The European Investment Bank (EIB) through the Marseille Centre for Mediterranean Integration (CMI) co-organised with the Islamic Educational, Scientific and Cultural Organization (ISESCO) and the UN-ESCWA Technology Center, a regional workshop from June 16th to 18th, 2014 in Ankara, Turkey.

The regional activity showcased the Middle East Technical University Science Park (ODTU Teknokent) and its successful innovation ecosystem. Ranked as the best Science and Technology Park (STP) in Turkey, the Park shared its experience with MENA Science and Technology Parks managers and introduced them to an ecosystem where different actors from the public, private, finance, and academia sectors interact with each other, collaborate, coordinate, supply or demand, and ultimately impact the success of the Park in a Quadruple Helix model.

Eleven countries and twenty three Science and Technology Parks (STPs) and incubators were represented, enabling a regional exchange and a benchmarking of their respective ecosystems. The event infused best practices through the contribution of major Turkish innovations actors such as the Scientific and Technological Research Council of Turkey (TUBITAK), Technology Transfer Offices, venture capital associations, universities entrepreneurship departments, and the International Association of Science Parks and Areas of Innovation (IASP).

Throughout the panelists presentations, which were followed by open discussions, the managers were able to get new insights on how to better create economic value through Knowledge Transfer within their STPs, and to understand the role of the government, universities, industry and the financial sector in this process. Besides building capacities, this regional meeting, which is the second in a series about STPs in the MENA region, has nurtured the professional tights between MENA STP managers.
“We have neither oil nor gas; we need to earn everything the hard way [...] the most important thing for the national economy is a good scientist and the right environment for him.” Davut Kavranoğlu, Deputy Minister of Science, Industry and Technology of Turkey—highlighting Turkey’s goal to become a knowledge-based economy during the opening session of the workshop.

Law, regulations, and incentives
Science and Technology Parks (STPs) in Turkey are governed by a legal framework managed by the Ministry of Science, Industry and Technology. The law of technology development zones No. 4691 came into force in 2001 to regulate the support of R&D activities as sources of innovations in production. Under the regulations of January 2, 2004, major tax advantages were provided to companies operating in these zones. Incentives and exemptions under this law stimulated entrepreneurship and SMEs creation and boosted productivity in Turkey. The exemptions included corporate and income taxes and VAT exemption for various software applications.

“Companies used to come for tax incentives, now they come for the ecosystem and its people.” Ufuk Batum, Vice-President of ODTU Teknokent.

ODTU Teknokent, Ankara
ODTU Teknokent originally started as university-industry collaboration. Today it ranks 1st out of the 52 registered Science and Technology Parks in the Turkish Technology Development Zones Index, and its university—the Middle East Technical University (METU), 1st in the Index of Entrepreneurial and Innovative Universities. Indicators used for the two indexes can be accessed here: Indicators of performance.

The Park’s activities are tailored to support the entire entrepreneurship cycle, from pre-incubation to late development through cooperation with Business Angel Networks, Technology Funds (USD 40 million) and support from the Ankara Development Agency.

The Park hosts more than 300 companies of which more than 60% were created in the park itself. It employs a total number of 4500 among which 3750 is a Research, Technology & Development personnel. Around 700 projects are carried out at a time. Entrepreneurship is an important component of the Park, which often runs business contests to spot high potential ideas that are then directed to acceleration programs such as TeknoJumpp (started in 2013), which supports technology based entrepreneurship and help in the training of internationally successful entrepreneurs who receive services such as: CEO in residence; mentoring; team coaching; and trainings in business modelling, entrepreneur financial modeling, investment process, investor presentation, business valuation, market research, microeconomics and pricing, and branding.
As a leading STP in Turkey, ODTU Teknokent runs many programs inside its premises for both its residents and METU students. However, it recognizes that these programs must be updated or revised every year to keep up with the novelties in technology and processes that are transcendent to the success of modern companies adds Ufuk Batum, Vice-President of the Park.

