - Remove weeds preventing growth, work on improving: competition, deregulation, property laws, corruption...etc.
  - Improve the education system, technical culture of population...etc.

In order to have an innovation government strategy, the government can start with pilot projects to be scaled thereafter into critical massive projects and hence adopting major reforms and institutional changes. This should be coupled with bottom up initiatives in order to reach a long term agenda.

Discussion

Discussions revolved around the following:

Regarding the GII, how is it calculated and what proxies do we use? How to measure it?

Dr. Aubert clarified that there are 85 variables included in the GII. 90% of them are documented from solid quantitative data. All surveys are done with the World Economic Forum. The problem is the way the variables are weighted.

On the innovation system, there was a concern that it almost includes everything; the framework looks coherent but doesn't provide causalities in order to help policy makers with a recipe for moving from one point to another. We should have tailored recipe for each country. Israel was mentioned as a good example in innovation; they are ranked first in the expenditure in R&D and most of it goes to military: they consider a threat a motivation for innovation. It is completely integrated with the US and this allows them for more innovative products.

There was also another concern on the extent to which innovation can be relevant in troubled countries. Dr. Aubert explained that troubles do not prevent countries from innovation. He gave the example of Columbia that lived in civil wars but still had innovation.

Session 2: Drivers of Innovation

How to establish a successful IP policy for universities and research institutes?
The ingredients of technology transfer are as follows: first, high quality research which represents the generator of good ideas. Second, markets with companies able to commercialize inventions. Third, scientists and managers with entrepreneurial spirit. Fourth, investors willing to invest in new products. Fifth, government to support what investors do not want to finance. Sixth, well connected and qualified Technology Transfer Professionals.

- Technology transfer cycles

Research and development is financed by the government or by companies. New inventions are accordingly developed. Protection of IPR is a key issue that should be in the centre of the technology transfer cycle. There should be some regulations in place in order to efficiently use the inventions. The goal is to create new products and services which will generate more tax revenues and hence more economic growth.

- IP strategy and IP policy

IP strategy could be defined as a plan designed to achieve IP management supporting the core missions of technology transfer. While an IP policy could be defined as principles of actions (set of provisions), often with direct legal implication, regarding duties and rights of faculty and indirect implications for partners.

What is the importance of an IP policy?
IP policy is a must-have tool. It provides clear and transparent rules on IP management while involving the personal, institutional, national and international aspects of IP management in one regulatory document.

- Dr. Habjanic listed ten key questions to be considered in order to implement a successful IP policy:

1- Who owns IP policy? Who is the first owner (the employer or employee)?
2- How revenues from research are shared among inventors, institute or department, university and government or funding agency?
3- What rights does the government have on IP generated at universities and R&D institutes?
4- Is private funding for defined research projects permitted? And under what conditions?
5- What choices do universities and R&D institutions have for commercializing their research results?
6- Who manages the IP and technology transfer?
7- What IP Management Procedures will be followed?
8- How to afford the cost of protection and maintenance of IP?
9- How the conflicts of interest and commitment handled or prevented?
10- How should scientists be encouraged and motivated?

- He concluded with some recommendations on how universities and research institutes can enhance innovation:
  - Enhancing entrepreneurship and boosting innovativeness at universities & research institutes requires a corresponding ecosystem (e.g. organized in accordance with the ″one stop shop″ principle), and IP Policy that encourage and provide incentives to researchers.
  - The IP Policy has to be adapted in a manner that the institution is able to identify emerging inventions efficiently, asses and manage disclosed inventions in a systematic way, and addresses grand challenges
  - Main challenges for enhancing innovation are the following:
    - Harmonization of IP Policy with institutional and (inter-) national agreements, regulations and policy frameworks

- Providing funding aimed at bridging the gap between ″embryonic″ research results and demonstrations of PoC that would stimulate market exploitation (e.g. special funds can be established by leveraging proper (inter)national grants)
- Available human resources & their ingrained mentality.

Cooperation in Research and Innovation between the South Mediterranean and the European Union

Mrs. Gaber clarified that there are many strategies and road maps in this regards. EU has recently issued an international cooperation strategy in line with Horizon 2020. EU has different objectives with regards to cooperation in research and innovation:

- For the neighborhood countries, EU wants to integrate in the European research area
- Building capacities
- Accessing new markets
- For developing countries: sustainable development objectives

- What is Horizon 2020?

