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**The Need for Evolution of STP Services**

*Workshop 1  
"Rethinking STP services"*

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**Executive Summary:**

STPs play a major role in our today's knowledge economy. Especially with Industry 4.0, the way we live, the way we work, the way we think needs to change and evolve. Start-ups and SMEs are the engine of the economy and surely they will be key players in industry 4.0 revolution, if we consider that they will be the ones who define our futures with the technologies they develop. Of course STPs who are hosting and accelerating these companies should also need to change and evolve. In this paper, we will discuss some of the services provided by Teknopark İstanbul to its residents and some of the services evolved within time and the future suggestions of evolutions in services within the context of increasing performance of STPs.

**Full Paper:**

STPs provide services to their residents in order to increase their competitiveness at national and global scale. Some services are provided in the form of consulting and others in the form of facilitation and guidance. The competition is fierce and everything evolves extremely fast. The knowledge economy, Industry 4.0 revolution are phenomenal changes affecting all markets. Therefore, the services provided to the STP residents should also evolve as fast as the technologies developed by these residents. Hereby we present Teknopark İstanbul case with the services in place, new services offered and evolved services just initiated to be provided. All of the new services are designed according to the residents' feedbacks and as a result of the impact measurement.

Here are some of the specialized services provided by Teknopark İstanbul:

**Some of Specialized Services Already in Place:**

- Clustering: Inter-firm cooperation and clusters affect the innovation performance of SMEs. STPs provide facilitation of cluster formation and cluster management.
  - Teknopark İstanbul facilitated 1 cluster formation and is still the coordinator of 2 other clusters actively contributing to the management.
    - SAHA İstanbul Defense and Aero-Space Cluster: Established in January 2015 SAHA İstanbul brings together industrialists from different sectors to transform them into world-class aero-space and defense companies. They have about 200 members as of November 2016. This cluster recently won a government grant from Department of Economy for internationalization of these companies.
    - İstanbul Life Sciences Cluster: This cluster is based on University-Industry cooperation and brings together 10 universities and approximately 100 companies. The know-how generated by this cooperation has resulted in the establishment of pilot production facilities (medical devices, drug, etc.) and Bio-Design programs.
    - Maritime Cluster of Ship Design and Engineering Services Companies: This cluster will bring together the R&D branches of shipyards in and around Teknopark İstanbul and equip them with tools for globalization. Their core expertise is ship design and engineering services.
- Techno-Support Program: Intellectual property is one of the critical factors affecting the success and commercialization of SMEs and thus STPs. Techno-Support is a funding programme increase the number and improve the quality of the patent applications from the resident R&D companies in the park. Teknopark İstanbul gives grants to SMEs and start-ups to make the patent application and also supervises the life cycle of the invention disclosure processes.

- **Techno-Intern and Techno Co-Op Programs:** Human capital is the most important and crucial factor that a company can rely on for success. Techno-Intern is the name of the internship programme facilitated by Teknopark İstanbul. It collects CVs from Universities and talent requests from companies, matches those that seem to be fit for each other and setting in-place meeting with the companies in the park. Also each intern, who is approved by the Selection Committee of Teknopark İstanbul, is awarded with a small fund covering his/her meal expenses and transportation services to the park during the internship period ranging from 20 days to 60 days.
- **Techno-Tour Program:** STPs play an important role for the society's awareness in science and technology along with all the services provided to the technology developers. Techno-Tour Programme helps K-12 students to learn more about Teknopark İstanbul and other STPs, their vision and facilities together with some practical experiences in some of the selected companies. Students meet engineers in practice and make informed career decisions. This service is also a part of our vision to encourage innovation culture.

After carefully implementing above programs and services for 3 years, Teknopark İstanbul regularly collected feedbacks from the STP residents and measured the impact of the services and impact of the companies in our economy. Based on the responses and the results, sometimes we added a new service or modified and replaced the existing service. We plan to explain the evolution by discussing new services added to our portfolio, how they differ from the past versions, what has been added and what achievements have been made after the evolution. Following services are the relatively new ones added to our service portfolio along with the evolved ones.

