



THEMATIC SEMINAR FOR HIGHER EDUCATION REFORM EXPERTS:

University – Business Cooperation

READER

Holon Institute of Technology



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PROGRAMME

Monday 14 May 2012

- 08.30** **Pick up from the hotel**
- 09.00 – 09.30** **Registration**
Location: H.I.T Holon Institute of Technology, 52 Golomb Street, Holon
- 09.30 – 10.30** **Opening Session**
Location: H.I.T Holon Institute of Technology, 52 Golomb Street, Holon
Chair: Gady Golan, President, Holon Institute of Technology
Andrew Standley, Ambassador, Head of the Delegation of the European Union to Israel
Klaus Haupt, Head of Unit, Tempus and Bilateral Cooperation with Industrialized Countries - Education, Audiovisual and Culture Executive Agency
Jacob Ziv, Chairman, Forum for National Research and Development Infrastructures (TELEM)
Shira Lanir, Coordinator, National Tempus Office Israel
- 10.30 – 11.00** **Coffee Break**
Location: H.I.T Holon Institute of Technology, 52 Golomb Street, Holon
- 11.00 – 13.00** **Session 1**
Location: H.I.T Holon Institute of Technology, 52 Golomb Street, Holon
Universities as Important Agents in National and Regional Systems of Innovation
Chair: Dahn Katzen, Faculty of Engineering, H.I.T
11.00 – 11.20 **Avi Hasson**, Chief Scientist, Ministry of Industry, Trade and Labor
11.20 – 12.00 **Jan Cornelis**, Academic coordinator for Knowledge, Innovation and Technology Transfer at Vrije Universiteit Brussel (VUB): *Technology & Knowledge Transfer - on the shared responsibilities of public stakeholders: government, university, research departments*
12.00 – 12.20 **Miri Yemini**, Department of Educational Policy and Administration, Tel-Aviv University (Higher

Education Reform Expert from Israel): *The case of HEI – business partnerships in Israeli education system*

12.20 – 12.35 **Askarali Daminov**, Higher Education Reform Expert from Uzbekistan: *"Higher education-science-industry cooperation in Uzbekistan"*

12.35 – 13.00 Panel Discussion, Q+A

13.00 – 15.00 Lunch and Visit to Design Museum, Holon

Location: Pinhas Eilon St. 8, Holon

16.00 – 18.00 Visit to "SolarEdge Technologies", Hod-Hasharon

Location: 6 HeHarash St., Neve Neeman, Hod Hasharon

18.00 – 20.00 Travel to hotel and free time

20.00 – 22.00 Welcome dinner, Tel Aviv port

Location: Benny Hadayag: Caf-Gimmel Yordei Hasira Street 1, Tel Aviv Port

Tuesday 15 May 2012

08.30 Pick up from the hotel and travel to Weizmann Institute of Science, Rehovot

Location: 234 Herzl Street, Rehovot

09.15 – 11.30 Mordechai Sheves, Vice President for Technology Transfer, Weizmann Institute of Science and **Ami Shalit**, FGS Director and Academic Secretary (Higher Education Reform Expert from Israel)

11.30 – 12.20 Travel to Holon

12.20 – 13.45 Session 2

Location: H.I.T Holon Institute of Technology, 52 Golomb Street, Holon

Cooperation between Higher Education and business: setting up of research collaboration and promoting entrepreneurship in academia.

12.20 – 12.50 **Antonio Carcaterra**, Associate Professor, Department of Mechanics and Aeronautics, Sapienza University of Rome: *"University high-tech and inventive engineering finalized to the economic growth"*

12.50 – 13.05 **Vadym Zakharchenko**, Higher Education Reform Expert from Ukraine: *"Collaborating with business to improve employability of graduates in maritime industry"*

13.05 – 13.20 **Jala Garibova**, Higher Education Reform Expert from Azerbaijan: *"Improving Graduate Employability in New Language Curricula"*

13.20 – 13.45 Panel Discussion, Q+A

13.45 – 14.45

Lunch

***Location: H.I.T Holon Institute of Technology,
52 Golomb Street, Holon***

14.45 – 15.45

Visit of the Holon Institute of Technology

***Location: H.I.T Holon Institute of Technology,
52 Golomb Street, Holon***

15.45 – 16.45

Session 3

***Location: H.I.T Holon Institute of Technology,
52 Golomb Street, Holon***

How to Develop Research Parks and Support Spin-Offs?

