Embracing the Global: Knowledge-Based Economy for Higher Education

The Azad University Case Study

(Iran: Country Report)

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Overview

- New global economy trends and developments influence Iran’s cultural and educational processes
- Introducing innovative measures and fusion between education and market place
- The government promotes a knowledge-based economy through National Innovation System (NIS)
- Five year development plans emphasise KBE
Actors of the National Innovation System (NIS)

- Government ministries
- Research institutes/universities
- Large enterprises
Ailerics of the National Innovation System (NIS)

The main body for policy making of the NIS is the Supreme Council of Cultural Revolution (SCCR)

SCCR Members

1. The Head of the Supreme Council
2. The Supreme Leader’s representative
3. The Minister for Science, Research and Technology
4. The Health Minister
5. The Vice President for Science and Technology
6. The Education Minister
7. The Head of Education and Health Commissions of the National Assembly (Majlis)
8. A lecturer from the religious seminaries
Actors of the National Innovation System (NIS)

Iran’s innovation policy has been commissioned by the Ministry of Science, Research and Technology (MSRT).

The Iranian Research Organization for Science and Technology (IROST) and the National Research Institute for Science Policy (NRISP) are two of the main institutions, associated with the MSRT, in charge of establishing research policies at state level.

The Vice-Presidency for Science and Technology at the Presidential Office also oversee the progress of the plans.
Comprehensive National Education Roadmap

- Formulated in 2009 and ratified in January 2011
- 15 year comprehensive national plan for education, science and technology
- Objective: to sustain scientific progress and move the country from a natural resource-based economy toward a knowledge-based economy
- Promoting public understanding of science, as well as establishing research infrastructure with more focus on setting up science and technology parks to encourage private sector investment in science
- Main fields: areas such as nanotechnology, information technology, biotechnology, aerospace, energy, the environment, health, water management and national transportation.
The knowledge-based economy in practice

The two active arms

- Science and Technology Parks
- Incubation Centres

Both within the public and private sectors

- MSRT
- IAU
Science and Technology Parks

50 science parks operating under the auspices of the MSRT

Types: comprehensive and specialised

The parks’ objectives:

1. Improvement of the local economy through technical knowledge using local capacities
2. Commercialisation of research findings and linking the research institutes to production and service divisions
3. Supporting scientists, especially young scientists and graduates
4. Increasing the competitive power of new companies
5. Supporting start-up companies with technical and consulting services
A list of best known science parks

<table>
<thead>
<tr>
<th>Park's name</th>
<th>Focus area</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>Guilan Science and Technology Park</td>
<td>Agro-Food, Biotechnology, Chemistry, Electronics, Environment, ICT, Tourism.</td>
<td>Guilan</td>
</tr>
<tr>
<td>Pardis Technology Park</td>
<td>Advanced Engineering (mechanics and automation), Biotechnology, Chemistry, Electronics, ICT, Nanotechnology</td>
<td>East of Tehran</td>
</tr>
<tr>
<td>Tehran Software and Information Technology Park (planned)</td>
<td>ICT</td>
<td>Tehran</td>
</tr>
<tr>
<td>Tehran University and Science Technology Park</td>
<td>Comprehensive</td>
<td>Tehran</td>
</tr>
<tr>
<td>Khorasan Science and Technology Park (Ministry of Science, Research and Technology)</td>
<td>Advanced Engineering, Agro-Food, Chemistry, Electronics, ICT, Services</td>
<td>Khorasan</td>
</tr>
<tr>
<td>Sheikh Bahai Technology Park (Aka &quot;Isfahan Science and Technology Town&quot;)</td>
<td>Materials and Metallurgy, Information and Communications Technology, Design &amp; Manufacturing, Automation, Biotechnology, Services</td>
<td>Isfahan</td>
</tr>
<tr>
<td>Semnan Province Technology Park</td>
<td>General</td>
<td>Semnan</td>
</tr>
<tr>
<td>East Azerbaijan Province Technology Park</td>
<td>General</td>
<td>East Azerbaijan</td>
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<tr>
<td>Yazd Province Technology Park</td>
<td>General</td>
<td>Yazd</td>
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<tr>
<td>Markazi Province Technology Park</td>
<td>General</td>
<td>Arak</td>
</tr>
<tr>
<td>&quot;Kahkeshan&quot; (Galaxy) Technology Park</td>
<td>Aerospace</td>
<td>Tehran</td>
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<tr>
<td>Pars Aero Technology Park</td>
<td>Aerospace &amp; Aviation</td>
<td>Tehran</td>
</tr>
<tr>
<td>Energy Technology Park (planned)</td>
<td>Energy</td>
<td>N/A</td>
</tr>
</tbody>
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Education Innovation for the Knowledge-based Economy: Curriculum, Pedagogy and Technology  
2014 ASAIHL Conference, Nanyang Technological University, Singapore  
3-5 Dec 2014
Membership of the International Association of Science Parks and Areas of Innovation
Incubation Centres for Technology

60 centres operating countrywide

The centres enable start-up companies

Support services

- space to operate from
- management systems
- legal support
- funding support
- advice and consultancy
Incubation Centres for Technology