#### **New Services Introduced in Year 2016:**

##### Sectoral Cooperation Days:

This service can be defined as a series of meetings to promote inter-firm cooperation within an STP. Technology Transfer Office (TTO) of Teknopark İstanbul periodically organizes meetings for companies from the same sector in order to facilitate cooperation projects and help companies to find partners or subcontractors for different needs of expertise. At the moment these sectoral cooperation days are organized once every 6 months for each sector. Teknopark İstanbul has 6 thematic areas, defense, aviation and space, maritime, life sciences, energy, industrial automation, advanced materials and advanced electronics. At the end of each calendar year, all companies from all sectors are invited to meet up. Agenda of the meetings and facilitation methodology is determined according to each sector and by considering the competition level and the existing relations among the companies. Sectoral Cooperation Days are also used as a tool to plan new clusters within Teknopark İstanbul and function as a preparation platform for these clusters.

#### **Talent Management Programme: An Evolved Service in Year 2017:**

This programme is planned as a combination of Techno-Tour and Techno-Intern programmes and adds features to reach at a larger groups of young people (university students and highly skilled fresh graduates). During the implementation of Techno-Intern and Techno-Tour, feedbacks have been collected from the participants (both young people, interns and companies) and this year the

programmes have been merged and re-designed as Talent Management Programme. This programme will be more than an internship match making programme. It will include a social media tool for both applications and sharing experiences. During the period of internships, a special training programme about technology and innovation management from keynote speakers from all over Turkey and all over the world will be planned and implemented for them. This programme has also a new element to help the STP residents to access to highly skilled labor force. A job fair will be organized every year in March as a part of the Talent Management Programme. Job fair will also be a tool to collect applications of interns and fresh graduates for STP residents. Evolved service is in place now. It started with the job fair in March and now matchmaking for internships are having been performed.

### **Techno Check-Up as an Evolved Service in Year 2017:**

This is a new tool planned for STP residents. Normally each resident of STP is exposed a technological audit after taking its spot in Teknopark İstanbul by TTO. This audit comprised of a set of 10 questions developed by Enterprise Europe Network(EEN) team in Istanbul. Initially, TTO of Teknopark İstanbul addressed and analysed following perspectives in 51 companies of Teknopark İstanbul.

- Technology Identification
- Technology Selection
- Technology Acquisition
- Execution
- Learning
- IP Protection

This analyse showed a comparison of the company with other companies in same sector in our ecosystem as well as with other companies in general according to those 6 items. A mini action plan has also been developed to contribute to the needs identified during these analyzes. Action plan items defined at that time were only valid for 3-6 months but obviously after we tried to execute the items, we have found out that some of the items needed more time and we have also seen that some aspects of the company's needs are not covered or needs changed.

Therefore we have planned Techno Check-Up to analyse, to diagnose and to help the company. Action plan is a kind of prescription given to resident company. While a start up is given 5-6 action items for 12 months period of time, a more matured company is given 2-3.

To formulate the check-up, an European instrument has been used as basis. It's called as SME-MPower tool[1]. It is originally a result of an EU funded project. Then it was successfully used by several regions in Europe successfully and became a tool for SME-Instrument Programme in 2014 with adoption of coaching scheme. However, Teknopark İstanbul also modified the tool and the outcomes according to the local needs of SMEs and start ups in Teknopark İstanbul.

Teknopark İstanbul TTO uses Techno Check-Up (modified SME-Mpower) as a beginning point to help a company and creates a unique and standardized action plan according to its services portfolio, which was not originally present in SME-Mpower.

Please see Table 1 which was derived from SME-MPower's analysis set with the combination of Teknopark İstanbul TTO's input from previous 51 audits and activities in ecosystem.

As you can see from the Table 1, soft factors such as strategy, market, organization, operational processes, etc. are a big part of the analysis. After 45 analysis done in Teknopark İstanbul TTO, we have

found out that these soft factors are important issues affecting the success of start up and SMEs and originally we intended to provide only recommendation for these items and monitor the results. But we've seen that these factors are crucial and they require our attention and different types of services are needed in that area other than monitoring. Now we're planning to add services in that areas such as strategy workshops, and soft skills training and etc. Along with adding new services, usual services such as consulting for accessing to finance mechanisms, Techno Support Programme for patent applications, business matchmaking to establish partnerships, consulting and guidance on preparation of investor pitches, mentor assignments, etc are going on to be provided as it's planned in the action plan's period.

The list of the needs in Table 1 leads the company to a sophisticated action plan that will be realized by TTO. Combined efforts of company and TTO will make the action plan real and all metrics and achievements will be recorded, which will help to measure the performance of STP along with the impact created by TTO.

