



CENTER for MEDITERRANEAN
INTEGRATION | CENTRE pour
l'INTÉGRATION en MÉDITERRANÉE
مركز التكامل المتوسطي



SUMMARY REPORT
NATIONAL EXPERTS MEETING
TOWARDS AN “INNOVATION SCOREBOARD ”
FOR THE MENA-REGION



16/17 MAY 2016
ISLAMIC EDUCATIONAL SCIENTIFIC AND CULTURAL ORGANIZATION
RABAT, MOROCCO

Context and purpose of the meeting

The European Investment Bank, through the Centre for Mediterranean Integration, in cooperation with the Islamic Educational Scientific and Cultural Organization (ISESCO) and the UN-ESCWA Technology Centre (ETC) organized a workshop for national experts in innovation and statistics. This workshop followed an earlier meeting in Amman in March 2015, where the participating countries selected 25 statistical indicators for an Innovation Scoreboard for the MENA region, to assess the innovation capacity and innovative status of the countries. The call to develop an instrument to “measure” national innovation systems was launched during a meeting with national experts organized by the EIB/CMI, ISESCO, ETC and the League of Arab States in December 2014 at the League’s headquarters in Cairo. Although different international rankings exist, like the Global Innovation Index or Global Competitiveness Index, countries in the MENA felt that a tailor-made index for the MENA was required to address specificities in these countries. The purpose of the meeting in Rabat was to evaluate the data availability for the selected 25 indicators and, in function of the data availability, discuss the pertinence of the selected framework to measure input, processes and output and the impact of national innovation systems.

The experts agreed upon a “beta”-version of an innovation-barometer to be circulated by August 2016. Experts from the Islamic Academy of Sciences (IAS), the Arabic Industrial Development and Mining Organization (AIDMO), and UNESCO also participated in the discussions. The MENA Innovation Barometer consists of two pillars: “Input and Enablers” and “Output and Impact”. “Input and Enablers” are subdivided into “Human Resources”, “Knowledge Enablers”, and “Business Enablers”. The second pillar, “Output and Impact” is constituted of statistical indicators that reflect the “Value-Added potential of the Private Sector”, “Quality of Scholastic Output”, “Business Impact” and “Intellectual Asset Formation”. All parties consider the innovation barometer to be an important, comprehensive instrument to indicate policy makers, on the basis of a country’s normalised scores, priorities for and obstacles on their countries’ road towards an innovative, knowledge-based economy, with more, higher value-added employment.



Main observations and issues

Poor information on R&D spending and private sector innovation: During the consultation round, it became clear that key national statistical data on “input” to innovation, essential to measure the availability and allocation of (human and financial) resources, are not systematically collected. For example, there are no recent and reliable data on national spending on R&D (GERD), let alone specified by sector or source (public, private, or foreign investment). Even a proxy indicator, like the number of scientists and research staff is often not available. Also information about innovation activities in the private sector, in line with the OECD-OSLO guidelines, is missing. Only Egypt has conducted surveys to obtain insight into the number of companies with product-process-and organisational innovation, their location, their sectorial affiliation, as well as the source of their innovation ideas (relevant to assess for example the utility of academic-industry cooperation), and testimonies about the obstacles to innovation that these enterprises experience.

Measurement of brain drain: It also had been proven difficult to obtain data on “brain drain” or to find available, statistical proxies to describe brain drain. It was discussed whether the flow of outbound and inbound internationally mobile students could be an alternative indicator. Outbound student flows would indicate a lack of available and qualitatively satisfactory tertiary level education infrastructure, which causes brain drain. Although the flux of outbound students embodies a risk of brain drain indeed, it embodies at the same time a lever for international knowledge transfer when these student return to their countries. Inbound flows of students from abroad were unanimously considered as a positive indicator, witnessing the quality and affordability of the tertiary educational system and an open knowledge system.