ODTU Teknokent acknowledges some challenges that need to be addressed by the Park management, and these include:

- the slowness of governmental agencies that need incentives;
- tendency for over-engineering and technology when nobody is requiring a “overly sophisticated product”;
- the prerequisite to continuously foster entrepreneurship culture;
- the necessity to strengthen business ideation and business modeling;
- the importance of commercialization and being market-driven;
- the need to alter the notion of ‘price’ versus ‘value’ where seeking possibilities to upmarket products away from low-end markets.
- the need to improve team building and partnering;
- managing finance where not all is about finding finance but rather about people and the market;
- the need to keep leadership (the example of Kodak’s development Vs Nokia’s was presented).

(Presentation, ODTU Teknokent)

Above all, ODTU Teknokent functions in an ecosystem where university, industry, professional networks, and public incentives and programs are interlinked benefiting each other. It gained its success from its openness to international collaborations, industry-university collaboration, and internationalization.
Teknopark Istanbul

“Teknopark Istanbul has a waiting list of 1000 companies; they look for the environment that we have been creating.” Turgut Senol, President of Teknopark Istanbul

Teknopark Istanbul, which has a different model than ODTU Teknokent, was developed in Istanbul by the Undersecretary for Defence Industries (SSM) and the Istanbul Chamber of Commerce (ITO) - shareholders of 45% and 40% respectively - to bolster Turkey’s technology development.

The Park is successful thanks to its effective ecosystem which includes: numerous excellent universities and academic platforms; technology clusters (aviation, marine, medical and bio medical); industrial platforms (nano technology, wind energy) and shared technical infrastructures, like a “clean room”; a TRL 25 million seed and risk capital Fund; business networks with the industry, academia and business sectors; incubation center and start-up assistance; Technology Transfer Office; and last but not least institutional collaborations with the Turkish SMEs development Organization (KOSGEB), Istanbul Development Agency (İSTKA), and Istanbul Chamber of Commerce (İTO). Currently, it hosts 35 startups and 87 tenants, but has plans to host more than 1000 companies and more than 500 incubators, in addition to a target US $ 10 billion annual Turnover (Presentation).

DEPARK Izmir: University-Industry Collaboration for the health sector

DEPARK is a Science and Technology Park specialized in health technologies created as a result of University-Industry Collaboration. It was established in 2013 as a Management Company founded by four universities and nine private/industry companies. The initiator and lead partner of the project was Dokuz Eylul University, which had an already established health innovation ecosystem that comprised 51 Research Centers, a hospital, a medical school, and other institutions (Presentation). The Park, which is located in the Izmir Technological Development Zone aims to become a Health Technopark and Centre of Excellence for transferring academic research and knowledge into economic value based on University- industry collaboration and interaction with different stakeholders of the health industry, capitalizing on the presence of the Biomedicine and Genome Institute and a Research Hospital.

The open discussion that followed the three STPs presentations raised a number of subjects including how one manages the ecosystem when a university is physically detached from the STP, and how it impacts the Park dynamic. Turgut Senol responded by explaining how Teknopark Istanbul offered 5000sq meters free of charge to universities so that they build up their own facilities such as R&D laboratories, incubators, and entrepreneurship departments. Nineteen universities officially applied for this scheme including universities from cities other than Istanbul because they were interested in the ecosystem created by the Park.
The Tunisian CEO of El-Gazala Technopark (established in 2001), which hosts 250 companies, questioned whether fees from the tenant companies and startups at ODTU Teknokent could financially sustain the management and running of the Park. The response was twofold: a) the tax incentive decree in Turkey (The law of technology development zones No. 4691/ Under the regulations of January 2, 2004) helped startups reduce their charge burden and thus be able to pay rent; and b) the management of a Park has a role to mentor and support the companies and startups so that they succeed in becoming financially viable. Moreover, a STP can have criteria for assessing and selecting future tenant companies. ODTU Teknokent has a board with members from both academia and industry that select the residents.