It is an EU program to fund research and innovation. The budget is 80 billion Euros. It covers the period 2014 till 2020. Despite the economic problems in Europe, it doubled the budget for research and innovation. It is build on three main pillars: 30% of the budget for excellence science research, another 20% of the budget for the competitiveness of industry sector and 50% allocated to societal challenges.

The previous program to Horizon 2020 is FP7 with a budget of 40 billion Euros. Under this framework, 300 projects were signed in South Med countries with a budget of 500 million Euros.

The program is open to international cooperation. South Med countries are eligible for automatic funding. Egypt is the top participating country in Horizon 2020: 21 contracts are signed under Horizon 2020. Morocco comes second, followed by Tunisia. Any legal entity is allowed to apply with proposals to Horizon 2020 (NGOs, SMEs, public authorities, etc.).

- PRIMA

It is a response from the commission for co-funding. It has a budget of 100 million Euros. The participants are Algeria, Egypt, Jordan, Lebanon, Morocco, Tunisia and Turkey. It focuses on water and food.

- Priorities from EU's point of view on cooperation between south med and EU in research and innovations:
  - Water availability and management and food security
  - Renewable energy and efficiency
  - Fighting diseases and improving well-being
  - Green, efficient and integrated transport systems
  - Management of marine environment and resources
  - Changing science in changing societies
  - Research infrastructures
  - Innovation

Discussion

The main points of the discussions were the following:

An idea was raised that most of innovation drivers come from users or suppliers; we do not have to fall to the normal trap of considering that ideas fall only from universities to markets. Ideas are more of a response to the needs. Over the last 10 or 20 years, many successful transfers from universities research to markets were done when professors became entrepreneurs. The situation has changed with the improvement of IP policy. The

problem is that in less developed countries, institutional arrangements (regarding universities research, IP protection, licensing and transfers) are not appropriate.

There was a concern on the concept of small pilot cases and scaling them up to achieve an ecosystem: in pilot cases we do not solve systemic cases, they succeed for odd reasons (financial support, good leaders, etc.) and scaling up is just an experiment. It seems like we are relying on exceptional cases.

Session 3: Innovation in South Med countries: status and prospects

Innovation and Institutions in MENA: Practical & Empirical Evidence

Mr. Taha explained that South Med countries are very special with their institutions and their institutional framework. They suffer from informal constraints and rent seeking behavior: According to the World Enterprise Survey, 31% of companies in the MENA region have experienced at least one bribe payment during the last three years compared to 17% as a world average. The performance of innovation is low in the region compared to other countries with the same level of human development. Moreover, the region suffers from jobless growth compared to other regions.

The theory is that innovation has an impact on employment. It could be a positive effect: for example when we introduce new products to the market which will increase growth. However, there could be a negative effect which is called the displacement effect: for example if we replace in Egypt the guy who sells the tickets in metro stations, this will reduce employment. However, the employment should increase afterwards since machines should be maintained. The indirect effect of innovation is through firms' growth.

- Challenges in South Med countries
  - Mr. Taha argued that corruption might have a positive or negative effect on innovation. The empirical evidence demonstrated that corruption does not have a direct effect on innovation. But, it has a positive effect on innovation when there are a lot of bureaucratic obstacles.
  - Research quality is low compared to the available number of scientists.
  - There is a huge skills mismatch between the skills needed by businessmen compared to the actual distribution of graduates by discipline.
  - Most innovative sectors in MENA region are the labor intensive sectors and not the high tech ones.

- Yomken: Solving innovation challenges given the power of ICT

Mr. Taha presented his startup that tries to solve innovation challenges.
Estebdaa is a startup that works on the following:
Impact evaluation
Feasibility studies and technology due diligence
Yomken.com: an open innovation platform

There is a gap between what innovators need (minimal risk, marketing, funding, a problem to be solved, etc) and what the industries need (trusted ideas, network, fast and quick feedback, external skills, product designs, proven solutions, low cost, etc). Yomken is a model to solve this gap between the needs and demands of innovation.
Yomken tried to come up with challenges (from NGOs, governmental institutions, companies, startups). Then, these challenges are posted online and whoever can solve these challenges will get a reward. Moreover, the solutions are being commercialized. The project is cost effective, relying on a young staff team. The Academy of Scientific Research and Technology is one of Yomken's strategic partners. The challenges on Yomken can be either a concept or a theory or a prototype or a request for proposal. 21% of the received challenges are in agribusiness or fisheries. Another 16% are in plastic, metal and wooden industries. 80% of the challenges are solved. On average, the challenge reward is 14 thousands L.E. More than the half of challenges are coming or solved outside Cairo. Yomken has 150 partners.