Lack of resources to collect statistics: The participating countries recognized a lack of funding and human resources to set up programmes to obtain these statistics but saw an important role for the international organizations that were present (ISESCO, UNESCO and UN-ESCWA, or the IAS) to design a programme to help countries to collect these data in coordination of the Statistical, Economic and Social Research and Training Centre for Islamic Countries (SESRIC) and Islamic Development Bank. Palestine conducted an R&D survey in 2013, which was financed through the Central Funding Group. It was also recommended to distribute the tasks within the countries’ responsible ministries and international organizations, for example ISESCO, ALECSO, UNESCO and IAS for academic topics and ESCWA, UNIDO and AIDMO for statistics with an industrial character.

Revision of the Innovation Scoreboard

As explained above, insufficient data was available for several of the initially selected indicators. Since the initially proposed structure of the Scoreboard was therefore difficult to maintain, it was discussed how the remaining indicators could be regrouped and relabelled. During the discussions, the participants also expressed that the definition and the place of indicators used in the earlier agreed classification was not always transparent (i.e. does the number of start-ups per 1000 inhabitants relate to “investment”, “policy”, or enablers“?). It was also decided to clearly separate the “business” and the “public” sector as much as possible, for instance, in the case of “quality” where previously two indicators were considered (TIMMS score for educational and ISO 9001 for businesses).



Quality of output from education system: The delegates concurred to include additional and alternative (back-up) indicators, which could compensate the measurement in case a statistic was not available for a specific year or specific country. For example, to assess the quality of education output, the countries' performance in the "Trends in International Mathematics and Science Study" ([TIMSS](#)) for 8th grade students had been proposed. However, this study from the *International Association for the Evaluation of Educational Achievement (IEA)* is conducted only once every five years. In order to have a wider sample of (annual) indicators relating to the quality of educational output, the countries' students' scores on *Graduate Management Admission Test (GMAT)*, *Graduate Record Examination tests (GRE)* and the [QS World University Rankings](#) could be added and make the observation of educational quality more robust.

Quality of business processes: Likewise, to enhance the assessment of the degree of sophistication of business processes, [ISO 22000](#) (for the agro-food industry safety management) and [140001](#) (environmental management) were added to the initially selected ISO 9001 certificate. As the UNIDO indicator "Medium and High Technology manufacturing as percentage of total exports" was not available for all countries, the delegates accepted to collect export data on four manufacturing sectors from the [United Nations Comtrade database](#): for organic chemicals (sector 29), machinery and mechanical appliances (sector 84), electrical machinery and equipment (sector 85) and vehicles (sector 87). This data was then compiled with the statistics on High-technology exports (% of manufactured exports).

Value creation in the industrial sector: Since "high tech and manufacturing exports" do not necessarily express the value created within a country, it was decided to include "value added by the manufacturing industry as a percentage of the total industrial value added" (remembering that many countries' industrial output is based on the agriculture, oil, gas or minerals). In cases where these statistics were not available for a specific year or country, it was decided to add two other indicators for the value creation in a country, i.e. (i) the value added per worker in the agricultural industry, and (ii) the ICT services exports as a percentage of GDP. It was further recommended, in order to increase the precision, to include at a later stage the Value Added generated in these four above-mentioned industries and in High Tech sectors (such as in aerospace, computers, pharmaceuticals, scientific instruments, and electrical machinery). The [Arabic Industrial Development and Mining Organization \(AIDMO / إيدمو \)](#) expressed their commitment to facilitate the collection of such statistics, and willingness to include related activities under their Action Programme 2017-2018).

With respect to the initial structure of the scoreboard, which consisted of three pillars (Input, Process and Output), the indicators were regrouped under two pillars: "Input and Enablers" and "Output and Impact". The pillar "Input and Enablers" was subdivided into: (i) "Human Resources", (ii) "Knowledge Enablers", and (iii) "Business Enablers". The second pillar, "Output and Impact" is constituted of (i) "Value-Added potential of the Private Sector", (ii) "Quality of Scholastic Output", (iii) "Business Impact", trying to measure the innovativeness of the business sector and (iv) Intellectual Asset Formation", i.e. the generation of intellectual property rights and "intangible capital". The categorization into these two categories, would also enable to compare countries' ratios between the scores on "output and impact" in relation to the relative scores on "input and enablers" and i.e. a sort of "innovation efficiency" measure:

$$\text{Innovation Efficiency} = \frac{\text{Country's relative score output and impact}}{\text{Country's relative score input and enablers}}$$