Concerning the success rate of admitted companies, Teknopark Istanbul claims that 20% failed from the beginning, while ODTU Teknokent states that the success rate in Turkey (25 to 30%) is higher than the one in the USA. A Science and Technology Park plays a key role in helping these companies not to fail by investing in them and providing services such as trainings and incubation programs. Taking risk is unavoidable. Moreover, as far as business ideation, one should not be selective; selection comes at a later stage. Additionally, incentives are very important to create the right ecosystem within STPs, be it grants for new startups or free lands for universities to create their RDI facilities. Last but not least, a ranking of national STPs on the basis of KPIs, is a good way to motivate all the stakeholders in the STP, although independent auditing is necessary (role of the ministry of Science, industry and Technology in Turkey).

ACTORS OF THE QUADRUPLE HELIX IN THE INNOVATION ECOSYSTEM

ACADEMIA

Science and Technology Parks (STP) should facilitate linking academic research to private markets. Academic researchers must be able to take their research results into the STP and create new firms which would launch new products or services, hence academic spin-off companies. When academic and research centers are located within the Park, or when the Park has established close tight with those, it accelerates the process of accessing and transferring technology, knowledge, expertise and skills among researchers and tenants companies. Moreover, startups which cannot afford to hire research expertise in specific areas, or cannot afford the cost of purchasing expensive scientific equipment, can access those within the academic institution.

Academia-Industry-STP relations may take several forms including transfer of personnel between academia and industry, but also formal contracted research, which still remains to be facilitated and regulated in most MENA countries to permit researchers to legally commercialize their research and gain extra income. Although Turkish university professors’ salaries are not well-paid, they have the possibility to work on joint ventures with the industry. To that aim there are specific laws addressing the researcher status. Incentives from the government to stimulate joint projects between academia, STPs and the private sector have proven effective in Turkey.
PRIVATE SECTOR
An example of a company that is fulfilling its role within the national innovation ecosystem is Aselsan, a leading company in the Aerospace and Defense industry in Turkey. 7% of the company revenue is allocated to R&D research with a total of $ 370 M in 2013. Moreover, $ 132 Million of funds were transferred to universities in its cooperation with 24 universities on 240 active projects. For this company, collaboration with academia is vital to remain at the edge of competition. Sample projects of Aselsan-University Cooperation can be found in the Presentation. Another private company that values the benefits of the ecosystem of Science and Technology Parks (STP) is Arçelik for which the proximity from both the human resources and the Park clusters of ICT and defense is the motivation for being resident at ODTU Teknokent. Although it can get the same tax incentives outside of STPs, Arçelik prefers to stay at ODTU Teknokent, because its ecosystem facilitates to communicate, network, and have access to talented people in more than 300 companies that are, or could be partners, clients, or suppliers. They are engaged in joint projects with universities and recruit graduates and talented people from both universities and the Park ecosystem (Link to presentation).

FINANCIAL SECTOR
“The investor role needs to be defined as not only someone placing money but as someone connecting, advising and mentoring” Selahattin Onen, investor
Selahattin Onen, a private investor and business angel, recommends focusing on investing in universities and Science and Technology Parks (STPs) to have a productive innovation ecosystem. For him, these are the important actors within the two institutions that are decisive to create the right ecosystem:

- Acting as cooperation enablers that transform ideas into business models and marketable solutions, and these could be accelerators, incubators, and investors;
- a pool of mentors that share their know-how and bring a broader perspective to startups;
- and a critical mass of entrepreneurs, who are the result of investing in and nurturing the entrepreneurship culture in STPs and universities.

Furthermore, the ecosystem should cater for an appropriate (i) “market orientation” of technology development, like “exit” of the incubees, IPO, licensing and selling (ii) regulatory framework to incentive start-ups, tax incentives and exemptions, grant systems, (iii) culture that encourages entrepreneurship and accepts failures. Defining success within the ecosystem is important. Accepting failure in order to move to the next project is key to success and success is measured by the level of deal flow. Likewise, the role of the investor needs to be defined as not only someone placing money but as a mentor to promote and advise on connecting, deal flow generation and linking to Business Angels.

“Success is measured by the level of deal flow [...] Accepting failure then moving to the next project is important” Selahattin Onen, investor
MECHANISMS OF KNOWLEDGE VALORIZATION AND TRANSFER

TECHNOLOGY TRANSFER OFFICES (TTO) have a key role within a university or a Science and Technology Park (STP). They manage Intellectual Property (IP) rights to protect research results with the ultimate goal of transferring them to industry. Also, the protection of findings is critical in the decision of a business partner to invest in the further development of a technology or a commercial product.