Mr. Taha concluded by saying that challenges faced by an ecosystem need local solutions and we cannot copy innovation systems from other countries.

Jordan Technology Transfer Network: a cost effective model for the establishment of a national tech transfer program in the South Med

Mr. Jafari explained that he will present a model for establishing a national technology transfer system that has a great enabler of creation of value from innovation.

- Open innovation

The developmental funnel for ideas and technology is no longer closed, technologies can jump in or out at any point (pharmaceutical industry is a good example in this regards). Technology is one partnership after the next and that is why we do not do business plans anymore, we only plan partnerships. Two major outcomes: first, the quality of work is more important than the quantity. Second, anyone can plug into this system (like small-time innovators).

- iPark

Royal Scientific Society was established in the seventies. It is the largest applied research institution, consultancy, and technical support service provider in Jordan. It established the first technology transfer unit in the nineties.

As for iPark, it is a specific project within the Royal Scientific Society; it tries to create jobs by supporting entrepreneurs and innovators. It provides innovation support through IPCO and there is an incubator which is iPark that takes care of the entrepreneurship side.

Since 2003, 13 thousand jobs were created with very little funding. If iPark was a company, it would have been among the largest 10 companies in Jordan.

- IPCO

It was created in 2006 as an office just to handle the IP assets within the Royal Scientific Society. In 2010, with a European fund, a technology transfer network was created and we started serving IP management services to universities. In 2014, IPCO's objective was to enable creation and capture value from innovation. The approach is technology based. IPCO's approach is to help innovators gain by matching the readiness of the technology with the readiness of the environment.

- The National Technology Transfer

It was established in 2010. It is lead by IPCO. Technology Transfer Units are set up across different research institutions and the centralized office is IPCO. The network has 20 members with each having a standalone agreement with IPCO to enter the network.

IPCO has some know-how with intellectual properties protection, deal making and commercialization but linked with industries that have liaison offices that link them with IPCO directly. The network generates no revenue. The revenues are generated from some services provided to members (like patent drafting for example). There are many legal obstacles which prevents the network from being a decentralized network.

Mr. El Jafari concluded with some unhealthy obsessions:

- The absorptive capacity of an industry: if we have an innovation we can only use it when the industry can absorb it
- Knowledge is not an industry input
- Local IP laws: how good are we to leverage our IP compared to developed countries
- Investment incentives initiatives: Hardly anything is built on strategies or demand
- The cost to market might be expensive but we should worry about our partnership strategy
- Public sector intra-funding: the government should burn public cash in private sector
- Protect IP: we should invest in IP

Firm Innovation in the South Med countries: Panel on Innovation in South Med Countries, status and prospects

- What is innovation on the firm level?

It is one of the ways of improving productivity. It includes the products, processes, organizational and marketing methods that are new to the firm. Firms need to adopt, adapt and advance towards the technological frontier.

- WBG-EBRD-EIB MENA Enterprise Survey

WBG-EBRD-EIB MENA Enterprise Survey (ES) is a firm level survey. The objective is to understand the environment in which they operate. It is a representative sample that was done through 6500 interviews in 9 economies (3000 among them were in Egypt). It is stratified by sector, size and region (5+ employees, manufacturing and services).

Main questionnaire consisted of Yes/no questions on whether their firm has introduced any new or significantly improved products, processes, organizational or marketing methods or spent on R&D in the last three years. And there is a module on innovation including the description of the main product or process innovation.

Data shows that most innovation is not ground breaking. The adoption (and adaptation) of existing products and processes is particularly important for emerging markets and developing economies - including those in South Med. Moreover, firms in less developed countries engage in all types of innovation. They may find it easier to innovate by adapting existing products to local conditions or upgrading machinery and equipment.

South Med low tech sectors are less likely to acquire knowledge compared to their peers in Europe and Central Asia (ECA). However, South Med high tech and medium tech compare favorably to their peers in ECA.

- CDM model: what are the determinants of innovation and does it pay off?

The factors that might affect innovation: size, age, ownership, trading status, skilled workforce and economy fixed effects

  - Suitably skilled workforce

It is important for firms to have human capital and to provide formal training.
The formal level of managers' education matters.

