Science Platforms: Bridging Culture, Knowledge & Innovations for Sustainable Inclusion

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Medical Science is universal, has no political borders. Medical Scientists meet from various cultures, ideologies to discuss the common of science that engulf all people with different sex, color and ethnicity. They meet under one roof to think critically of new discoveries & technologies to save humanity and combat poverty and contribute to better health and quality life.
• Through science, we develop critical thinking, objectivity and the scientific method of solving problems, and through science, technology and innovation (STI), we empower men and women to build their capacity to become entrepreneurs of future generations, to generate wealth and startup companies and open vast opportunities of new working venues so as to overcome unemployment, and build a wealth of nations.
• Through science, we release the potential of the minds of men and women to new frontier areas of the unknown.

• International conferences like yours, play a pivotal role as important vehicles for transforming knowledge & skills and new practices for sustainable development. Scientists and practitioners gather at the national, regional and global levels to share new knowledge created by R&D, to disseminate through peer-reviewed publications, to incubate creativity of knowledge and turn it into patents of innovative technologies.
• This is sustainable human capital which cannot be built except through quality and relevance of education, starting with early childhood throughout schooling and university higher education. Education based on inquiry to sharpen the inquisitive mind, to solve problems and lead to critical thinking, students-centered education, where the teacher becomes the student and facilitator of blended interactive learning environment.

• Ethics, behavior, languages, math and science should form the core of education, from childhood and throughout general and higher education, to build citizenship and produce the vehicles of brain-intensive researchers & innovators.
• Crossing borders, to disseminate knowledge, data and minds to find solutions for *global problems* is becoming the norms.

• The human genome was resolved through collaboration by many scientists and laboratories across the world working closely in orchestrated network to understand the sequencing of DNA and Genes make up.

• Fusion energy has no chance to be resolved except by bringing scientists and material resources working closely across the globe.

• Climate change and natural disasters cannot be solved except by international cooperation.

• International collaboration nowadays through, co-authored papers are on the increase and have comprised almost 60% of science papers and science citation index journals.
• Paris summit on climate change last December 2015 shows how science and diplomacy is shaping our world by finding solutions to global problems to save our planet.

• The intergovernmental panel on climate change (IPCC), was a model for global scientific research and policy for international framework.

• Ebola in Africa and other infectious diseases were dealt with internationally on pathogen biological research.

• In a world of increasing complexity and interdependence, whether we’re tackling climate change, water, energy, food security, epidemic disease, there is always an important role of science in international policy and diplomacy. Closer working relationship between policy decision makers and scientists should be structured in a sustainable way to ascertain a sustainable future.
• “Soft Science” can contribute to conflict resolution, since science is an international language across borders, across ideologies, and across nationalities. But we should not “politicize” science, so as to continue its advancement across political borders.

• Although, some countries may fear the dominance of the more powerful nation in creating knowledge and generating technology, but this never worries me, the weaker will learn and catch up with time to become equal partner with the stronger.

• Political leaders in the Arab world should support the autonomy and independence of universities and research institutions. They should encourage establishing strong links with reputable institutions abroad to bridge science and innovations, so they can be able to build K-economies based on brain-intensive empowerment, through quality education and research.
• This bring me to a successful case in higher education experienced by Jordan in the late sixties and seventies and early eighties. University of Jordan was the 1st university to be created in Amman in 1962. It was fully independent by law, has its own Board of Trustees appointed by HM the king, and was the highest governing body of the university, no intrusion of the government, or anybody in the affairs of the university was allowed. The university enjoyed full autonomy in admission policy, financing, fund raising, tuitions, curricula and all academic and administrative matters. Protected by unique legislative laws.

• Second university: Yarmouk was established in the North, which gave a birth to a third Science & Technological university, again with its unique laws & bylaws independent from the University of Jordan to create competition for quality, relevance of research, teaching and outreach programmes community service, the three pillars forming the university mission.
Both Yarmouk and the S & T campuses of the University succeeded in achieving high ranking in the Arab Region competing with top universities as AUB & others. But unfortunately with creating of the ministry of higher education in 1985 which overlook the independence and autonomy of the university, higher education in term of quality & relevance has fallen down dramatically.
The success story of YU & JUST was due to the followings:

1. **Bridging & connecting** with Ivy and A-Schools in the World.

2. **Attracting distinguished professors** in teaching and research from high caliper universities mostly from U.S., Canada and UK, based on merits.

3. **Sending top 750 scholarship students** chosen with high point average (based on merits only) to best universities abroad (90% to U.S.).

4. Building an **inducing environment for teaching & research** and starting graduate programs along with undergraduates to attract quality professors & build up research from day-one.
5. **Building state-of-the-art inviting campus with good facilities**, labs, workshops for teaching & research, incubators & science business parks.

6. **Accommodating environment** in housing and schooling to attract scientists with their families.

7. **Unlimited funding for R & D**, presenting & publishing papers and attending conference, anywhere in the world.