ODTU Teknokent Technology Transfer Office was created in 2007 and has filled 120 patent applications as of April 2014, generating 70 patents. It was established to ‘provide financial, technical and consultancy support throughout the patenting process of the innovations of companies and academicians that have the commercialization potential’ (see Presentation).

The TTO also facilitates the commercialization for both tenant companies and university research results, and thus generates income for faculty and startups. One of its roles is to exercise due diligence in evaluating new technology adequacy for protection and commercial potential (see ODTU Teknokent Technology Transfer Office Evaluation Process chart).

SPIN-OFFS refer to start-up companies established to commercialize technologies and products developed by employees from a parent organization, usually universities and public research institutes. They are another mechanism to commercialize new technologies and a tool of knowledge transfer between the research and the industry sectors. Tayfun Akin, Director of the Micro Electro Mechanical Systems Research and Application Centre at the Middle East Technical University (METU) based at ODTU Teknokent, expert in the MEMS technology, explained how the Park’s ecosystem helped to build a viable and strong MEMS industry including through entrepreneurial spin-offs. Up until now, five spin-off companies emerged from the parent company to commercialize MEMS devices. Akin believes this technology has enormous potential for daily use, including in cars to sense a crash and deploy an airbag, in smartphones where it senses the device’s movement, or in inkjet printers where it enables the ink to be sprayed very precisely (More information about METU-MEMS Center).

Residing at ODTU Teknokent enabled this entrepreneur and his company to benefit from the significant IP management experience of the in-house technology transfer office (TTO), which played a fundamental role in the formation process of his spin-offs. The TTO assisted in IP related agreements, business planning, and other elements so as to fully let the companies concentrate on their core business and capitalize on their commercial potential. Moreover the Park acted as an intermediary between the parent company, its spin-offs and the TTO, and provided business-oriented support, access to research facilities, personnel and a network.
ENTREPRENEURSHIP SCHEMES are central to nurturing the right ecosystem. Turkey has realized that in order to build up a national critical mass of entrepreneurs capable of creating high potential companies, it needed to unlock individuals and students’ entrepreneurial capacities and develop entrepreneurial culture at different levels of its society. The Turkish SMEs Development Organization (KOSGEB) was created to this aim, and accordingly supports i) established SMEs and ii) Potential and Young Entrepreneurs. Since 1998 it has been providing, at no cost, start-up training, start-up capital, business Incubators and business planning awards. Since 2010 trainings have been delivered by both KOSGEB and the agency-approved training institutions and universities. Graduates of the training programmes are eligible to apply for start-up capital support from the agency. They can benefit from grants that can reach $ 12,700, and apply for loans of up to USD 33,000 with a 24 month-grace period and a repayment in 8 instalments during 24 months. Likewise, business incubators also benefit for KOSGEB financial support including support for establishment cost (Building renovation/ Equipment-furniture for up to USD 342,000) and support for operating costs (building maintenance, training-consultancy and staff cost for up to USD 47,000). The agency is an example of a support mechanism that plays a part in the national innovation system chain (link to KOSGEB Presentation).

“Fit Startup Factory” is one example of successful entrepreneurship schemes that support Turkey’s innovation ecosystem. Created in 2011 as part of the Center for Entrepreneurship of Özyeğin University, this technology accelerator program is designed to enable technology entrepreneurs to create sustainable businesses taking them “from idea stage to launch”. During 5 weeks, the selected applicants participate in a bootcamp and benefit from the necessary mentoring from senior entrepreneurs, investors and academicians, and are provided with the necessary skills to launch their businesses including seed capital. IP management including evaluation of innovations is also offered. The program has received 1300 applications from which twenty four were selected for the acceleration weeks (Presentation and Website).

Özyeğin University’s Entrepreneurship Center aims to build an entrepreneurship culture and the required skill-set through different academic, research and outreach programs (see graph). In the MENA region, there are a number of entrepreneurship programs starting to appear including: flat6labs in Egypt and oasis500 in Jordan.

