TTOs in Turkey

Orhan AYDIN
Professor
Karadeniz Technical University
Member of TUBITAK’s TTO Monitoring Committee

1st Panel: International, Regional & National Strategies of Public Institutions on The Role of TTOs in Enhancing Academic IP Commercialization on International, Regional and National Scale
Outline

• Introduction
• Policy - Strategies
• TUBITAK 1513 Grant
• TTOs supported by TUBITAK
• Modular Structure
• Some remarks
Knowledge-based society

With the fast pace of evolution of high technology, advanced technology becomes one of the key drivers to enhance productivity in a firm or even in a country.

- Firms want to access knowledge generated outside their boundaries
- Universities want to transfer their research results, technologies and knowledge
- In order to facilitate knowledge transfer from university to industry, a new organizational entity has emerged at research university: the technology transfer office (TTO) (Siegel, at al., 2004).
Objectives of TTO

TTO objectives (Young, 2007):
• facilitate the commercialization of research results for the public benefit
• reward, retain, and recruit high-quality researchers
• build closer ties to industry
• generate income for further research and education, and, thus, promote economical growth.
Among the reasons for the unsatisfactory economic performances of the EU during the second half of the 1990s and the early 2000s, great emphasis has been put on its low endowments of knowledge and human capital, especially when compared to those recorded in the US.

Because talent is an important resource in the process of upgrading and enhancing industrial technology, combining outstanding talent with industrial technology usually achieves the positive outcome of industry–university synergy.
TTO: Why

Indeed, this was the main rationale of the Lisbon strategy, aimed at transforming Europe into “the most competitive and dynamic knowledge-based economy in the world”. The overall weakness of the EU is accompanied by remarkable regional differences in terms of R&D, patenting and higher education. These disparities are significantly associated with regional growth and university-industry collaboration.
TTO: Why

The capacity of a nation to produce wealth depends increasingly on the investment it undertakes in strengthening the so-called “triangle of knowledge”, which is composed of research, education and innovation.

In this regard, European nations, in accepting the Lisbon 2000 agenda, assumed an ambitious objective: to make Europe the most competitive and dynamic knowledge-based economic system in the world. The strategy, as further consolidated in the Barcelona summit, set the objective of EU member states assigning 3% of GDP to research by the year 2010. These directives indicate the desire to remedy Europe’s competitive weakness at the international level.
The contribution of universities to economic development

direct economic contribution as employers and buyers of products and services

their contribution to upgrading the human capital stock by attracting, developing and retaining of graduates in a locality or to more general economic growth.

Nevertheless, until recently less attention has been given to the impacts of universities and other HEIs on research, innovation and technology transfer, even though their significance has long been recognized.
The contribution of universities to economic development

It is now acknowledged that as knowledge producers, universities contribute to increasing regional competitiveness and attractiveness through a range of activities, including

• research collaboration,
• technology transfer and
• licensing.
TTO: Why

- Knowledge creation and application (R&D projects and consulting)
- Participation in starting a new organization (joint ventures, new firms)
- Training and exchange of human resources and knowledge diffusion
- Exploitation of intellectual property
- Use or renting of facilities or equipment
TTO: Why

- knowledge diffusion
- Commercialization: patents, spin-offs, and joint R&D projects
- Services for firms: commissioned research projects and consulting work
- Use or renting of facilities or equipment
- Joint venture of hybrid research centers
TTO Main Activities

• Intellectual Property protection
• licensing
• support and creation of start-up or spin-off
• negotiation of research contracts
• evaluate technologies for commercial viability
• market technologies to industry

• Turkey’s case: + start-up phase to TTO
  + Introduction- Awareness-raising
  + Education
  + Developing funded-projects capacity of universities
  + Enhancing UIC
Recent Developments in Turkey

• The number of universities has increased.

• The research funds available (national and international) have increased dramatically.