15.45 – 16.15 **Netta Cohen**, CEO, BGN Technologies, Technology Transfer Company of Ben-Gurion University: *"Technology Transfer at BGU and Regional Economic Growth"*

16.15 – 16.45 Open Discussion

16.45 – 17.00

Closing Address by Daniel Hershkowitz, Minister of Science and Technology

***Location: H.I.T Holon Institute of Technology,
52 Golomb Street, Holon***

17.00 – 17.30

Closing Plenary

Conclusions by EU experts Jan Cornelis and Antonio Carcaterra

Closing addresses by Klaus Haupt, Jacques Kemp and Gady Golan

***Location: H.I.T Holon Institute of Technology,
52 Golomb Street, Holon***

17.30

Drinks + Jazz

***Location: H.I.T Holon Institute of Technology,
52 Golomb Street, Holon***

CHAPTER 1: MESSAGES FROM THE ORGANIZERS

About Holon Institute of Technology – H.I.T

Founded in 1969 the Holon Institute of Technology - H.I.T is an independent institution of higher learning in the area of science, engineering, instructional systems technologies, management of technology, and design. Equipped with the latest theoretical and applied research, close ties with the industrial community, innovative instruction technologies and extensive involvement in the community, H.I.T is well positioned to train a new generation of scientists, engineers, managers and designers armed with multi-disciplinary knowledge and original analytical thinking, who will go on to assume key positions in Israel's high-tech industry.

The meeting place for academia and industry

Beyond the scientific and professional knowledge it imparts, H.I.T strives to equip students with optimal tools for an in-depth, system-wide understanding of the professional environment they will ultimately join. H.I.T's curricula and syllabi match the occupational requirements of the market, and attempt to incorporate industrial and high-tech needs. In addition, H.I.T has forged close ties with industry in numerous channels, giving students and graduates a foothold in leading Israeli companies during and after their studies.

H.I.T hosts seminars, conferences and lectures given by key figures in industry that share their knowledge and experience with the students, and together, create a robust social network for future collaborations.

Academic entrepreneurship

Academic entrepreneurship at H.I.T seeks to increase the value of the Institute by means of creative, inventive and innovative activity by members of staff and students within the institute and beyond. Through entrepreneurial projects, faculty and students collaborate with industry and develop joint ventures, thus establishing the foundations for conferences in areas of interest, joint research and projects for investment. The outcome of academic entrepreneurship is advanced research and commercialization of technology, which H.I.T leverages to promote technological development, social development and applied and industrial innovation, to meet the needs of the environment and of society as a whole.

Research activity

In addition to nurturing excellence in instruction and in academic entrepreneurship, H.I.T also strives to promote excellence in research and manages basic and applied research. The Research Authority seeks out research projects in Israel and abroad, and raises funds and support for research conducted by H.I.T staff, mostly in collaboration with leading universities and research institutions both in Israel and worldwide.

An introduction to university-business cooperation

The Higher education Reform Experts seminar in Holon will offer a platform to discuss the issue of cooperation between the academic world and the industry. This emerging theme is of great interest both to educationalists and to business practitioners due to the mutual benefits that can be derived from the relationship. The thematic seminar will provide background information, policy updates, professional presentations, and reviews of case studies. The organizers wish to create a space in which the participants can identify opportunities and discuss issues related to university-business cooperation.

The seminar is organized with the aim to provide an inspiring and creative environment in which the participants are encouraged to collaborate and to share their knowledge and expertise. The speakers and presenters are professors and education experts, technology transfer professionals, and leading industry managers. This combination offers a unique occasion in which new ideas can be developed and intriguing issues can be examined and discussed.

The first day of the seminar will start with an introduction to the subject of universities as important agents in national and regional systems of innovation to raise awareness about approaches to university-business cooperation. Then, we will continue with a visit in the design museum in Holon which demonstrates the cooperation between the academic institute and the city. The following visit, in a successful company that collaborates with universities for research and development processes, will present best practices and illustrate the outcomes of long-term relationships between industry and academy. In the second day we will focus on setting up research collaboration and promoting entrepreneurship in academia. Presentations and discussions will review methodologies for technology transfer and approaches to promote entrepreneurship in universities.

The organizers will provide the facilities, the environment and the opportunity to form a fruitful and creative event. The diversity of presentations and experiences will offer the participants the possibility to exchange views, establish new contacts, and network with colleagues and partners.

CHAPTER 2: CONTRIBUTIONS FROM THE SEMINAR SPEAKERS

Session 1: Universities as Important Agents in National and Regional Systems of Innovation

The Industry Academy Programs of the Chief Scientist (OCS) of the Israeli Ministry of Industry and Trade

Avi Hasson
Chief Scientist,
Ministry of Industry, Trade and Labour

The OCS provides for a number of cooperative paths:

MAGNET – The Development of Technological Infrastructure for the Industry

The MAGNET program is intended to provide a competitive position for Israel's industry with regard to state of the art technologies of worldwide interest. The new technologies are to be developed in a cooperative venture between the industry and leading academic scientific research in the area and they will provide the basis for new high-tech products and processes. This program involves pre-competitive R&D within a consortium that includes a number of commercial companies together with research personnel from at least one academic or research institution. The R&D focuses on new generic technologies that will lead to new generation advanced products. Typical grant will fund a research to 3 to 5 years.

Mini-MAGNET (Magnetron)

This program is to further support an already existing relationship between industry and an academic institution. The grant in this case amount to 66% of the approved R&D costs.

