ARAB YOUTH INNOVATION: STARS OF SCIENCE
by Qatar Foundation

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“Innovation results from the actions of entrepreneurs who exploit technological or scientific opportunities to satisfy needs or markets that they have identified”

“A Research and Development culture grows out of a social infrastructure of experimentation and entrepreneurship with solid recognition of achievement and appropriate rewards”
Global Innovation Index (2011-2013)

Out of 125 countries for year 2011
Out of 141 countries for year 2012
Out of 142 countries for year 2013
Knowledge FOR Growth

Strong links between knowledge and growth

\[ R^2 = 0.92097 \]

Source: Authors’ calculations; www.worldbank.org/kam.
ICT Enabled
“Innovation without Borders!”

Science is Universal and widely available

USA, EU, China and Japan spend 95% of global investment in R&D

Counterproductive to deploy R&D recourses to rediscover the wheel

Great scientific research might have limited benefits to country of discovery

Learning Necessary technologies is not costly, nor difficult, it needs determination and policy
THE FIRST TELEVISED COMPETITION
TURNING IDEAS INTO INVENTIONS!

TV Program: STARS OF SCIENCE
6th Season Since 2009

An Initiative of Qatar Foundation
The Concept

16 (now 12) Inventors

Men and Women

Arab Speaking

Competing to create their invention

The Winners go home with:
Experience, Patent, prototype, network and

$300 000 First Prize
$150 000 Second
$100 000 Third
$50 000 Fourth
CRITERIA:
Novel, Scientific,
Practical 3 Months Product Prototype

- **Phase I**
  IP Review by *expert committee*.

- **Phase II**
  Invited for *"face to face" pitch* in front of a Jury in 8 casting Arab countries

- **Phase III**
  16 (now 12) Finalists are selected from all qualified Casting
The Workshop Support

- All labs in Qatari Universities
- In lab dedicated technical Mentors
- Professors from Universities
- Specially tailored seminars:
  - Safety in laboratories
  - Engineering Design Process
  - What is a successful entrepreneur?

- Technology Suppliers
  - National Instruments
Applications by region: 6 years Average

- GCC: 10%
- Egypt: 30%
- Levant: 25%
- Maghreb: 25%
- Sudan & Yemen: 10%
<table>
<thead>
<tr>
<th>Season</th>
<th>Nationality</th>
<th>Project</th>
<th>Ranked</th>
<th>Brief</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lebanese</td>
<td>Dozan (Now Roadie Tuner)</td>
<td>1st</td>
<td>Automatic Guitar tuner</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Table Oil Optical Tester</td>
</tr>
<tr>
<td></td>
<td>Sudanese</td>
<td>Orsod</td>
<td>2nd</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Kuwaiti</td>
<td>The Alchemist</td>
<td>1st</td>
<td>Lab Oil Multi-Tester Station</td>
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<tr>
<td></td>
<td>Egyptian</td>
<td>Omni Joint</td>
<td>2nd</td>
<td>Omni directional Robot Joint</td>
</tr>
<tr>
<td></td>
<td>Lebanese</td>
<td>Butterflye (Instabeat)</td>
<td>3rd</td>
<td>Heart rate measured Goggle</td>
</tr>
<tr>
<td></td>
<td>Saudi</td>
<td>Goom</td>
<td>4th</td>
<td>Electrical stand assistance</td>
</tr>
<tr>
<td>3</td>
<td>Egyptian</td>
<td>Vivifi</td>
<td>1st</td>
<td>Touch switch from all surfaces</td>
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<tr>
<td></td>
<td>Lebanese</td>
<td>Lifesense (Cardio Diagnostics)</td>
<td>2nd</td>
<td>Wearable ECG</td>
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<tr>
<td></td>
<td>Kuwaiti</td>
<td>Kuwli</td>
<td>3rd</td>
<td>Robotic Ironing</td>
</tr>
<tr>
<td></td>
<td>Tunisian</td>
<td>Powerwave</td>
<td>4th</td>
<td>Wireless Pipeline Robot Charger</td>
</tr>
<tr>
<td>4</td>
<td>Qatari</td>
<td>Tahi</td>
<td>1st</td>
<td>Automatic Timed Dispenser Cook</td>
</tr>
<tr>
<td></td>
<td>Lebanese</td>
<td>Shared</td>
<td>2nd</td>
<td>Multi desks projected PCs</td>
</tr>
<tr>
<td></td>
<td>Kuwaiti</td>
<td>Holific</td>
<td>3rd</td>
<td>Portable Holographic Foldable display</td>
</tr>
<tr>
<td></td>
<td>Qatari</td>
<td>Wasfa</td>
<td>4th</td>
<td>Automatic Home Pharmacy</td>
</tr>
<tr>
<td>5</td>
<td>Algerian</td>
<td>Dr. Doumir</td>
<td>1st</td>
<td>Camel Med Diagnostic Shoes</td>
</tr>
<tr>
<td></td>
<td>Qatari</td>
<td>i7</td>
<td>2nd</td>
<td>Vision assist for Football Referee</td>
</tr>
<tr>
<td></td>
<td>Saudi</td>
<td>Re-braille</td>
<td>3rd</td>
<td>Mechanical type and edit braille</td>
</tr>
</tbody>
</table>
## Winners Stats

<table>
<thead>
<tr>
<th>5 years</th>
<th>18 winners</th>
<th>8 Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCC 8</td>
<td>Levant 4</td>
<td>Maghreb 2</td>
</tr>
<tr>
<td>3 Kuwait</td>
<td>4 Lebanon</td>
<td>1 Algeria</td>
</tr>
<tr>
<td>3 Qatar</td>
<td></td>
<td>1 Tunis</td>
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<tr>
<td>2 KSA</td>
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</tr>
</tbody>
</table>

