

White paper - Innovation Think Tank, Başkent University and Başkent Hospital Group

Successful Examples on Collaborative Partnerships Between Başkent University, Başkent Hospital Group and Innovation Think Tank

June 2022

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Abstract

University and industry collaboration is a very critical concept that highly benefits the academic world while broadening the scope and perspectives of the healthcare industry. Başkent University and Hospitals carry this significant purpose of building strong partnerships in order to add a new, exemplary dimension. The purpose of this whitepaper is to portray the strong partnership between Başkent University, Başkent Hospital Group and Innovation Think Tank at Siemens Healthineers to foster innovation infrastructure within the region. The data provided in this paper highlights best practices and co-creation activities emerging from the jointly established Başkent ITT program.

Keywords: Innovation Think Tank, Başkent Hospital Group, Siemens Healthineers, Collaborative partnerships, technology transfer, entrepreneurship, health

Introduction

Collaboration between the industry and universities is one of the most effective ways to transform the knowledge obtained from the studies are carried out inside the academic settings out into practice. As a result of this cooperation, industrial organizations can obtain the technical information and scientific data they need from universities in return. From the point of view of universities, these collaborations increase the fields of application, especially in the areas such as medicine and engineering. This mutual collaboration can accelerate the scientific, technological, and economic development of the countries. By collaborative industry-university partnerships between Başkent University and Siemens Healthineers, mutual development is aimed in the

fields of healthcare technology, science, industry, and production.

Innovation Think Tank (ITT) is part of Siemens Healthineers Chief Technology Office. The global ITT infrastructure of 72 programs and activity locations, supports the identification and creation of business opportunities and contributes to the implementation of the solution. [1]

ITT is based on the idea of collaborative innovations with the goal to create a global self-sustaining innovation infrastructure for developing the most cost-effective healthcare processes and solutions for treating patients. Tapping the potential of the existing multi-disciplinary know-how, intercultural diversity of Siemens Healthineers and its partners, ITT solves interdisciplinary problems and generates new ideas.

Başkent Healthcare Group was established in 1985 by Prof. Dr. Mehmet Haberal. Prof. Haberal, who has also founded Türkiye Organ Transplantation and Burn Treatment Foundation, established the Haberal Education Foundation in 1986, to meet the need for higher education institutions and to establish a modern education system through Başkent University in 1994.

Başkent University aims to graduate their students with the universal knowledge and experience in the fields of health, education, humanities, law, communication, arts, environment, industry, trade and technology. Working coherently with its various offices and centers, Başkent University creates a holistic outlook in the field of healthcare and healthcare technologies. Among these sub-departments, the partnership with Innovation Think Tank plays a prominent role in the technology development and entrepreneurial aspects inside Başkent University Knowledge, Innovation and Technology Transfer Office (BİTTO) and Başkent University BiyoTek Technology Development Center.

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Başkent University Knowledge, Innovation and Technology Transfer Office (BİTTO), aims to provide services that cover the commercialization processes of knowledge, inventions, and innovative products that emerged as a result of scientific research at the university, to encourage entrepreneurship and to support both students and researchers. Başkent University BiyoTek Technology Development Center was established to encourage entrepreneurial candidates to implement their innovative and research-development business ideas, and to support rapid and sustainable development of their projects in the start-up companies they will establish.

The initial contact between Başkent University and Innovation Think Tank stemmed in 2017 through a success story by one of the ITT's certification programs. The Innovation Management and Leadership Programme (IMLEAP), carried out jointly by Siemens Healthineers ITT and Boğaziçi University, aimed to teach and implement innovative approaches to university students globally since 2015.

In March 2017, a group of bachelor's students studying at Başkent University was accepted to the experiential learning IMLEAP program. Through this program the teams were asked to observe and implement ITT's unique innovation methodology during their hospital visits to create project concepts. These projects were later reviewed by a diverse group of juries who came from both the prestigious academia as well as the healthcare professionals.

The team from Başkent University presented their idea of a hospital navigation system, Nav-X. Expressing the first step in ITT's innovation methodology, acquiring the mandate, the project was built on a pressing need to provide a clear form of navigation to incoming patients. This system could replace the current structure which took valuable time away from the pressure on the hospital staff to constantly provide direction to the patients.

The project concept was praised by the jury in IMLEAP and was awarded first place along with an invitation to participate in the External ITT Exhibition (eITT) 2017 where global projects from different institutions were presented and competed in Siemens Healthineers Headquarters in Erlangen Germany.