NOFAR

This program supports applied academic research that has aroused business interest but not yet directed to a specific product. The objective is to advance the research to a point where it is ready for a cooperative venture with a commercial partner. A minimal requirement of this program is for a company or incubator to invest 10% of the development costs, at this stage, complementing the 90% grant given by the government.

KATAMON

New Magnetron for water researches. This project will allocate total of \$3.3 million a year for the promotion of academic research that has potential for industrial applications. The program will be operated by MATIMOP, Israel Industry Center for Research & Development through MAGNET, and the government program to bring industry and academia together. Ultimate policy will be determined by a committee headed by the Chief Scientist of the Ministry of Industry, Trade and Labor.

KAMIN

This program support early stage applied academic research. The program supports research with a potential to become in later stage an industrial product. The objective is to promote the research to a point where it is ready for a cooperative venture with a commercial partner. No company cooperation or incubator required in this program. Proposals are to be submitted twice a year. The maximal financial support could be up to 400,000 NIS per year for up to 2 years, and in some special cases 3rd year can be approved.

Technology & Knowledge Transfer - on the shared responsibilities of public stakeholders: government, university, research departments

Jan Cornelis

Vrije Universiteit Brussel (VUB)

TTO: Academic Coordinator Knowledge, Innovation and Technology Transfer

Regional authorities have developed a multitude of project/program funding opportunities along the life cycle of the typical knowledge package or technology maturation trajectory, going from fundamental research, over strategic R&D to industrial R&D and technology transfer. In the case of VUB these authorities are Flanders and Brussels, two regions in Belgium. I will concentrate on the strategic R&D, the technology transfer phases and the traditional funding gap that exists between the world of subsidies for research and the world of investments made by venture capitalists. The roles of three stakeholders in the creation of new economic value will be briefly analyzed:

- Regional authorities: I will explain a few selected initiatives of Flanders to transform the previously mentioned funding gap into a funding opportunity for early stage investors, by establishing hybrid (private & public subsidies & investments) funding mechanisms.
- The university: I will briefly elaborate on the systemic approach that the Universities have put into place to accelerate and augment their technology transfer activities. The special case of the Vrije Universiteit Brussels will be taken as an example. I will also briefly mention how the internationalization policy of the University could benefit from cross-border collaboration in technology transfer.
- The research departments: How can a department react to these governmental and university stimuli? The department of Electronics and Informatics - ETRO has developed its own tailor-made system for turning new ideas into good ideas that include business plans. Some cases in the area of biomedical engineering and their derivatives to other application fields will be mentioned.

Some background information about ETRO

ETRO: Our motivation is to stay ahead of the obvious R&D tendencies, which drives us towards in depth fundamental research. Our mission statement is to impact on the transformation processes of the knowledge society, which keeps us alert to continuously update our strategic R&D agenda and extend/generalize our background knowledge. We are often seeking inspiration in the unexplored engineering bottlenecks at the interface of various application domains. Participation in various application value chains and collaboration with industry, public services, and hospitals, are priorities for us. We are actively searching for opportunities of industrial valorization.

<http://www.etro.vub.ac.be/>

Some background about ETRO's biomedical engineering R&D

The biomedical imaging technologies of the ETRO are situated in the following domains:

- Personalized health systems (gaming for revalidation, fall risk assessment)
- Software and computer aided diagnosis for dental and medical applications, capacitive sensing in dentistry and implantology, image compression and low power encoding for smart pills.

- Numerical aspects of non-linear reconstruction problems, e.g. in Electrical Impedance Tomography and Electrical Capacitance Tomography.
<http://www.etro.vub.ac.be/Research/IRIS/Medical/>

The case of HEI-business partnerships in Israeli education system

Miri Yemini

Department of Educational Policy and Administration,
Tel- Aviv University

R&D and industrial policy assume that university- industry links are the fuel of knowledge based economies. Universities are supposed to serve a “third mission” in contributing to economic development. There is a huge body of empirical research on the possible ties between universities and firms—be they formal (contract research; joint supervision of masters and PhD students; licensing of university patents to companies; co- publications; co- patenting; purchasing of university-developed prototypes; contract consulting; formation of entrepreneurial university spin-offs; university-based training and professional development for firm employees; use of university libraries, laboratories, and other facilities by firms; employment of graduates by companies; joint research programs; as well as collaborative R&D) or informal (meetings, e-mail communication, jointly attended lectures and conferences). This talk introduces a comprehensive theoretical framework for such collaborations through the Israeli practice.

Higher education – Science – Industry cooperation in Uzbekistan

Askarali Daminov,

Dr. of Sciences, Deputy Director,

State Testing Center under the Cabinet of Ministries of the Republic of
Uzbekistan

The important role of integration of education, science and industry has been stated at the National Programme for Personnel Training adopted by the Republic of Uzbekistan in 1997 as a long-term strategy of strengthening education and developing a continuing education system. The universities of Uzbekistan have been working on creating the mechanisms of efficient interaction and cooperation between the higher education establishments and production companies/different types of enterprises.