• Technoparks have been established. These embody technology-based firms and faculty-owned firms. In a very short time, they had an excellent record and become an excellent inter-medium for UIC in many cities. In brief, emergence of techno-parks has enhanced UIC in Turkey, as it had been in many developed countries.
Recent Developments in Turkey

• Many of the research funds encouraged UIC. Especially in recent years, funds available for private sector have increased a lot. The sector benefited a lot from these funds. They increased their R&D capacities, innovation capabilities and, more seriously qualified workforce potentials.

• UIC: a critical way to technology transfer
TURKEY’S STRATEGIC VISION OF 2023

- To take place among the top 10 economies in the world by the year 2023.
- Achieve, by 2014, a **gross domestic product** of $1 trillion.
- Achieve, by 2023, a gross domestic product of $2 trillion.
- Increase annual Turkish **exports** to $500 billion.
- Achieve **per capita income** of 25 thousand dollars.
- A foreign trade volume of 1 trillion dollars.
- Increase **employment rate** by 10 points. 30 million people will be part of the working population.
Every six months R&D policy of Turkey is reviewed in Supreme Council of Science and Technology chaired by the Prime Minister himself.

R&D – Innovation - Entrepreneurship

National Targets for the 100th Anniversary of Turkey

<table>
<thead>
<tr>
<th>Category</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;D expenditures/ GDP</td>
<td>3%</td>
</tr>
<tr>
<td>Private sector R&amp;D expenditures</td>
<td>2%</td>
</tr>
<tr>
<td>Researchers:</td>
<td>300 thousand (FTE)</td>
</tr>
<tr>
<td>Private sector researchers</td>
<td>180 thousand (FTE)</td>
</tr>
</tbody>
</table>
Innovation and Entrepreneurship in the Universities

Technology Transfer Offices (TTO)

Developing Policy Tools to Trigger Innovation and Entrepreneurship in the Universities [2011/104]

Incubation Centers

Academic Promotion

Scientific Article

R&D Projects

Patents

Redesign criteria for
An Index: The Entrepreneurial and Innovative University

The aim of this index is

• To increase the entrepreneurship and innovation oriented competition between the universities

• To measure the performance of universities regarding the entrepreneurship and innovation

• To contribute the development of entrepreneurship and innovation indirectly
Some example indicators

- Number of firms established by professors
- Number of firms established by students/graduated students
- Employment in those firms
- Patents
- Licenses
- R&D and innovation projects
- Entrepreneurship, innovation lessons/trainings
Technology Transfer Offices (TTO)

- **Project Support Services**
  - Logistic support for grant mechanisms
  - Proje development (forming of consorsiums with university/industry)
  - Promotion of project results, etc.

- **Intellectual Property Rights**
  - Management of intellectual property
    - Patent application
    - Licencing etc.

- **Incubation Center**
  - Company formation and entrepreneurship
    - Mentorship
    - Venture Capital
    - Matching with managers etc.

- **Awareness-raising and education**
TUBITAK’S GRANT 1513

The top 50 universities in the index are eligible to apply.

TUBITAK’s TTO Monitoring Committee’s reviews/interviews

Support for 5 years (extension for another 5 years)
Project budget for a year
1,000,000 TL (TUBITAK’s fund)
200,000 TL (University contribution)

Sustainability
Objectives

- to increase economic growth through innovation and technology transfer
- to enhance domestic creation, development and economic exploitation of innovation based products and services for social, economic and cultural development
- to establish effective networking among TTO’s in the Region to foster IP collaboration and technology transfer among regional stakeholders, as well as with foreign partners.
TUBITAK’S ROLE

Establishment of TTO.

Development of the TTO Institutional Policy, including on IP and technology management in the beneficiary institution.

Support for the equipment for the TTO.

Recruitment and development of skills of key professionals (minimum 5 persons) in the TTO.

Assistance in developing models of process protocols and IP related contracts relevant for services and activities of a TTO (definition of timeline protocols, disclosure forms, sponsored research, collaboration, service research, material transfer, licensing and other agreements).

Development of the operational capacities of the TTO.

Sustainable, independent delivery of services and technology management activities by the TTO.