Apart from the changes already discussed, the following proposals were accepted:

- The statistics related to percentage of firms that licensed-in knowledge from foreign firms was added as a new indicator under "knowledge enablers"
- The role of the banking sectors and the private equity market in the financing of business development, was included under "business enabler".
- The H-index for scientific publications was included to measure their impact under "quality of scholastic output". The H-index is an index to quantify the quality of scientific research output as proposed by J.E. Hirsch - ([see corresponding article](#)). There are several databases (Web of Science, Scopus, and Google Scholar) that will provide H-index for an individual based on publications indexed in the tools, whereas the organization www.scimagoir.com provides for overall country scores.

- With respect to “business innovation”, three indicators were added: (i) the percentage of firms that acknowledged to have been able to change their business model through the use of ICT and (ii) the percentage of firms having introduced new products or (iii) having introduced new services.
- Six indicators were regrouped to assess the capacity to generate intangible assets (articles, patents and other industrial property rights).

The retained structure of the innovation scoreboard and its indicators look as follows:

INNOVATION METER FOR MENA-COUNTRIES	
INPUT AND ENABLERS	
1	HUMAN RESOURCES
1.1	Annual tertiary graduates as a % of the population 15-64 years:
1.2	Percentage tertiary level graduates in technical / science curriculum tertiary
1.3	Total outbound tertiary level students as a % of tertiary graduates
1.4	Total personnel in R&D as a percentage of population 15-64 years old
1.5	% secondary students enrolled in vocational programmes
2	KNOWLEDGE ENABLERS
2.1	Inbound international tertiary level students as % of total tertiary graduates
2.2	Foreign Direct investment (BoP) net inflows as % of GDP
2.3	Gross national spending on R&D / GDP
2.4	GERD financed by business as % of GDP
2.5	Percentage of firms that licensed-in technology from foreign firms
3	BUSINESS ENABLERS
3.1	Domestic credit to the private sector (% of GDP)
3.2	Ease of getting credit (Credit registry coverage (% of adults))
3.3	Business Survey: Firms using banks to finance investments (% of firms)
3.4	Business Survey: Proportion of investments financed by banks
3.4	Private equity investment value as a % of GDP
3.5	Ease of starting a business (time required in days)
OUTPUT AND IMPACT	
4	VALUE ADDED POTENTIAL BY ENTREPRENEURIAL SECTOR
4.1	Sum total of ISO 9001, 14001 and 22000 registration last available year related to GDP
4.2	New business registration per 1000 population 15-64 years, latest available year
4.3	Industry value added as percentage of GDP
4.4	ICT Service exports as % of GDP
4.5	Agriculture value added per worker (2005 US\$)
4.6	Charges for the use of intellectual property, receipts (BoP, current US\$) as % of GDP
5	QUALITY OF SCHOLASTIC OUTPUT
5.1	8th grade achievements sum total math and science scores
5.2	GMAT-score last available year
5.3	Total of GRE scores in last available year
5.4	H-index for citation impact last available year
5.5	International scientific co-publications per 100000 tertiary graduates
5.6	Number of universities in QS-1000 rankings per million inhabitants
6	BUSINESS IMPACT
6.1	Firms with ICT enabling business model creation (% of total)
6.2	High-Tech merchandise exports as % of merchandized exports
6.3	Medium Tech exports as % of exported merchandized goods
6.4	ICT goods exports (% of total goods exports), last figure 2013
6.5	Percentage of firms (> 10 employees) introducing new products
6.6	Percentage of firms (> 10 employees) introducing new services
7	INTELLECTUAL ASSET FORMATION
7.1	Resident patent applications / million inhabitants
7.2	International PCT Applications via WIPO Administered Treaties / million inhabitants
7.3	U.S. PATENT AND TRADEMARK OFFICE: Utility Patent granted / million inhabitants
7.4	Resident Trademarks registrations per million inhabitants 15-64 years
7.5	Industrial design registrations per million inhabitants 15-64 years
7.6	Citable documents per million inhabitants

Conclusions and next steps

The workshop was important to understand the data gaps and obstacles to collect the statistics in the respective countries and the discussions were productive. The new structure of the innovation scoreboard is considered clearer and more rigorous than the initial format agreed upon in March 2015. It was recommended to meet more frequently in order to finalise the scoreboard, and further improve the quality of the data.