With aim of relevant infrastructure to support and ensure corporate innovative cooperation between higher education and the local industry a number of innovative groups involving the leading professors, teachers, graduates, doctoral students, talented students and representatives of production companies have been established under the specific chair/departments in most of higher institutions throughout the country.

- The innovative groups perform the following tasks:
- creating of local data base of modern profile companies;
 - studying and forming the data base of scientific-technological issues of these companies;
 - defining topics for qualification papers/thesis for Master's degree, young researches seeking for PhD degree and specific surveys under bilateral economic agreements between the universities and the local companies.

Currently more than 750 innovative groups involving about 4500 people are operating at the 600 departments of higher education institutions. The groups have already established partnerships with 1200 production companies/enterprises.

The existing practice on university-business cooperation at the central (Tashkent State Financial Institute) and regional universities (Namangan State University) will be presented.

Design Museum Holon: Design as a Catalyst for Transformation

Design Museum Holon is part of a long-standing commitment to culture and education in the city of Holon.

Design Museum Holon opened in March 2010 and had quickly established itself as one of the world's leading museums of design and contemporary culture. Housed in an iconic building by the internationally acclaimed architect, Ron Arad, Design Museum Holon is a vital and dynamic resource for designers, students, creative industries and the general public. Each year the Museum presents an exciting and varied programme of exhibitions and events each dedicated to helping visitors gain a deeper understanding of design and the role it plays in our lives.

The establishment of Design Museum Holon is a high point in the ongoing process of transforming the city of Holon into a center of culture and education. Over the past decade, the city has introduced a wealth of edification programs, launched cultural festivals, opened new museums and introduced urban art installations, all leading to the enrichment of municipal life.

The primary goals of Design Museum Holon are to inspire and challenge the design community and the general public's perception of design and the way it affects their lives.

The city of Holon, under the direction of Mayor Moti Sasson and Managing Director Hana Hertsman, turned to Ron Arad, world renowned designer and architect, to create an iconic building that would provide visitors with an



immersive environment in which to gain access to and explore the world of design.

Design Museum Holon would seek to embody Holon's longstanding dedication to culture and education and its desire to elevate the field of design into a leading position on the Israeli cultural agenda.

The Holon municipality has invested 17 million dollars in the establishment of the Design Museum Holon and is committed to providing continued support in the first five years of its activity.

Design Museum Holon will lead the international and Israeli cultural landscape.

The new museum joins the Holon Institute of Technology, Mediatheque and the National Israeli Cartoon Museum, all founded in Holon.

SolarEdge Technologies

Lior Handelsman

VP Product Strategy & Business Development,
Founder of SolarEdge

SolarEdge Technologies provides end-to-end distributed solar power optimization and [PV monitoring](#) solutions, allowing maximum energy production for faster ROI. The SolarEdge power optimizers perform MPPT per individual module while monitoring the performance of each module. The high efficiency [SolarEdge inverter](#) is tailor-made to work with power optimizers. The SolarEdge system provides optimal power, flexible design and full roof utilization. Module-level electronics enable enhanced maintenance and increased system safety with the unique SafeDC™ mechanism. SolarEdge is online at www.solaredge.com

SolarEdge has an R&D center in Israel and is developing ASICs for power electronics control and conversion utilizing some of the most advanced methods and techniques in power electronics. The company performs applied and academic research in the fields of power conversion, control, digital control and high power semiconductors.



Weizmann Institute of Science

The Weizmann Institute of Science is one of the world's leading multidisciplinary research institutions. Hundreds of scientists, laboratory technicians and research students working on its lushly landscaped campus embark daily on fascinating journeys into the unknown, seeking to improve our understanding of nature and our place within it.

Mordechai Sheves
Vice President for Technology Transfer,
Weizmann Institute of Science

An important goal of the Weizmann Institute is the conversion of research findings and academic knowledge accumulated by its scientists into practical applications for the improvement of health and the standard of living. Thus, the Institute encourages cooperation with commercial entities to promote high-tech and bio-tech industry, especially in Israel.

Relationships between its scientists and industrial or business entities are governed by the Weizmann Rules of Intellectual Property and Conflict of Interest.

Marketing and commercialization of all Intellectual Property is accomplished by [Yeda Research and Development Co. Ltd](#), the Institute's commercial arm. The Institute's wishes and priorities in the commercialization process are implemented through the Vice President for Technology Transfer.

Observation Deck above the Solar Mirror Field

The field of solar mirrors is part of one of the leading solar energy research installations in the world. The field contains 64 mirrors connected to a computer that can calculate the location of the sun in relation to the Earth at any given second. The observation deck above the mirror field, adjacent to the Solar Tower, is equipped with an audio-recorded explanation that provides details about projects and research taking place at the Weizmann Institute.