In between the two competitions, the Nav-X team was able to improve their project concepts and create a working prototype with the support from their www.siemens-healthineers.com/innovation-think-tank

university. With its direct patient-oriented approach, Nav-X was again awarded first place among 32 global projects in eITT 2017.

The project drew attention and praise with its direct patient-oriented approach and was guided to take the next steps to creating a product out of the established concept. The team was mentored by both Innovation Think Tank and Başkent University towards creating a startup.

The resulting product which created a map of the route in the hospital environment provided easy-to-understand mapping, specific to the hospital. These maps were accessible both as a printed copy or on a mobile app and presented the inquirer a clear route with the easiest and quickest way to reach the requested. Additionally, through Nav-X kiosks patients can get a queue number before going to the departments, directions the nearest pharmacy on duty, and "suggestion/ complaint" features.

Nav-X is currently installed in Başkent University Hospital in Ankara.

Following the success of the Nav-X team, Başkent University and Hospital Group invited the founder and head of ITT Sultan Haider to partner in the creation of a "health innovation center" located inside the university campus. After a 2-day workshop was conducted with all related stakeholders to create the vision and the roadmap of the center. As an outcome, it was decided to position this center and Başkent as a model for a collaborative partnership under university-industry cooperation.

Başkent University Health Innovation Center BUCHI, which was established within the framework of the cooperation of the German Industry Giant and Ankara Development Agency, was inaugurated. The opening ceremony was attended by the Founder of Başkent University, the President of the World Organ Transplantation Association, Prof. Dr. Mehmet Haberal, Rector Prof. Dr. Ali Haberal, Siemens Healthineers Innovation Think Tank Director Sultan Haider, Siemens Türkiye CEO Hüseyin Gelis.

In 2019, a grant was given to the Başkent ITT (previously name Başkent University Center of Health Innovations – BUCHI) by the Advanced Technology Product Commercialization Unit of the Ankara Development Agency. A fully equipped prototyping center was established upon this grant, created under the specific goal to benefit healthcare globally [2].

Between 2017-2018 and 2020-2022, two fellows (Aysema KOSKOS and Mete Çağan EYİDOĞAN) were

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employed by Siemens Healthineers in Başkent ITT for developing new projects.

Başkent ITT aims for self-sustaining innovation infrastructures to develop the most cost-effective healthcare processes and solutions for treatment and

to ultimately create global start-ups out of this ecosystem. To serve this purpose, Başkent ITT establishes and maintains various interdisciplinary collaborations with the medical industry and health institutions and provides access to a fully equipped prototyping laboratory.

Materials and methods:

Başkent ITT has become a strong basis for co-creation and innovation activities in the field of healthcare. Among a diverse option of activity varieties, the participants were selected from multidisciplinary bachelor's and master's/doctorate students currently studying within Başkent University as well as other

invited higher education institutions. Researchers, clinicians, physicians, nurses, technicians, and KOLs (key opinion leaders) from Başkent Hospitals have also participated and contributed to various Başkent ITT-led activities [Figure 1] with their knowledge and expertise in the field of healthcare.

Başkent ITT Engagement and Activities	
Knowledge Sharing	<ul style="list-style-type: none">• Hospital Visits• Disease Pathway validation• Questionnaires
Global ITT Network Activities Participation	<ul style="list-style-type: none">• eITT Speaker Participation• Student nomination of global ITT Certification Programs• Start-up Network expertise sharing
Co-creation of Joint Publications	
Trainings, Workshops and Certification Programs	
Positioning ITT within Başkent's BiyoTek Technology Center	
Joint Grant Applications for Projects	
ITT Fellowships and Part-time Working Students at SHS TR	

Figure 1: List of engagement and activities in Başkent ITT

Results

Knowledge Sharing

Başkent University and Hospitals have a broad range of highly experienced healthcare professionals within their institutions across Türkiye. This strong

knowledge base has been a valuable source of information for various global ITT projects.

Through conducting hospital visits, questionnaires, and workshops, inputs from Başkent professionals have shaped many product definitions and validation projects since 2018.

These projects ranged from point-of-care device use cases to clinical insights on cancer care plans.