The delegates agreed on the next steps/decisions to be taken:

1) Finalisation of the raw data worksheet.

EIB, ESCWA and ISESCO will finalise the worksheet with statistical data, introducing statistics on student flows, QS, GRE rankings.

2) Translation of Scoreboard into Arabic

The scoreboard must be translated in Arabic, with precise Arabic definitions and descriptions of the indicators and source references. This is needed to guarantee common understanding and, hence, assure precision and traceability. Assistance from UN-ESCWA, UNESCO, and ISESCO is requested.

3) Collect national data on R&D-expenditures/ number of scientists and/or R&D-staff

Considering that key statistics for this exercise, like a country's expenditures on R&D by the public and private sector, or the headcount of R&D-personnel were not available, all countries should commit to find this data with the relevant ministries. ISESCO, ALECSO and UNESCO could support and advocate the importance of such activity.

4) Provide data on the national Private Equity and Venture Capital markets\

The development of the private equity and venture capital market is an important condition for the commercialisation of new ideas and entrepreneurship. A basis for the data is the MENA Private equity Association, although it is known that the financial data only covers 70% of the equity market. Relevant data, to complete the Innovation Scoreboard, could be:

- Investment value for private equity and venture capital per year
- Venture Capital investment volume and per year
- Venture Capital deal per year

5) Conduct national enterprise surveys on innovation behaviour

The participants expressed their interest for the enterprise survey on the innovation behaviour within enterprises that was conducted in Egypt and that was presented by Egypt's [Science and Technology and Innovation Observatory](#) (ESTIO). Palestine has conducted a similar enterprise survey and will share the results. It was agreed that even if there was no data availability, these important indicators were maintained. This should have a signalling function to policy and decision makers.

Reference is made to the "[Entreprise Survey](#)" conducted in 2012 by the World Bank, EBRD and the EIB. The MENA ES covers Egypt, Jordan, Morocco and Tunisia as well as Djibouti, Lebanon, West Bank and Gaza and Yemen, where statistics were collected on:

- *% of firms having realized product innovation over the last three years;*
- *% of firm having developed a product innovation with clients from abroad;*
- *% of firms having developed product innovation with external academic or research institutions;*
- *% of firms having realized process innovation over the last three years;*
- *% of firm having developed a product innovation with clients from abroad;*
- *% of firms having developed product innovation with external academic or research institutions;*
- *Expenditures on R&D activities if possible related to revenues/sales or EBITDA if available.*

It is recommended that the outcomes of these surveys in the countries concerned are obtained through the national coordinators and integrated in the Innovation Scoreboard. This survey should then be conducted on a regular basis and extended to other countries. Here, organizations like ESCWA, UNIDO, or AIDMO could assist.

6) Decide on the final name in English and Arabic

There were questions about the (English) name of the final product: “Innovation Scoreboard”, “Innovation Dashboard”(لوحة عدادات) , or “Innovation Barometer”? Some countries expressed their reticence about “scoreboard”, because each country is different and “country rankings” and the sensation of competition and politicisation should be avoided. Preference seems to be given to the term: مقياس الابتكار or “Innovation meter” for the MENA-region. There should be a vote to select the final name.

7) Decide on the place of publication/hosting and dissemination of outcome

It should be decided how the “Innovation Scoreboard” will be published and kept up to date. The CMI (World Bank) will not host the Scoreboard. Egypt proposed to host the website (and to create a virtual working community), while Lebanon proposed the design of the web-portal to visualise and access the data. Each national coordinator should have access in order to update the national statistics, after verification with the administrator(s).