The Clore Garden of Science

The Clore Garden of Science is a unique, entirely outdoor science museum, the only one of its kind worldwide. Its 800 square meters of green lawns are home to nearly 80 hands-on exhibits large and small. The carefully built displays demonstrate the laws of physics, solar energy, water power and other natural phenomena that we take for granted every day. Natural elements such as sunlight, wind and water play an important role in many of the Garden's displays. These hands on exhibits come to life only in the encounter with a curious visitor who twists, pushes, bounces and pieces them together.



Among the fascinating exhibits at the Clore Garden of Science are a solar furnace that can instantly set wood on fire, water sprinklers that surround you with a full-circle rainbow, an exhibit that simulates walking on the moon and a water channel that shows the physics of wave action. The [EcoSphere](#) is a unique new educational facility, inviting visitors to explore environmental phenomena and interrelationships within the ecosystem.

Session 2: Cooperation between Higher Education and business: setting up of research collaboration and promoting entrepreneurship in academia

University high-tech and inventive engineering finalized to the economic growth

Antonio Carcaterra

Dept. of Mechanical and Aerospace Engineering

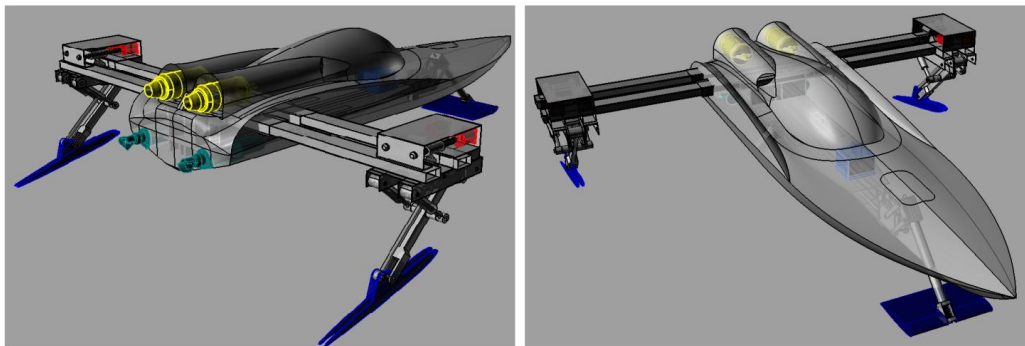
Sapienza University, Rome, Italy

The economic growth is one of the fundamental objectives of the actual European policy. University can play a key role in this context and engineering is certainly a driving component of this process. However, new strategies must be applied (i) for engineering research, (ii) for teaching engineering and (iii) to produce a new symbiotic interaction between industries and the faculties of engineering. The presentation provides examples of these new strategies in the context of a cross-disciplinary project named SEALAB, recently directed by the author. Main themes are related to.

- I) Inventive Engineering
- II) Teaching to the new inventors: analysis vs. synthesis
- III) The new virtual factory

A renewed way to intend engineering is necessary also inspired by the historical background of the invention process in the last two centuries.

SEALAB: an inventive project for high-tech interaction between university and industries



Collaborating with business to improve employability of graduates in maritime industry

Vadym Zakharchenko,
Vice-Rector,
Odessa National Maritime Academy, Ukraine

Matching the competencies of graduates and current market needs, and broader engagement of business in strategic dialogue with Universities, are on the agenda of Ukrainian universities. It is important for Ukrainian economy that students leave universities with skills that are relevant to employers, and it is important for graduates of a particular course to have a better picture of where they can find work and how much they would earn. The presentation outlines experience of Odessa National Maritime Academy, Ukraine, in collaboration with companies – representatives of maritime industry in Ukraine and abroad. Among the aspects of business-university collaboration the presentation highlights development of study programs that are of value for employers, bridging international standards and professional standards of maritime industry, enhancement of university technical base, professional training, that ultimately create conditions for successful employment of graduates.

Improving Graduate Employability in New Language Curricula

Jala Garibova
Vice Rector for International Relations,
Azerbaijan University of Languages

The teaching of languages in the post-Soviet area is still reflecting, to some extent, the Soviet heritage of methodology. Besides insufficient number of hours allocated to the teaching of languages (240 hours during 2 academic years), the theoretical mode, teacher-centered delivery, and lack of motivating mechanisms continue to contribute to the expansion of “languageless” graduates/specialists, which impairs the employability of Azerbaijani youth in local and international job markets. Educational reforms undertaken in these countries, as well as in Azerbaijan, are therefore actively including the reforms of language curricula.

The reforms through international projects, bilateral agreements, inter-University cooperation, joint degree programs etc. are bringing new dimensions into language curricula. Universities are taking initiatives. Besides, Azerbaijan University of Languages, which is the central institution for preparing language teachers, is assisting other Universities in defining their standards of language teaching. Since the Universities are specialized in Azerbaijan, there is a great demand in developing courses on Languages for Special Purposes.