Sharing best practices.
TUBITAK’S ROLE

• Reviewing periodical reports
• Periodical visits
• Help desk (Secretary)
• Meetings
• Sharing best practices/experiences
• Assigning a mentor TTO for beginners
• Performance evaluation of TTOs
# TTOs in TURKEY

<table>
<thead>
<tr>
<th>University</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boğaziçi University</td>
<td>2012</td>
</tr>
<tr>
<td>Ege University</td>
<td>2012</td>
</tr>
<tr>
<td>Gazi University</td>
<td>2012</td>
</tr>
<tr>
<td>Hacettepe University</td>
<td>2012</td>
</tr>
<tr>
<td>Koç University</td>
<td>2012</td>
</tr>
<tr>
<td>ODTÜ (METU)</td>
<td>2012</td>
</tr>
<tr>
<td>Özyeğin University</td>
<td>2012</td>
</tr>
<tr>
<td>Sabancı University</td>
<td>2012</td>
</tr>
<tr>
<td>Selçuk University</td>
<td>2012</td>
</tr>
<tr>
<td>Yıldız Technical University</td>
<td>2012</td>
</tr>
<tr>
<td>University</td>
<td>Year</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Anadolu University</td>
<td>2013</td>
</tr>
<tr>
<td>Bilkent University</td>
<td>2013</td>
</tr>
<tr>
<td>Dokuz Eylül University</td>
<td>2013</td>
</tr>
<tr>
<td>Erciyes University</td>
<td>2013</td>
</tr>
<tr>
<td>Gaziantep University</td>
<td>2013</td>
</tr>
<tr>
<td>İstanbul University</td>
<td>2013</td>
</tr>
<tr>
<td>İstanbul University</td>
<td>2013</td>
</tr>
<tr>
<td>İzmir Technology of Institute</td>
<td>2013</td>
</tr>
<tr>
<td>Şehir İstanbul University</td>
<td>2013</td>
</tr>
<tr>
<td>Uludağ İstanbul University</td>
<td>2013</td>
</tr>
<tr>
<td>University</td>
<td>Year</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Ankara University</td>
<td>2014</td>
</tr>
<tr>
<td>Atılım University</td>
<td>2014</td>
</tr>
<tr>
<td>Çankaya University</td>
<td>2014</td>
</tr>
<tr>
<td>Sakarya University</td>
<td>2014</td>
</tr>
<tr>
<td>TOBB Economy &amp; Technology University</td>
<td>2014</td>
</tr>
<tr>
<td>Fırat University</td>
<td>2014</td>
</tr>
<tr>
<td>Osmangazi University</td>
<td>2014</td>
</tr>
<tr>
<td>Mersin University</td>
<td>2014</td>
</tr>
<tr>
<td>Kadir Has University</td>
<td>2014</td>
</tr>
<tr>
<td>Akdeniz University</td>
<td>2014</td>
</tr>
<tr>
<td>Gebze Technical University</td>
<td>2014</td>
</tr>
<tr>
<td>Okan University</td>
<td>2014</td>
</tr>
<tr>
<td>Pamukkale University</td>
<td>2014</td>
</tr>
<tr>
<td>Trakya University</td>
<td>2014</td>
</tr>
</tbody>
</table>
Remarks

Some outputs

• More projects – more research budget
• More communication with faculty for new ideas
• More collaboration with industry
• More awareness about technology transfer
• New patents/licenses
• New firms
• Innovation atmosphere in the university
In Turkey, the awareness about the importance of the TTOs has increased recently.

A benchmarking approach should be followed taking TTOs established in the United States or Japan.

Many practical issues need to be resolved, such as government policies and the willingness of the transferor (university), the transferee (industry), and the TT intermediary institute to engage in TT.
Remarks

In the era of knowledge-based economy, speeding up technological innovation, establishing an effective TT process, accumulating knowledge, and constructing intellectual property rights represent an efficient way to promote industrial competitiveness.

Therefore, in order to speed up technological innovation, accumulate knowledge, and construct intellectual property rights, smoothening the TT process within IUC becomes an important issue.

TALENT IS CRITICAL.
Thank you very much for your kind participation and listening.