Objectives

- To offer a base for the commercialization of research findings in line with the objectives of the centres
- To promote entrepreneurship, and support the innovation and creativity of young researchers in the country
- To support the growth of small and medium sized knowledge-based Start-ups
- To increase job opportunities in order to attract entrepreneurs and university graduates in various fields of technology
- To support the production and development of marketable products and technological processes
An example of a start-up company
Iran’s Science and Technology Output

- Iran's growth rate in science and technology 11 times greater than the average growth of the world's output in 2009

- Top rank globally in terms of growth in scientific productivity with a 14.4 growth index, followed by South Korea with a 9.8 growth index - *Canadian research firm Science-Metrix*

- World's highest growth rate in Science & Engineering article output with an annual growth rate of 25.7% - *US government National Science Foundation*
Islamic Azad University (IAU) Case Study

IAU Facts & Figures

- IAU position nationally and internationally
- Established 32 years ago
- A Mega University
- Fastest growing institution (over 460 campuses and research centres including four overseas, 1.7m students)
- 600 Sama schools from elementary to associate level
- Active member of many international associations including ASAIHL, International Association of Universities and FUIW
Knowledge-based measures at IAU

- Investing in e-learning through the E-Campus
- Establishment of Incubation Centres and supporting spin-off companies
- Internationalisation of the curriculum and promotion of global citizenship through joint and Study Abroad Programmes
- Short teaching and training programmes through OICC for knowledge and skills transfer and higher order thinking
- Internationalisation of strategy and strong regional and international collaboration to empower overseas campuses
Investing in e-learning through the E-Campus

- University virtual network
- Modern facilities
- Off-shoots in other campuses
- Reducing the cost of education
Establishment of Incubation Centres and supporting start-up companies

26 centres already set up across the University, with another 100 to establish over the next few years

Objectives

- Commercialisation of research findings
- Assisting graduates and talented students to find employment opportunities
- Assisting small and medium sized knowledge-based industrial companies to grow
- Developing technological products and processes to supply to the market
- Linking industry to technological advancements

Services

- Financial support for the commercial units located at any campus
- Consultancy to the units for turning innovative ideas into commercial projects
- Laboratory, workshop and communication services
- Legal, managerial and marketing assistance
- Specialised training
### IAU campuses with incubation centres

<table>
<thead>
<tr>
<th>Campus Name</th>
<th>Science &amp; Technology Park</th>
<th>Focus Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isfahan (Khorasgan)</td>
<td>Isfahan Science and Research Town</td>
<td>Agriculture</td>
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<tr>
<td></td>
<td>Health Ministry</td>
<td>Medicinal Plants</td>
</tr>
<tr>
<td>Semnan</td>
<td>Science and Technology Park</td>
<td>Engineering</td>
</tr>
<tr>
<td>Garmsar</td>
<td>Science and Technology Park</td>
<td>Agriculture</td>
</tr>
<tr>
<td>Yazd</td>
<td>Science and Technology Park</td>
<td>Textiles</td>
</tr>
<tr>
<td>Kerman</td>
<td>Science and Technology Park</td>
<td>General</td>
</tr>
<tr>
<td>Rafsanjan</td>
<td>Science and Technology Park</td>
<td>General</td>
</tr>
<tr>
<td>Arak</td>
<td>Science and Technology Park</td>
<td>General</td>
</tr>
<tr>
<td>Dezful</td>
<td>Science and Technology Park</td>
<td>General</td>
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<tr>
<td>Miyaneh</td>
<td>Science and Technology Park</td>
<td>General</td>
</tr>
<tr>
<td>Meybod</td>
<td>Science and Technology Park</td>
<td>Ceramics</td>
</tr>
<tr>
<td>Najafabad Isfahan</td>
<td>Isfahan Science and Research Town</td>
<td>Engineering</td>
</tr>
<tr>
<td></td>
<td>Health Ministry</td>
<td>Medical Devices</td>
</tr>
</tbody>
</table>
Establishing knowledge-based spin-off companies

Objectives

- To streamline university research capacity in line with the needs of the social economy
- To commercialise research findings
- To encourage and engage research centres, faculty members and students in commercial solutions to social needs
- To establish a knowledge-based network among industrial, commercial and public sectors for the purpose of turning innovative ideas into sustainable professions
- To identify new sources of capital funding for the campuses
- To widen the participation and employability of talented scientists.

Companies focus: Ecology and water technology development, new energy sources, nanotechnology, aerospace technology, stem cell technology, environmental technology, information and communication technology, microelectronic technology and finally traditional and medicinal plant technology.
Internationalisation of the curriculum and promotion of global citizenship

A challenge

Through Study Abroad Programmes

Partnership and split-site programmes with universities in the UK, Belarus and Malaysia
Training programmes for knowledge and skills transfer and higher order thinking

Azad University in Oxford spin-off company - Oxford International Collaboration Centre (OICC)

- Training programmes for Executive, Deans, Faculties
- Research facilitation
- Bridging the IAU campuses and centres with institutions in Europe
Internationalisation through overseas campuses

- A new internationalisation plan which accords with Horizon 2020 principles
- Expansion and empowerment of overseas campuses in terms of student mobility, faculty exchange and management of technology and skills transfer
- New overseas campuses in Malaysia, Indonesia, Iraq and Armenia
IAU invites you to
2015 ISAIHL Conference
in Isfahan
www.iau-asaihl.com
Towards 2020: International and Regional Collaboration in Research, Curriculum and Student Experience

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