Although there is a long way to go, Universities have been taking serious efforts. There have been efforts to replace the aspect-based teaching by skill-based teaching. One of the new introductions is the teamwork-based activation of the learners. The strategy of course design is changing to direct the teaching towards learning outcomes, and to gradually turn the teaching process into the learning process.

One of the most serious problems with teaching of languages remains great dependence on the textbook. This is because the needs assessment aspect of the curriculum design is not yet sufficiently enhanced. Once in place, it could also ensure diversity of modes and individual approach to learners. The involvement of quality assurance mechanisms and setting up quality benchmarks according to international standards would make the language programs even stronger. However, the quality concept itself needs to be better conceived by Universities. Course design is not yet an integral and holistic process: knowledge assessment is not sometimes logically tied up to course objectives. A stronger emphasis on defining learning outcomes should be made.

Session 3: How to Develop Research Parks and Support Spin-Offs?

Technology Transfer at BGU and regional economic growth

Netta Cohen,
CEO, BGN Technologies, Technology Transfer Company
Ben-Gurion University of the Negev

BGN Technologies is BGU's technology transfer company, responsible for the commercialization of know-how and innovative technologies created by the University's researchers. It manages the University's patent and IP portfolio and is responsible for filing patent applications worldwide.

Through the development of creative partnering with industry and investors, BGN brings value to the technological marketplace, to the University and to its researchers.

Activities are mainly about matching industry needs with researchers' capabilities through collaborative and sponsored research, license agreements, creation of research centers and the establishment of spin-off companies.

Industry-Academia cooperation:

Is it only about "classic tech transfer" - a technology or product driven process - or is there more that could be done?

BGN thinks there is much more to be done. For example: regional development.

- Bio-Negev Cluster, a program of national priority aimed at transforming the Bio economic basis of the Negev. At the center of this biomedical cluster adjacent to Ben-Gurion University are the Soroka Medical Center, the National Institute of Biotechnology, Advanced Technologies Park, four technology incubators and more than 50 start-up companies.
- Creation of The Capital Nature funds, which invest in the renewable energy arena, to establish start-up companies that have the potential to fundamentally impact the renewable energy market. The investment center was created by a consortium of 4 major companies, 2 investment funds, municipality and Ben-Gurion University.

ATP ISRAEL (Advanced Technology Park) is a Public/Private Partnership (PPP): BGU -Ben-Gurion University of the Negev, City of Be'er-Sheva, KUD International.

CHAPTER 3: BACKGROUND DOCUMENTS

'Linking the worlds of work and education through Tempus'

Cooperation with the world of work is no longer an optional activity for higher education institutions. It has become a necessity.

Mass access forces universities to step beyond their limited role as guardians of the world's intellect. Mass access also forces higher education to look beyond the public authorities for funding, as these can no longer bear the brunt of this expensive education alone.

Globalisation, technological developments and the advance of the knowledge society mean that more higher education graduates are needed today than ever before. Concern for their employability obliges their educators to gain intimate knowledge of their future work places. New trends in the labour market have changed the demands on university graduates and continue to change these in such a way that change itself is the only thing likely to remain the same in the decades ahead. Such change requires flexibility and a close monitoring of the labour market. It also creates a continuing need for training on the part of individual enterprises – a need that presents new opportunities for higher education.

Increased cooperation between higher education and the world of work can offer both new sources of funding and greater relevance for modern higher education. It can offer better human resources for the labour market and access to a great source of expertise for enterprises. All of this is much needed, which is why such cooperation is an imperative, and not something universities can choose to ignore.

Governments with a concern for social welfare and economic growth have an obligation to create an encouraging environment by adopting supportive legislation and offering financial incentives where they can.

Universities must take the lead in developing partnerships with the world of work, as it is they who have the principal responsibility for the employability of their students.

Enterprises must be made aware of the myriad mutual benefits of such cooperation and must be encouraged to engage in partnerships with the institutions that train their future employees.

Cooperation between universities and the world of work (university–enterprise cooperation) is a priority for the European Commission. Tempus is its main instrument of support to higher education in the neighbouring regions. The European Commission is therefore committed to maximising the contribution of the Tempus programme to university–enterprise cooperation in these regions. In order to provide effective support, however, it must have a clear overview of the current situation on the ground. To this end, in 2005 the European Commission launched a study to map the state of affairs in university–enterprise cooperation in the Tempus partner countries¹.

The study found examples of good practice in university–enterprise cooperation in all of the current Tempus regions, but it found these mainly in areas where higher education and research activities traditionally existed. It also found that the cultural obstacles blocking further cooperation are still significant.

Universities and enterprises do not recognise the full potential of cooperation. Universities seem to be lacking in entrepreneurial spirit and remain strongly academically oriented.

Enterprises are generally focused on short-term results: most of them are very small and struggle to survive. They are looking for quick solutions, which universities usually cannot provide.

On both sides there is little awareness that economic growth and the need for increased competitiveness through innovation would further increase the demand for high-level qualifications.