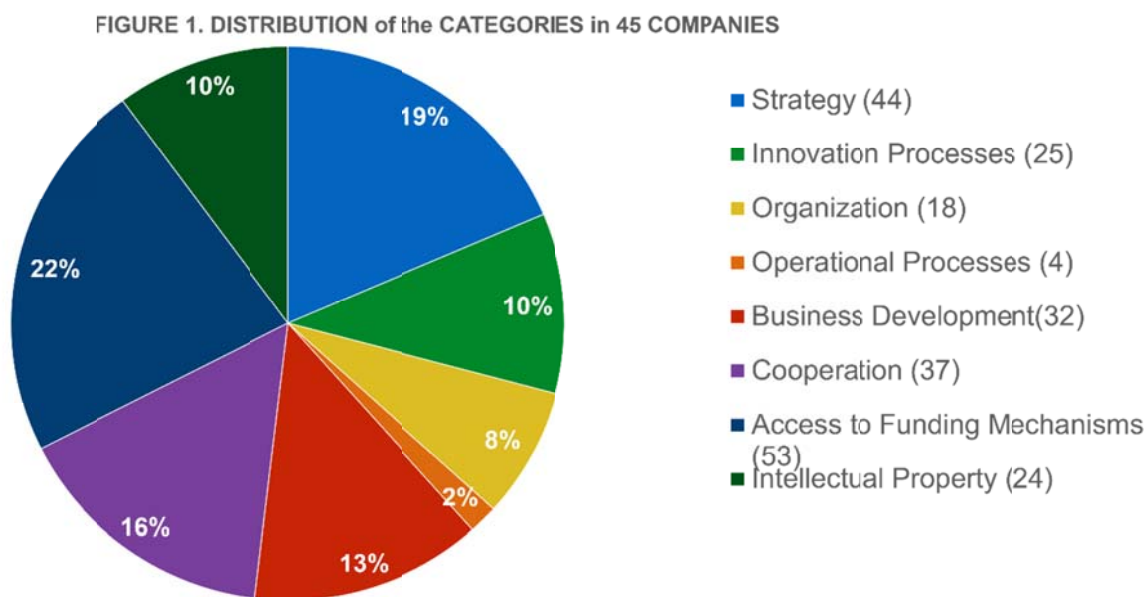
Table 1. Techno Check-Up's analysis categories for start ups and SMEs in Teknopark İstanbul (Built from SME-Mpower tool with modification and combination of Teknopark İstanbul TTO's experience in the ecosystem)

Category of the Needs	Identification of The Needs
Strategy	Strategic Plan Development
	Business Plan Development
	Market Analyzes
Innovation Processes	Idea management process development/improvement (idea development, collection and selection)
	Project development and management processes, development/improvement
	Technology Management, innovation management, R&D management
Organization	Organizational structure analysis/improvement
	Human resources' competencies analyzes/improvement
	Innovation culture
Operational Processes	Analysis/Improvement of production/quality/information management processes
	Prioritization of identification of non existing processes
Business Development	Analysis of customer relations and commercial networks and improvement
	Identification of business opportunities
	Market development and interaction/synergy with markets
	Analysis of Project idea verification (technical or commercial)
Cooperation	Analysis/Improvement of cooperation potential with different stakeholders
	<ul style="list-style-type: none"> <li>• Cooperation with universities and Research organisations</li> </ul>
	<ul style="list-style-type: none"> <li>• Analysis and evaluation of the potential with surrounding industries</li> </ul>
	<ul style="list-style-type: none"> <li>• Evaluation of cooperation potential with other companies (including technopark and clusters)</li> </ul>
	<ul style="list-style-type: none"> <li>• Evaluation of cooperation potential with foreign companies (Networks such as IASP and EEN)</li> </ul>

Accessing to Finance Mechanisms	Analysis of the needs for national/international finance mechanisms
	<ul style="list-style-type: none"> <li>• Accessing to national finance mechanisms</li> <li>• Accessing to international finance mechanisms</li> </ul>
	<ul style="list-style-type: none"> <li>• Analysis and evaluation if investment readiness level</li> </ul>
Intellectual Property	<ul style="list-style-type: none"> <li>• Analysis of IP that can be the subject of patent/utility model/trade mark applications, etc.</li> </ul>

Up to now(at the moment of writing this paper), 45 companies have been analysed with Techno Check-up and their action plan has been defined according to the needs template in Table 1. Some of the items in the action plan of several companies have been initiated. Up to now, we only measure the customer satisfaction and the number of active needs reported during these analyzes. Please see Figure 1 to see the numbers of needs identified in 45 companies of Teknopark İstanbul. 45 companies also include start ups. A total of 247 needs have been listed during these check-ups. We plan to address them in the following 8 months.