8) Obtain political visibility and support through concerted action International organizations

All international organizations that were present at the workshop (ISESCO, ESCWA, AIDMO, UNESCO and the IAS) emphasized the importance of the Innovation Scoreboard exercise. It is considered an important comprehensive instrument, or roadmap, to show policy priorities to the national policy makers that are responsible for Science and Technology, or the development of a knowledge-based economy. Policy makers in the Arab countries, also beyond the MENA, should be made aware about the Innovation Scoreboard exercise and be informed where their countries stand on the road to a knowledge economy. The first opportunity would be the AIDMO-ISESCO *Forum on Industrial Information & Statistics in the Arab Countries, “the role of statistical information in decision making”* in Oman, October 2016, but similar events could be organized throughout the region, addressing more specific themes of the Scoreboard (like the availability of venture funds, quality insurance, academies of science, IP-rights etc.). All those responsible within the national innovation systems and for specific thematic areas covered by the Innovation Scoreboard, should be involved in the discussions on specific policy issues (gaps or obstacles to innovation) that emerge from the scoreboard. Those stakeholders could be brought together through the establishment of National Innovation Observatories in each Arab nation. International organizations present should provide assistance and coordinate the further development and establishment of the Innovation Scoreboard, because only their unanimous voice can mobilise the interest of policy makers and funding (in a more concerted and leveraged way) to fill the empty data-fields.

For further information, please contact:

Nizar Halasah	UN ESCWA Technology Centre	halasah@un.org
Jacques van der Meer	CMI / European Investment Bank	j.vandermeer@eib.org
Aïcha Bammoun	ISESCO	abammoun@isESCO.org.ma



CENTER for MEDITERRANEAN
INTEGRATION | CENTRE pour
L'INTÉGRATION en MÉDITERRANÉE
مركز التكامل المتوسطي



INNOVATION SCOREBOARD MEETING FOR THE MENA REGION
16-17 May, 2016,

ISESCO Headquarters, Rabat, Kingdom of Morocco

Day 1: Monday 16 May 2016

8:30 – 9:00	Registration at the ISESCO Headquarters'
9:00 – 9:45	Opening Ceremony Welcome and introductory remarks of: - Center for Mediterranean Integration (CMI)/ European Investment Bank (EIB) <i>by Jacques van der Meer</i> - UN-ESCWA Technology Centre (ETC) <i>by Nizar Halasah</i> - Islamic Educational, Scientific and Cultural Organization (ISESCO); <i>Dr. Tariq Mahmood</i>
9:45 - 10:15	Group Photo and Coffee Break
10:15 - 11:30	-Data input, indicators, normalised scores and statistical updating <i>by Mr. Jacques van der Meer</i> - Key indicators on R&D/GDP, <i>by Mr. Jacques van der Meer</i> - Data availability at national level <i>by Mr. Jacques van der Meer</i> <i>Moderated by: Dr. Tariq Mahmood, Director of Sciences and Technology, (ISESCO)</i>
11:30 - 12:30	Scoreboard structure (input, “process” and output) and subgroups. <i>Moderated by: Dr. Moneef R. Zou'bi Director General of IAS</i>
12:30 - 14:15	Lunch
14:15 – 15:30	Roundtable on “ Reflection on alternative indicators; and the use of alternative data-sources” <i>Moderated by: Mr. Jacques van der Meer, CMI/EIB</i>
15:30 – 15:45	Coffee Break
15:45 – 17:00	Working group assignments - <i>Moderated by: Mr. Nizar Halasah, UN-ESCWA Technology Centre (ETC)</i>
17:00 – 17:15	Wrapping up

Day 2: Tuesday 17 May 2016

9:00 - 10:30	Normalisation scores and the use of benchmarks <i>Moderated by: Dr Abdulgasem El-Badri, Arab League Educational, Cultural and Scientific Organization (ALECSO)</i>
10:30 - 11:00	Coffee Break
11:00 - 11:45	Data maintenance, final product presentation and dissemination <i>Moderated by: Dr. Ramadan Rezk (ESTIO Egypt)</i>
11:45 - 12:30	Identification of indicators to be collected and collection methodology <i>Moderated by: Mr. Jacques van der Meer, EIB</i>
12:30 - 14:00	Lunch
14:00 - 15:30	Role of international organizations in data delivery and capacity building <i>Moderated by: Aicha Bammoun (ISESCO) and Mr. Hassane Belguenani (UNESCO)</i>
15:30 - 15:45	Coffee Break
15:00 - 15:30	Steps towards the final product: Jacques van der Meer, Nizar Halasah and Aicha Bammoun
15:30 - 16:00	Wrapping up and Conclusions