While industry is in need of the knowledge that resides in UNIVERSITY RESEARCH CENTERS, universities need to increase and diversify funding. Traditionally, universities had the function of producing, keeping and disseminating knowledge. Today, the model of entrepreneurial universities is gaining weight; they are an important node in national innovation systems. During the open discussions, some delegates mentioned a tendency for academicians to “innovate” at the end of their careers after they have “published” enough to be acknowledged in their academic area. Fresh graduates and PhD assistants follow the same path. Therefore, it was questioned why young graduates can’t embark on a research and innovation career from the start with the mentoring and guidance of senior researchers. A university professor from Jordan declared that the expected role of a professor is to publish research and not necessarily to create economic value from it: “there are no channels to transfer the knowledge acquired; our aim is to publish for our own promotion and not for technology transfer”. An accelerator manager affirmed that professors in Egypt are assessed and promoted based on what they produce (e.g. spin-offs) rather than the number of their publications.
Erkan Erdil who is professor at METU-TEKPOL, an interdisciplinary research center conducting research on science and technology policy related issues, suggests in five points how to improve industrial collaboration with research centers:

- Reexamine the “researcher” status. Universities should be able to hire researchers, not only to work on their PhD and becoming consumed with the “pressure of publishing”. Research as an occupation can be financially rewarding, and this notion should be revived.
- Improve interfaces for research commercialization between the STPs, TTOs and incubators, and have a real strategy plan to transfer knowledge between research centers and industry.
- Foster a “research project” culture. Establish reward mechanisms for both research project proposals and for researchers who secure private funds.
- Create a legal framework for university research centers.
- Revisit the relationship of university to society. universities create not only economic value but also societal value.

FROM IDEAS TO INITIAL PUBLIC OFFERINGS (IPOS)

I- BUSINESS IDEATION

Business ideation or business generation is a systematic and creative process to generate innovative ideas with business impact, and is an important phase in startup development. Several examples of entrepreneurship activities at METU were discussed during the working sessions, including: Ideation camps (e.g. ‘find solution to a given problem’), competitions (e.g. Startup Weekends; Hackathons; ‘find your co-founder’), networking events, entrepreneurial conversations, or entrepreneurship lectures.

II- BUSINESS INCUBATION AND ACCELERATION

The session highlighted the difference between an inventor and an entrepreneur. In fact, 80% of startups fail not because their product or service was mediocre but because they lacked the necessary skills and experience in fundraising, in marketing, or in another area. Incubation and acceleration programs should equip new entrepreneurs in a short period of time with all the support and mentoring necessary to develop their business ideas into valid marketable products. These are examples presented during the session:

Embryonix is a pre-incubation center that specialises in ICT, industrial design, and energy projects. In four years, the center incubated 30 projects and graduated four projects worth 10 Million TYL. Taylan Demirkaya suggests that engaging people is the key to building an innovation ecosystem (Presentation) and suggest the following steps:

1) Engage all crucial players and organise scheduled meetings continuously
2) Organise events to bring all players together;
3) Organise challenging events and make people work together;
4) Filter best possible projects and incubate;
5) Link startups with non-profit organisations, investors, and business people;
6) Commercialise and scale.

The co-founder of Viveka Incubation Center provided the example of Ankara city, which produces 1275 Computer Engineering graduates while only 289 IT positions are available in the local market. It clearly illustrated that the local market is incapable of absorbing the local talent pool, hence the rational to explore the potential of these graduates to start up their own technology ventures. However, they usually lack business, managerial and fundraising skills to run a business. Incubation or acceleration (short product cycles) respond to these needs by providing community support, business skills, private funding, and mentorship. Acceleration provides the same services but is offered during a short period of time of usually two to three months. As an incubator, Viveka puts collaboration at the core of its business model and runs more than 30 events and trainings annually (Presentation).
In Egypt, the Technology Innovation and Entrepreneurship Center (TIEC) is an example of an institution that provides Incubation and Acceleration services for individuals with business ideas related to ICT. It has proved to be efficient in reducing companies’ mortality rate, unemployment rate, in addition to developing the entrepreneurial spirit and increasing university-company interactions. $1 of public investment in an incubator creates $30 in local tax revenue. Public incubator jobs cost $1,100 while other public jobs cost $4,570*. Operational since September 2010, 45 companies have “graduated” and 10 are currently incubated (Presentation). The center is based in the Park of Smart Villages, an ecosystem where various entities including academic institutions, government agencies and non-profit organizations work hand in hand. The incubation program last 12 weeks during which start-ups are provided with legal and financial services, mentoring and entrepreneurship, as well as business to business linkage opportunities.