- **Mechatronics:** 13
- **ICT:** 3
- **Mechanical:** 2
SAMPLE: Where are winners

Where is Bassam now? Winner 2009
- filed for PCT, US and EU patents
- raised $178,163 on crowd funding Kickstarter (he asked for $60,000)
- established a company Depot Beirut electronic solutions.
- company accepted HAXLR8R accelerator program in China
- move to Shenzhen to manufacture the product
- Do It Yourself projects blog
- speaker at TedXBeirut
- Established Lamba Labs Beirut Hackerspace

Where is Wahiba now? Participant 2009
- *CarrotLines* popular app in Canada
- featured in the top 10 health and fitness Apps on iTunes
- recipient ‘The Palme D'Or by Club Avenir for Entrepreneurship’
- database of over 40,000 food products and 2,000 food brands
- large online, mobile and social health network more than 100,000 members monthly
- partnered with Canada’s Tommy Europe, re-launch *Carrotlines powered by Tommy Europe*
- launched ‘The Food Wiki’, available at TheFoodWiki.org
Where is Mazen now? Participant 2009
- company for Manufacturing Vehicle Spare Parts and Accessories
- new patented technology for cars, in US and trade mark and an industrial design in Europe, Japan, and Canada
- started manufacturing in Europe and opened assembly in Jordan
- products in the Saudi market
- featured on BBC Arabia’s 4 Tech
- member of SEMA- affiliated with Exagon
- launched in International SEMA Motor Show in Las Vegas
- presented at the Geneva Motorshow
- SEMA Middle East Business Development Conference in Sharjah

Where is Ahmad now? Winner 2010
- established company in Silicon Valley
- patented in several countries
- producing YouTube show ‘Huna Al Silicon Valley’
- founded a Silicon Valley mobile app startup
- worked as a business development director at APSU
- president of Esamyon, a non-profit organization
- launched mobile App in Jeddah received a five star rating
Where is Hind now? Winner 2010

- secured $100,000 seed funding from the Berytech Beirut
- founded company
- patented in the US
- won $50,000 first prize MIT Enterprise Forum Pan Arab Business Plan Competition
- Intel CEO Summit in California, USA,
- Quantified Self conference in Amsterdam, Holland,
- MENA Business Women Conference in Dubai, UAE
- speaker as a 'Leader of Tomorrow' at the St. Gallen Symposium in Switzerland
- fellow at the INK conference in association with TED in Pune, India.
- panel on Women in Business at the Harvard Arab Weekend Conference,
- panel as part of the Celebration of Global Entrepreneurship Week at the White House
- voted top five innovators under 35 by the MIT Pan Arab Technology Review
- one of the top Global Shapers by the World Economic Forum

Where is Amina now? Participant 2012

- company manufactures in Germany and Austria
- patented Germany, GCC and the USA
- silver award iENA international inventions exhibition fair in Germany
- honorary ‘Best Woman Inventor’ European inventors association ‘NOVA’
Supported skills of Participants

(a) Ability to **apply** knowledge of mathematics, science, and engineering

(b) Ability to **design and conduct experiments**, as well as to **analyze** and interpret data

(c) Ability to **design a system**, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability

(d) Ability to function on multidisciplinary **teams**

(e) Ability to **identify, formulate, and solve engineering problems**

(f) Understanding of professional and ethical responsibility
Participants Acquired Skills

(g) Ability to communicate effectively
(h) Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
(i) Recognition of the need for, and an ability to engage in life-long learning
(j) Knowledge of contemporary issues
(k) Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
(l) Ability to develop business plan for a scientific project

The above supported outcomes (a through k) are suggested outcomes by:
Program Outcomes-2009 Criteria for Accrediting Engineering Programs
USA Accreditation Board for Engineering and Technology (ABET) programs www.abet.org
1. Development news in 2014 for participants in 2009 -2010
2. Most patented outside Arab countries
3. Targeted markets outside Arab countries
4. Raised additional funds
5. Manufacturing outside Arab countries
6. Honored in media, awards, panels
Impact Aims

- All Participants (thousands) learned
- Winners learned and earned seed capital
- Millions of viewers exposed to innovation process

- Campaign in media/on line innovation culture
- Networking Qatar Foundation with Arab Educational Institutions
- Breaking wall of fear to invent and create
- Arab Youth hope and courage to try and produce
Observations

- Less than 10% of participants were female in 3 Seasons

- Arab youth are ICT users. Golden opportunity to leap to the future industry and economy

- Educational preparation is failing to graduate product designers and entrepreneurs

- Graduates lack basic design knowledge and business common sense

- The participants lack team work skills and interest in working with or learning from others
Recommendations

- Arabic media organizations cultivate its scientific credibility in covering innovation stories.

- Local and regional authorities to improve the credibility, professionalism, and transparency of intellectual property registration systems.

- Develop university professors and lab staff skills in product design and realization with industry and technology suppliers: e.g. NATIONAL INSTRUMENTS.
Recommendations (CONT)

- The need to actively apply knowledge to real world problems
- Translate R&D findings into a form understandable to all relevant audiences
- Context specific, locally sensitive, and responsive to the evolving needs
- Creation of new scientific information and technical capabilities is part of an experimental, social process
- Integrate ‘formal’ R&D efforts with ‘informal’ grassroots knowledge and innovation
Innovation is making Economic Value out of Novel Ideas