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Global ITT Network Activities Participation

Başkent ITT is highlighted in ITT's yearly external events by being represented in keynote speeches, presentations, and panels. Experts from Başkent have been invited to global ITT programs to share their knowledge and participate as jury members. This participation was conducted both ways, having Siemens Healthineers ITT representatives take the role of mentors and jury members in various activities led by Başkent University as well.

Başkent University has also been nominating its students to take place in ITT's global certification programs where the participants received training on the ITT methodology and worked on projects in the area of innovative healthcare solutions. Participating teams from Başkent University presented great success in these programs and have been distinguished by the jury members numerous times.

Co-creation of Joint Publications

Başkent ITT has jointly created a guide document for Health Innovation Management. This document aims to provide a clear understanding of the innovative approaches of ITT and how they could be implemented inside the Turkish healthcare and entrepreneurial settings.

ITT's unique terminology has also been displayed in Başkent Technology Transfer Dictionary which aims to introduce innovation and technology transfer-related words to the industry professionals. The document is currently being reviewed prior to publishing.

Trainings, Workshops, and Certification Programs

The facility of Başkent ITT laboratory contains a fully equipped environment where a wide range of trainings could be provided to healthcare professionals, students, and related entrepreneurs. These unique trainings have developed both the expertise within their participating population as well as guide and lead the innovation culture within the institution.

- Prof. Sultan Haider gave a speech titled "Proactive Need Driven Innovations: Using Innovation Think Tank" at the 20th Student Symposium of Başkent University Faculty of Medicine. After the speech, the Workshop on Innovative Ideas in Healthcare was conducted at Başkent ITT.
- A seminar was held on patentable and non-patentable inventions, pharmaceutical and

medical use patents, and medical device patents in the healthcare sector.

- Within the scope of the research titled "Analyzing the Efficiency of Technology Transfer Offices", interviews were held with academics working with TTO and companies, entrepreneurs, public institutions, investors, and research centers that benefit from TTO or are stakeholders of this ecosystem.
- The ideathon event focusing on viral outbreaks and early detection systems was held online. 64 participants who participated in this event developed projects for the prevention of viral epidemics after a 3-day training on artificial intelligence applications in health.
- A seminar on commercialization was held for start-ups and new entrepreneurs
- Başkent ITT Production and Prototyping Training Program was carried out with 3-week-long trainings on Manufacturable Designs, Production Costs, Prototyping Techniques, 3D Modeling topics
- Diabetic Wound Healing Workshop and Ideathon Competition was hosted by Başkent ITT and facilitated a holistic approach to wound healing for diabetes patients. The workshop was the first event organized in Türkiye directed to the attendance and inputs from expert specialists from endocrinology, plastic surgery, orthopedics, traumatology, burn and wound healing departments. Presentations of Başkent University physicians and nurses on the problems encountered in the Diabetic Wound Healing pathways were held within the scope of this workshop. Başkent University Scientific Research Projects Funding and laboratory and office facilities were provided for the best 5 projects and gave them the opportunity to bring their ideas to life.

Positioning ITT within Başkent' s BiyoTek Technology Development Center

Başkent University BiyoTek Technology Development Center is the first biotechnology-themed technology development center established in Türkiye. The center aims to fill a very important gap in the ecosystem by developing in this area.

BiyoTek, which was established with a focus on biotechnological production for the future, offers opportunities such as conducting R&D processes, prototyping, and determining marketing strategies for products such as biotechnology-based drugs, biomedical device biomaterials, artificial tissues, and diagnostic kits in the medium/long term.

Inside this unique setup, Innovation Think Tank is represented as 3 chairs within the advisory board. With Başkent ITT also listed among the companies that form the center, BiyoTek center acts as a bridge between Innovation Think Tank and the entrepreneurial world.

Joint grant applications for projects

Başkent ITT program also creates the necessary infrastructure to work on multidisciplinary projects. A recent example of this infrastructure was the joint application to the European Erasmus + program under the "Training of Refugee Offenders by Virtual Reality – TRAIVR" project. The aim of the project is to close the language barrier gap and provide rehabilitation for substance user refugee probationers through developing a virtual reality program to improve their coping skills. This project will involve working together with multidisciplinary institutions from different countries. Innovation Think Tank Headquarters team has taken responsibility for the technical aspects of the virtual reality program while the entire project will be led by Başkent University.

The know-how obtained from this project example is aimed to be transferred to potential future projects under Başkent ITT's umbrella.

BİTTO and Siemens Healthineers has applied to a SME Mentoring Grant program (BIGG+) supported by Scientific And Technological Research Council of Türkiye.