The environment in which universities and enterprises operate does not encourage closer cooperation, and neither do internal structures at universities and enterprises. Existing legislation and strategies do not provide much support. Social partners have not yet taken up potentially pivotal roles.

For further information can be found at:

http://ec.europa.eu/education/pdf/doc252_en.pdf

Communication from the commission to the council, the European parliament, the European economic and social Committee and the committee of the regions: Improving knowledge transfer between research institutions and industry across Europe: embracing open innovation

A strong scientific knowledge base is one of Europe's traditional key assets and has allowed us to become world class in several research fields. In spite of these merits, the global position of European research is currently being challenged by a rapidly changing research landscape. Simultaneously, European research is faced with the implications of globalization of markets and industries, digitalisation and new technologies, as well as a need to address societal issues such as an ageing population or climate change.

In its broad-based innovation strategy for the EU, the importance of improving knowledge transfer between public research institutions and third parties, including industry and civil society organisations was identified by the Commission as one of ten key areas for action.

This Communication responds to this need and it presents a number of orientations for Member States. It sets out ideas on how Member States and the Community can act together, in a mutually reinforcing way, to overcome some of the existing obstacles, in particular in terms of promoting the trans-national dimension of knowledge transfer. It is accompanied by a Commission Staff Working Document on "voluntary guidelines for universities and other research institutions to improve their links with industry across Europe" which are based on good practices identified by a number of national public authorities and the work of various European stakeholder associations.

For further information can be found at:

http://ec.europa.eu/invest-in-research/pdf/com2007182_en.pdf

HERE seminar on: University – Business Cooperation Holon Institute of Technology, Holon, 14-15 May 2012

University-business cooperation practices in Uzbekistan: case of Namangan State University

Pulatkhon Lutfullayev

Namangan State University, Uzbekistan

For the last two decades dramatic changes have occurred in higher education such as a change from collegial system of university governance to corporate managerialism and internationalism, higher teaching loads, flexible delivery, increased bureaucracy, more diverse student population, equity issues, increased competition and demands for accountability with decreased public funding. The rapid raise of the technology, economical changes, geographic and political changes increased the responsibility of higher education towards the societies. With the force of globalization and information technology emerged, higher education is now required more than ever to meet the local and global demand to produce knowledge and supply highly skilled personnel. In order to respond to such external forces and globalization, governments as well as educational institutions have identified the issues of quality education, internationalization and research development as important components. Furthermore, universities obliged to seek income from private sector while the public funding is going to decrease. In this term, the university-business cooperation is one of the good solutions to diversify the income. Not only income but it has profound impact to improve the student practice and skills which leads to prepare experienced human resource for the society. This win-win cooperation has been practicing in various forms in different countries. For instance, Uzbek government has introduced several legal decrees and orders to legitimize and to encourage the university – business cooperation in the form of science and enterprise relations. Such as: Presidential Decree on developing the small and private entrepreneurship (2010), Presidential Decree on modernization the material and technical resources of higher educational institutions and deep fundamental reformation the specialist preparation quality (2011), Board resolutions of Ministry of higher and secondary specialized education on promoting the innovative cooperation between higher education institutions, science and industry Board resolution of Ministry of higher and secondary specialized education on developing to diversify the income earning from economic sectors and organizing the entrepreneurship activities in higher education institutions Introducing these Decrees and resolutions has significant influence to involve the research outcomes to produce the world standard productions, and also to develop the university-research-industry triangulation. Therefore Uzbek higher education institution (HEI)s are facing unprecedented demand for advanced research outcomes and scientific innovations by private and business sectors. Each HEIs in some level has a number of agreements with private and business sector which is a legal base for knowledge and innovation transfer to produce high quality productions. For instance in Namangan State University currently exists 23 innovational groups involving 78 teaching staff. The “Problematic topics’ database” is created which contains 138 research themes. These themes are directed to 2 Post-doctoral researches, 37 PhD researches, 16 master theses, 112 bachelor degree graduation papers. The outcomes of those researches are planned to apply in small and medium size business and industry. The university chairs have 9 economic agreements with private and industry sectors which are ongoing collaborative researches. Therefore, the applicability of theoretical research outcomes in industry is prioritized. The flow of extra-incomes from private and industrial sector to the university are also increasing yearly. The major research

topics are in polymer chemistry, chemical technology, semi-conductor physics, microbiology, natural geography, handcraft, visual painting and etc.