LIST OF PARTICIPANTS

Participants name	country /organization	e-mail
Ramadan Rezk	EGYPT / ESTIO	mramadan79@gmail.com
Ali Ghandour	LEBANON /CNRS	aghandour@cnrs.edu.lb
Ilyes Boumahdi	MOROCCO /Ministry of Finance	boumahdi@depf.finances.gov.ma
Imane Lemtiri Chellieh	MOROCCO /OMPIC	<a href="mailto:Lemtiri Chellieh Iman <lemtiri@ompic.ma>">Lemtiri Chellieh Iman <lemtiri@ompic.ma>
Ibrahim Abdelrahim Nairat	PALESTINE / Higher Council for Innovation & Excellence	<a href="mailto:Ibrahim Nairat <ethos02@gmail.com>">Ibrahim Nairat <ethos02@gmail.com>
Ayah Rabi	PALESTINE / Department of Statistics	arabi@pcbs.gov.ps
Amira Ben Mohamed	TUNISIA / Ministry of Industry, Energy and Mines	amira.Bmohamed@industrie.gov.tn
Obaid Al Saeedi	OMAN / Research Council	obaaid.alsaeedi@trc.gov.om
Nizar Halasah	UN ESCWA Technology Centre	<a href="mailto:Nizar Halasah <halasah@un.org>">Nizar Halasah <halasah@un.org>
Jacques van der Meer	CMI / European Investment Bank	j.vandermeer@eib.org
Aïcha Bammoun	ISESCO	<a href="mailto:Dr. Aicha Bammoun <abammoun@isesco.org.ma>">Dr. Aicha Bammoun <abammoun@isesco.org.ma>
Hassane Belguenani	UNESCO	<a href="mailto:Belguenani, Hassane <h.belguenani@unesco.org>">Belguenani, Hassane <h.belguenani@unesco.org>
Moneef Zoubi	Islamic Academies of Science	<a href="mailto:Moneef R. Zou'bi <mrzoubi@yahoo.com>">Moneef R. Zou'bi <mrzoubi@yahoo.com>
Tariq Mahmood	ISESCO	sciences@isesco.org.ma
Mohammad Mahmoud Khalaf	JORDAN /Department of Statistics	<a href="mailto:Mohammad KHALAF <khalaf30@gmail.com>">Mohammad KHALAF <khalaf30@gmail.com>
Salah Al Jaghdaf	AIDMO; Head R&D Directorate	jaghdaf@yahoo.co.uk
Aicha Achlouah	AIDMO; R&D Directorate	aidmo.rd@gmail.com
Naima Tichabet	AIDMO; Industrial Statistics Directorate	aidmo.rd@gmail.com
Unable to attend		
Samir Ibrahim Badrawi	IRAQ / Ministry of Science and Technology	<a href="mailto:Sam Ibrahim <mostsam2008@yahoo.com>">Sam Ibrahim <mostsam2008@yahoo.com>
Hamad Al-Ibrahim	QATAR / Qatar Foundation	halibrahim@qf.org.qa
Nour-Eddine BOUKHAROUAA	MOROCCO/OMPIC	Boukharouaa@ompic.ma
Imad Khadduri	QATAR / Qatar Foundation	<a href="mailto:Dr. Imad Y. Khadduri <ikhadduri@qf.org.qa>">Dr. Imad Y. Khadduri <ikhadduri@qf.org.qa>
Abulgasem El Badri	ALECSO	<a href="mailto:Abulgasem El-badri <ahelbadri2000@yahoo.co.uk>">Abulgasem El-badri <ahelbadri2000@yahoo.co.uk>
Motaz Khorsid	Arab Council Graduate Studies & Scientific Research	motaz.khorshid@gmail.com
Ghaith Fariz	UNESCO Cairo (Sciences in the Arab States)	g.fariz@unesco.org