8. **Sabbaticals & paid Summer research** at universities abroad.

The university succeeded in achieving a zero-brain-drain of its scholarship students abroad, all returned back to serve their home university.

Also, the university succeeded in a brain-gain by bringing back distinguished professors from abroad to join the university.
a. **What are the Pillars of University Reforms:**

1. **Quality and relevance** in undergraduate and graduate programs. For building the human capital needed for the k-economy of Jordan and the Arab World.

2. **Research-based** institution to deliver R&D and innovations to move Jordan into a developed economy based on quality and relevance of human capital.

3. **Merit-based** in procurement, recruitments, admission policy, scholarship, promotion etc.

4. To deliver **R&D linked with business** and **industry**.

5. **Independent and autonomous** university. Freedom of thought and expression, democratic inducing environment of inquiry and research.
6. **Bridging** with other quality higher institutions abroad in teaching, research and outreach programs.

7. **Life-long** education, refreshing courses, realignment of specialization to meet market needs, training and retraining graduate professional diplomas to innovate and create.

8. **Outreach** programs with the community, to provide the community the needed trained man & women power.

9. **Technology transfer** through incubators, business parks and commercialization.

10. **Creativity, innovation and entrepreneurship** are the vehicles and engines of development and excellence of delivery.

11. To stimulate growth through **flexibility** of higher education to **react quickly to market-trends**, and **create new market-demands**.
b. Establish alliance & bridging:

1. **Liaise with** corporate, research institutions locally and abroad.

2. **International cooperation** in teaching, research, joint programs and projects.

3. **Bridge public-private** to stimulate commercialization.

4. Develop the university to become a house of **expertise, consultation and culture** for public and private sectors to serve the community.
c. **Accreditation and quality assurance:**

1. Continuous internal and external assessment.

2. Updated curricula to be on the edge of the frontier area of knowledge.


4. Establish **bench-mark in quality education** by fulfilling the criteria in joining quality accreditation boards and quality assurance schemes locally and internationally.
d. **Assessment and feed-back:**

1. Graduates to be **assessed as alumni at work by their employers** for feed-back evaluation of the delivery of the University.

2. **Career-week** for the graduation class to interact with employers on the campus for employment.

These will form the basics of science platforms in bridging culture, knowledge and innovation for sustainable inclusion and **to include the excluded** with no barriers to **unleash potentials of the minds** toward new horizon of scientific discovery, technology and innovations for building modern K-based economies. **Political stability, rule of law and human rights, justice and democracy**, will revitalize social and economical institutions and increase **participation** from all the strata of society, with no **marginalization** of any by any, where the full potential of people is maximized.
Support of international community is needed, and this is where science diplomacy and science academies come into the picture. Obama speech in Cairo 2009 on closer scientific contacts between U.S. and Arab countries was not picked up by science diplomacy in the region. **Scientific partnership** is valuable of two countries for sharing skills and transfer of knowledge and technology through joint research, academic exchange and conferences.

Chances of **building democratic rule** will increase with science diplomats seizing the opportunity of post-conflict Middle East through partnership and collaboration, and resisting Arab countries of falling back to feudalistic, authoritarian or military dictatorship.
- The World average of higher education is 32% of student-age population at universities, (2012) 38% in Jordan.
- OECD countries spend 1.6% of GDP on higher education– mostly state funded model.
- America spends 2.7% of GDP on higher education, mostly market-based American model privately-funded.
- Arab population 385 million, one fifth (15-24) youth, 28-31% unemployed.
**Mighty minds**

*Number of universities* *in Shanghai ranking top 100, 2014-15*

- **United States**: 1.6
- **Britain**: 1.3
- **Switzerland**: 6.2
- **Netherlands**: 2.4
- **Australia**: 1.7
- **Canada**: 1.1
- **France**: 0.6
- **Germany**: 0.5
- **Sweden**: 0.5
- **Japan**: 0.2

*Source: The Economist March 28th, 2015, World Bank*  
*More than two*
المعادلة المشتركة في نجام الجامعات

الاستقلالية الجامعية أكاديمياً، مالياً، إدارياً

سياسة القبول القائمة على الجدارة والكفاءة

دفع الرسوم القائمة على تغطية تكلفة الطالب، ودعم المحتاجين والمتفوقين من منح صندوق الطالب

نوعية وجودة التدريس، الجدارة والكفاءة في تعيين أعضاء التدريس والإيفاد والخطط الدراسية

نوعية وجودة البحث العلمي

نقل التكنولوجيا من المعارف العلمية من خلال الحاضرات والمجمعات العلمية الصناعية، وتمويل إنشاء الشركات للخريجين

المعادلة المشتركة في نجام الجامعات
It has been stated since its founding by Benjamin Franklin and Thomas Jefferson, that traditionally, diplomats of success, in history were scientists, of course including medical scientists.

Yes, this is not to please you, but it is real.
Thank You!