Animation Technologies and Game development Centre (ATOM) is a pre-incubation center founded by and located at ODTU Teknokent for game software developers. The center offers office space, training, project management and marketing support. It provides mentorship, and facilitates university collaboration and network development. The center hosted 35 teams, 10 companies, and 1000 developers, and run 500 hours training for 200 games through its incubation programs (Presentation).

“Starting is not half the battle, keeping it up and completion is the battle”

III- COMMERCIALIZATION

According to Fazilet Sukan from the Technology Transfer Office of Ege University Science and Technology Centre (EBILTEM-TTO), an entrepreneurial university should be able to supply and commercialize inventions, and has several characteristics:

- A transdisciplinary research base
- An ecosystem fostering creativity i.e. through Science and Technology Parks and incubators,
- An ability to compete internationally i.e. by attracting the best students, professors and corporations including those from outside the country;
- Systematic cooperation amongst academia and other economic sectors.

Technology push vs Market pull

Moreover, Ms Sukan advocates a new non-traditional Model of Technology Transfer based on collaboration with the industry, which provides both funding and “real problems to solve”. This collaboration leads more naturally to licensing:

Non-traditional Model of technology Transfer (EBILTEM-TTO)

Create an Environment of Collaboration & Cross-Disciplinary Problem Solving  
Develop a Strategy Based on Research Strengths  
Target Firms  
Engage Industry as Research Partners/ Collaborators / Advisors / Funders  
Licence to Sponsors, Collaborators and Start-ups

File Patents on Solutions / Applications
This in contrast to the traditional “Technology Push” model that starts from the premise that a patent solves exactly
the problem an industry has, and that the industry will have the resources, interest and ability to take the unknown
technology to market. But in reality the industry is reluctant to invest in an unproven technology. In fact, only 25% of
all patents are licensed (Presentation). Moreover, Technology Transfer process and IP management is very costly for
universities to not engage with industrial partners from the start.

**Traditional Model of Technology Transfer (EBILTEM-TTO)**

![Diagram of Traditional Model of Technology Transfer](image)

**Inventram inc.** is an example of a company which was founded as a partnership between an
industrial holding (Koç Holding) and a university (Koç university) in April 2010. It works in an
ecosystem for different innovation actors that can sometimes act as partners or some other time as
clients or suppliers. The company is an early stage technology, innovation and IP investment,
commercialization, and advisory firm. Its objective is to commercialize early-stage innovative
 technological inventions. It invests equity in technology and innovation based start-ups and
provides sales support via revenue sharing schemes (Presentation). In addition, the company
helps university researchers and entrepreneurs
discover, evaluate, patent, transfer, license, and commercialize their IPs and technologies via various business
models.

**Technology Development Foundation of Turkey (TTGV)** is the most important non-profit organization and the first
"Public-Private Sector Partnership" that has been established to support R&D and innovation in Turkey. Twenty four
private sectors are represented in the Foundation, which guarantees a full understanding of specific private sector
needs. Acting as an intermediary, it aim is to increase the return on public funding of R&D in the private sector. In
addition it offers advising, training, and mentoring for new businesses until the commercialization phase (Presentation).
IV- INTERNATIONALIZATION

Companies choose international expansion to maximize international revenues, achieve economies of scale, or enter global competition. Likewise, notes Luis Sanz, CEOs of Science and Technology Parks (STPs) choose to be international for wider exposure, but also to offer their tenants companies the international access that would benefit their businesses. Sanz sees that internationalization is one of the many strategies adopted by STPs across the globe. Some Parks have in fact the “internationalization component” as a criterion for selecting and accepting tenants. A resident company international success can also mean the success of the STP.