  - Access to knowledge and information

Most firms do not introduce innovation new to the technological frontier; they often rely on existing knowledge of what their peers are doing

  - Access to finance

Firms with a loan or a line of credit are more likely to introduce new products, processes or both

  - Productivity pay-offs

All types of innovation are associated with higher labor productivity in both the full private sector and in particular in the manufacturing sector with more than 20 employees

- Policy Implications

Mrs. Schweiger concluded by suggesting some policy implications as follows
1-Firms would benefit from greater openness to international trade, and in particular more effective customs and trade regulations, both when exporting and importing
2- Government should facilitate improvements in the skills of the workforce
3- Restrictions to firm entry and exit as well as restrictions that give incumbent firms undue advantage should be removed

Discussion

On Innovation and Institutions in MENA, the corruption innovation relationship was being questioned. Regarding the firm innovation in South Med countries presentation, there was a concern that most of the policy implications did not account for the government role. There was also another concern that there is a mismatch between the conclusions and the data covers a small part of the evidence.

Roundtable discussion: Towards a research agenda about innovation in the South Med countries

Dr. Galal asked participants to identify five research questions on the innovation topic that they consider important in this regards or relevant to the region

Jean Eric Aubert

- Innovation and relation to growth and employment in South Med economies
- Improvement of institutional framework and innovation performances: in other terms, if I care about it how do I do it?
- How to develop a transformative strategy (innovation based) in South Med countries?
- What has international cooperation brought for innovation is South Med countries?
- Visualization of innovation/knowledge economy transitions through appropriate new technologies softwares (job demands, social networks

Ahmed Kandil

- Regional cooperation regarding innovation
- What are the top priorities for innovation policy (specific sectors or focused areas)?
- How can we secure enough finance to promote innovation policies in the troubled societies?
- What are the best practices to strengthen and promote innovation
- How can we raise new and young generations to become more innovative?
- What are the required networks in the Med region to develop a regional innovation policy?

Tamer Taha

- Why do innovative start-ups in the region fail?
- Innovation foresight: how to construct a South-Med adapted model?
- What does big data visualization tell us about innovation in South-Med countries?
- What are the channels/interactions/articulations of innovation flows among clusters/industries (i.e. patents, imitations, etc.)?
- Innovation, income and skill-bias: what are the relationships between the three?

Anton Habjanič

- What does it mean effective governance of the research and innovation system?
- What kind of capacities for support to research and development should be established?
- How to strengthen companies' innovation capabilities?
- What are the incentives for researchers that could foster innovation activities?
- How to provide funding for innovation in order to bridge the "death valley"?

Helena Schweiger

- Why do some firms innovate, while others don't, in the same country, same conditions and firm characteristics?
- What is the causal link between exports, imports and innovation?
- What is the causal link between skills and innovation?
- What type of government support works best for inducing firm innovation: specific programs with monetary component or improving general business environment conditions (in the context of developing economies)?
- How do regulations favoring incumbent firms affect innovation?
- Do innovation incubators, tech centers, etc. generate innovation spillovers? And under what conditions?

Maryse Louis

- What could be the role of the public sector in promoting innovation? As there is a clear gap:
  Difficulty in engaging public sector

Public sector is not considered an important player in innovation
Different innovation strategies in each ministry/sector (Egypt)

- How education could be part of innovation: including innovation and encouraging new ideas in universities and education systems?
- How to measure innovation?
  Measuring innovation is a challenge. GII provides a good proxy but still missing out important aspects
- Innovation is lagging behind in Arab countries compared to other countries with similar level of human/economic development; why?
- EU seems to be providing lots of funding to support innovation is South Med countries, but what is the value of funding if no know-how is provided? Does EU provide technical support to promote innovation strategy?

Mohamed El Jafari

- How to quantify the effect of the introduction and the enforcement of specific elements into the IP protection system of a transition economy on economic and development performance through a step by step approach standing with a tangible effect on specific sectors of local industry?
- How to quantify the risk and potential effect of de-industrialization of transition economies on the innovation and economic performance of that economy?
- How to benchmark regional institutional policies and procedures against established best practices while speculating on true potential tangible outcomes of corrective measures?
- What is the potential economic impact of direct public support for private sector innovation?

Patricia Augier

- What are the main obstacles to innovation at firm level?
- Which education policy should be adopted to promote innovation?
- Before identifying a common innovation policy, how to understand the specific problems in each country?
- How to coordinate initiatives and how to diffuse the good experiences?
- How to initiate a cultural change in favor of innovation?

Constantin Tsakas

- How do we remedy the scarcity of natural resources?
- Innovation and how to make education available to all?
- Innovation and how to integrate refugees (economically and socially)?
- Unemployment, jobless growth and innovation; what accompanying policies?
- Living sustainably outside of earth's boarders: is there a way?