ITT Fellowships and Part-time working students at SHS TR

Innovation Think Tank's fellowship programs offer the opportunity to work and take part in the global ITT projects to over 200 students every year. Students from Başkent University have graduated from the ITT fellowship programs and have contributed to

numerous global projects. These fellows have also taken leading positions within their careers and have continued to represent their acquired knowledge and experience of ITT's unique approach to healthcare innovations.

Başkent University students also receive the opportunity to apply to a part-time working student position within Siemens Healthineers Türkiye. Başkent University and Hospitals have a broad range of highly experienced healthcare professionals within their institutions across Türkiye. This strong knowledge base has been a valuable source of information for various global ITT projects.

Discussion

When observing the gap between academic and industrial settings, it is evident that collaborative activities and partnerships are key factors to grasp a futuristic approach to technology development and commercialization. With the presented examples, the collaborative activities held jointly by Başkent Healthcare Group, Başkent University, and Innovation Think Tank could inspire the creation of university-industry partnerships in different principles and settings globally.

These engagements provide evidence that R&D activities in universities and industrialized companies can be increased. Both settings can collaboratively work closer to scientific and technological developments to produce unique technology and compete with the international market.

University-industry cooperation ensures that industries have sufficient technological knowledge. With this cooperation, universities are directed to the fields needed by the industry, and the scientific and technological bases of engineers are strengthened.

Resources allocation could be used more efficiently. In this way, it is aimed that both industrial organizations and universities work with the principle of resource-benefit-efficiency.

In this context; with the university-industry cooperation between Başkent Healthcare Group, Başkent University, and Innovation Think Tank, mutual development could be aimed through the knowledge sharing platforms, co-creation grant applications, global engagement activities, and action items.

Conclusion

Over the past 5 years, a strong partnership was created out of Başkent Healthcare Group, Başkent University, and Innovation Think Tank at Siemens Healthineers. This partnership, born directly out of a need for evident collaborations between the academic and industrial settings has shown methods to bridge the gap that is a global concern.

This paper provides a chronological basis and action item examples on how strong collaborations could be implemented in other institutions and settings.

As the introduced partnership continues with Başkent ITT, the joint interest to extend and facilitate commercialization in healthcare could continue to pioneer its way both inside the Turkish as well as the global healthcare settings.

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Acknowledgments

“The Innovation Think Tank enables Healthcare providers to establish their own innovation infrastructure to address their local project requirements. I am always proud and happy to present Başkent ITT as a best example of our presence and activities around the globe”



Prof. Sultan Haider- Head of Innovation Think Tank



Enis Sonemel
- CEO of Siemens
Healthineers Türkiye

“ITT uniquely connects Siemens Healthineers to the finest domestic and international institutions for co-creation opportunities. One of our best living examples is the Başkent ITT Lab that enables us to connect with the leading researchers and professionals within the healthcare ecosystem. Having carried our activities a step further through the institutionalization of Başkent ITT, we are now able to connect with start-up companies as well and support them via various training and mentorship programs. We are very proud and happy to leave our mark on the healthcare ecosystem by way of this unique partnership”

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“Since the foundation of Başkent ITT we have been able to foster creation of innovative ideas in health technologies. Now, with the development of Başkent University Biotechnology Development Center, Başkent ITT will be able to cultivate innovation in the biotechnology field as well. As the Başkent Family we hope to keep close contact with other global ITT institutions and encourage new ideas to come true in healthcare systems and biotechnology.”



Prof. Dr. Ali Haberal, MD, FACS -
Medical Director of The Health Institutions
& The Deputy President of the Executive Supreme Board of Başkent University



“As Başkent ITT, which is carried out in cooperation between Siemens Healthineers and Başkent University and Başkent Hospital Group, we have been serving the purpose of implementing innovative medical products and ideas since the day it was founded. I am happy for the continuity of our cooperation and the implementation of business ideas, including the development of start-up projects, in order to ensure repeated and sustainable development in the field of medicine with Başkent ITT.”

Arzu Firlarer -
Managing Director of Başkent University TTO
Operational Director, Başkent Innovation Think Tank

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Published by

Technology Excellence
Technology and Innovation Management
Innovation Think Tank Global Headquarters
Henri-Dunant-Str. 50, 91058 Erlangen, Germany
Contact: innovationthinktank.team@siemens-healthineers.com