Pınar Büyükbalcı from Yıldız Technical University suggests that a company has better chances to succeed in internationalization if it reflects on the following questions: Does the company have a global product or service? Does it have the managerial, organizational, and financial resources to internationalize? Is there willingness to commit resources to face the risks of internationalization? Is there a country in which the company feels comfortable doing business? Does the company have a unique product or service that is not easily copied by multinationals or local entrepreneurs? The company needs also to reflect on the decision of going global, as choosing to be local or regional could be a better resolution.

“Important: Start thinking ‘global’ from the conception phase of the startup”, Pınar Büyükbalcı

For Mobilus, a private enterprise founded in 2005, internationalization was not an option but rather “the lifeline of the company”. In this company’s business, (Software as a Service (SaaS) based), cross country barriers tend to be low. If the product is not able to compete globally, foreign competition will eventually enter the local market and failure becomes eminent. Thanks to Teknojumpp, an acceleration program run by ODTU Teknokent, the Mobilus team founded Invidyo LLC in the United States, and their product is listed on amazon.com and ready for sale in Italy and the United States. Büyükbalcı adds that for a firm to become global, it must think global from the start, and should have “international experience” within its team. Some delegates observed that cultural or reputational barriers could typically hinder a company from going international. This could be mitigated through networking and developing an international network, was advised by some other delegates. The panellists further explained that internationalisation can take many forms, for example through focusing on local or regional needs, creating copycats to fill the gaps in the MENA region (e.g. souk vs. amazon), or creating know-how unique to the MENA context.

So what is the right ecosystem?

Science and Technology Parks (STPs) have the potential to create an innovative environment to stimulate productivity, start up new companies and enhance the competitiveness of existing ones, thus ultimately increasing national welfare. They can be turned into a dynamic ecosystem where governmental agencies, academia, private firms and the financial sector collaborate and work hand in hand in a Quadruple Helix model.

In this ecosystem where knowledge transfer and interactions are explicit and implicit at the same time, stakeholders collaborate with i.e. public institutions to secure policy attention, commitment, and financial incentives in order to encourage the
transition of new knowledge and new technologies to private markets. They secure grants and incentives from large enterprises, universities and STPs alike. STPs offer free lands to universities to construct their laboratories; private enterprises spend a percentage of their sales on R&D, sponsor events, or offer positions to university graduates; and universities offer free IP management to their researchers, or subsidized memberships to their students to access incubators. Investors, business angels, and venture capital companies are encouraged to invest in promising entrepreneurs. Universities become entrepreneurial, creators of economic value, and suppliers of excellent research findings and talented human resources. These latter emphasis entrepreneurial skills in curriculums and train professors to deliver programs that correspond to future market needs. They strive to create a critical mass of entrepreneurial students, researchers, engineers, scientists and social scientists. They encourage applied research that translates findings into commercial products, processes and services and work hand in hand with STPs and Industries. This ecosystem acknowledges that ideation, incubation, commercialization, and internationalization are important stages in SMEs formation, and therefore strives to interact with incubators, accelerators, Technology Transfer Offices, academia, industries, and non-profit organizations.

In general the “right ecosystem” is likely to comprise committed “champions” with a long-term vision and collective consciousness about the value and impact of a Science and Technology Park as well as knowledge transfer on national welfare. Science and Technology Parks that succeed in creating the right ecosystem for knowledge transfer also have managers who take up roles of knowledge brokers, middle men within their park’s ecosystems, catalysts of partnerships, real estate developers, knowledge flow facilitators, and strategic networking enablers. They can use Key Performance Indicators (KPI) to track measure and benchmark their park performance, and view knowledge transfer within their institutions as a long-term project that need patience and passion. Last but not least, successful STP managers are networking with different actors of the national innovation ecosystem from academia, industry, finance, government, and the non-profit, and are conscious that networking is a resource and therefore a core Park activity. They know that much knowledge is people-embodied tacit knowledge, which is not easily codified and transferred other than via networking.
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