Accordance with the Decree of the President dated July 15, 2008 "On additional measures to stimulate innovative projects and technologies in production" became a tradition to organize the "Republican fair of innovative ideas, technologies and projects". This fair is organizing often in different cities of the country which has profound impact to stimulate the university-business integration and cooperation. Organization and holding of such fairs, in fact, is also a new technology aimed at establishing closer cooperation ties between research institutions and enterprises sectors in the real economy. The first and second trade fair featured more than 650 and 600, respectively, the most promising scientific developments, technologies and technological methods, created at research institutions and universities in Uzbekistan and are important for solving urgent problems of economic and social sphere. Their theme was very broad. This is - industry, agriculture, health and pharmaceuticals, information technology, science and education¹. Every year in this fair several scientists participate with their own innovative patterns from Namangan State University. It should be noted that in the current context of globalization and the tight competition in the international economic relations in particular, the role of this innovation of scientists and developers, which is aimed at meeting the needs of the particular production, upgrade it to the best international standards. Therefore, when choosing the direction of research in any field of basic science Uzbek scientists today primarily explore the possibilities of bringing their results to the practical application to improve the competitiveness of production, while reducing cost, energy output.

The state educational standard, which is reference for each HEIs to prepare bachelor and master degree specialists, has also emphasis to develop the university-business cooperation. These emphases are seen on giving wide range of optional courses to satisfy the stakeholders and market demands.

University-business cooperation is becoming one of the important components to develop and to increase the quality in higher education institutions. It is a response for globalization and challenges of diversification the financial income. It is a trigger to upgrade the university infrastructure and to reform the teaching methodologies.

¹ <http://www.uzscience.uz/index.php/en/the-development-of-innovation>

CHAPTER 4: SELECTION OF ARTICLES

Regional, University and Departmental strategies for Technology Transfer (Cornelis, 2012)

http://research.upatras.gr/public/UserFiles/File/Patras_talk-v4.pdf

University-Business Cooperation in Europe - case studies

Contracted by the European Commission in 2010, this study was carried out by the Science to Business Marketing Research Centre at the Münster University of Applied Sciences. The first of its kind, it provides a European overview of the current status of University-Business Cooperation development across the Member States as well as identifying the different barriers and drivers to UBC in Europe.

http://ec.europa.eu/education/higher-education/business-case_en.htm

University-business dialogue and co-operation

Both higher education institutions and businesses benefit from working together; cooperation encourages the transfer and sharing of knowledge, helps to create long-term partnerships and opportunities whilst boosting students' future employment prospects.

http://ec.europa.eu/education/higher-education/business_en.htm

University- Business Forums organized by the European Commission

http://ec.europa.eu/education/higher-education/forums_en.htm

Seventh Framework Programme (FP7)

CORDIS - Community Research and Development Information Service, is an information space devoted to European research and development (R&D) activities and technology transfer.

The main aims of CORDIS are:

- To facilitate participation in European research and take-up activities;
- To improve exploitation of research results with an emphasis on sectors crucial to Europe's competitiveness;
- To promote the diffusion of knowledge fostering the technology take-up to enterprises and the societal acceptance of new technology.

The **Seventh Framework Programme (FP7)** bundles all research-related EU initiatives together under a common roof playing a crucial role in reaching the goals of growth, competitiveness and employment; along with a new Competitiveness and Innovation Framework Programme (CIP), Education and Training programmes, and Structural and Cohesion Funds for regional convergence and competitiveness. It is also a key pillar for the **European Research Area (ERA)**.

http://cordis.europa.eu/fp7/home_en.html

Horizon 2020 The EU Framework Programme for Research and Innovation

Horizon 2020 is the financial instrument implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness. Running from 2014 to 2020 with an €80 billion budget, the EU's new programme for research and innovation is part of the drive to create new growth and jobs in Europe.

Horizon 2020 provides major simplification through a single set of rules. It will combine all research and innovation funding currently provided through the Framework Programmes for Research and Technical Development, the innovation related activities of the Competitiveness and Innovation Framework Programme (CIP) and the European Institute of Innovation and Technology (EIT).

http://ec.europa.eu/research/horizon2020/index_en.cfm?pg=h2020

HIPPO STUDY, DG Education and Culture Study on the Cooperation between HEIs and Public and Private Organizations in Europe (Davey, 2011)

http://ec.europa.eu/education/highereducation/doc/business/thematic11/davey_en.pdf

"WE MEAN BUSINESS"

The European workforce about to enter the job market is more equipped than ever before – not just thanks to its high levels of formal education, but also due to its knowledge of the latest software, technology and social networking trends. Today's young adults have been raised with something very special: a global perspective.

Our European trainees have fresh creative enthusiasm that can bring innovative ideas to your company and stimulate productivity among your employees. They are accustomed to a competitive and a fast-paced world, and thus naturally suited to a dynamic business environment. They can help your company stay one step ahead in a world that is constantly transforming.

In today's climate of tough economic competition and rapid change, traineeships can help companies to find the best staff and increase their competitiveness, benefiting from new skills and fresh ideas. At the same time, a traineeship experience can help young people make a smooth transition from education and training to the labour market. The "We Mean Business" initiative aims to raise awareness among European companies of the positive benefits of hosting an Erasmus or Leonardo da Vinci trainee. Following the European Launch event, national events will take place in EU Member States, aiming to get the message to companies through national multipliers.

<http://we-mean-business.europa.eu/en>

NOTES