Figure 1: Results of Techno Check-Up's for 45 companies(incl. start ups) in Teknopark İstanbul



Here's how this new tool works and how it used to be before evolution:

- Earlier: It just had an evaluation methodology comprising of a set of 10 questions and basically seeked the critical needs to form an immediate action plan.
- Now: It's based on a sophisticated methodology based on SME-MPower tool and a standardized action plan item set which will allow even a junior staff will follow up the progress.
- Earlier: It created a spider chart showing comparison according to the companies in the ecosystem and a mini action plan only aiming to identify the adequacy for EU funding and possible interest in EU funded consortiums.
- Now: It creates a sophisticated action plan that will be followed and executed by TTO and a company scorecard showing the performance metrics of both company and services of STP on company.

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- Earlier: It was only a tool that can be used for SMEs
- Now: New tool is used for all types of companies including start-ups.
- Earlier: The analysis was just the opinions of the evaluator.
- Now: TTO can also make input to the analysis with the quantitative data from STP's project portal.
- Earlier: It was a passive tool. The request related to the action plan within the evaluation should have come from the company.
- Now: It's an active and living tool. TTO will follow up and proactively push the company to realize the items.
- Earlier: All analyses were self-funded by STP management company.
- Now: Techno Check-up is shared within a project proposal submitted to TÜBİTAK (National Science and Technology Council of Turkey) and it was partly funded by them. 80% of the finance needed to collect data for Techno Check-up and compile the reports were funded.

The most unique part and the evolution through Techno Check-up is the addition of a sophisticated action plan and the company scorecard. Action plan addresses all the needs analysed in Table 1 and company scorecard will be the summary of R&D and innovation management performance of the company along with the impact created within our ecosystem.

Moreover, earlier the tool used by TTO did not include any analyzes about possible licencing opportunities hence the focus on dual use. Both opportunities

As we dealt with our ecosystem, we have found out that there are enormous dual use opportunities waiting to be proactively encouraged and supported. Our action plan also include this item, which has never existed in our previous services.

#### **Future Implications and Suggestions for Techno Check-up:**

As a future plan, we hope to integrate this new tool to project portal of Teknopark İstanbul, so that every progress in the company is monitored instantly and a comprehensive reporting can be provided easily by TTO.

From the audits to SME-Mpower, from SME-MPower to Techno Check-up, a real evolution in our services has taken place.

Techno-Check-Up is now in place, action plans in the form of a recipe have been prepared and 3 months of execution period has been completed, 9 months to go. We plan to go back to each of those 45 company at 6<sup>th</sup> month to check and report the progress. Please see Figure 1 to see the category of the needs listed in 45 companies(including start ups) in Teknopark İstanbul.

Final aim of Techno Check-Up will be to create a company scorecard at the end of every 12 months and answer the most difficult questions for science parks?

- Are we really achieving our mission?

Our services have been creating an impact on SMEs and start ups, thus the economy, but how much are we really affecting?

We hope to answer to these questions case by case within company scorecard. Basic figures, quantitative and qualitative data from the analyses and action plan's results will be compiled into the scorecard and every 12 months, this scorecard will be updated along with the action plan attached to it.

### **Conclusions:**

- Teknopark İstanbul's journey to design the best services to increase R&D and innovation performance of SMEs and start ups initiated with technology audits from 6 perspectives in 51 companies in year 2014.
- Audits have been made to analyse the ecosystem and to understand the portfolio.
- During the journey, more services have been added to service design, Techno-Intern, Techno-Tour, Clustering Programmes, Sectoral Cooperation Days and others.
- A new and modified form for audits have been needed to understand the needs, to measure the performance of STP residents and to really understand the impact we have create on companies with our services.
- It has been a long journey, different tools have been combined and modified according to the local needs of our ecosystem on basis of SME-MPower of EC in year 2016. We named it as Techno Check-up.
- An action plan including standardized items according to the needs and a scorecard have been added to the Techno-Check-up in year 2017.
- Techno Check-up has been used for 45 companies and their action plans have been created in 3 months and action plans have started to be executed.
- At 6th month, action plans will be updated and at 12th month, company scorecard will be prepared to measure our services' impact and the company's situation in its life cycle in Teknopark İstanbul.

### **References:**

1. **SME-MPOWER - Empowering SMEs for long-term research interest and increased participation in EU RTD activities is a Project that SME-MPower tool is developed. Project is funded in a FP6 funded Project. Project ID: 23401**