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**VALUE PROPOSITION OF STPS FOR RESIDENTS  
AN ANALYSIS: BILKENT CYBERPARK COLOR  
AND DIVERSITY – ESSENTIAL INGREDIENTS  
OF AN ECOSYSTEM**

**PLENARY SESSION 2**

Companies' profiles in STPs/AIs: addressing  
different needs

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## VALUE PROPOSITION OF STPs FOR RESIDENTS

### AN ANALYSIS: BILKENT CYBERPARK

#### COLOR AND DIVERSITY- ESSENTIAL INGREDIENTS OF AN ECOSYSTEM

“Strength lies in differences, not in similarities”  
– Stephen R. Covey

#### STPs , The Idea of an Technology Ecosystem

STPs have varying roles and responsibilities towards different stakeholders. It is by nature that each stakeholder has a priority list of its own. STPs strive to satisfy each and every member of the triple helix formed by the academia, industry and state and they pursue programs with various targets at different stages of development. Yet, for the sake of long term sustainability, one ultimate target remains, that is “providing the most complete and most developed ecosystem possible”.

Ecosystem is defined as a community of living organisms (in STP case companies) in conjunction with the nonliving components of their environment (physical infrastructure) interacting as a system. These components are regarded as linked together through nutrient cycles and energy flows (business interactions)<sup>1</sup>. A sustainable and self-standing STP is one where members have a similar conjunction with not only each other but also with the physical environment that they are in, therefore creating a viable and preferred living space for all members. STPs that cannot establish such an ecosystem over time are bound to be dependent on continuous grants, subsidies and what comes along with them.

Reserving STP opportunities entirely for a selected audience whether it be a business size or age or focus can impose a serious limitation regarding this very ultimate target. Specific programs that temporarily favor entrepreneurs which fit a certain criteria (e.g biotech bootcamps, on-line gaming incubators) are essential components for the healthy growth of the ecosystem and should not replace the overall mission of the STP.

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<sup>1</sup>  Odum, EP (1971) Fundamentals of ecology, third edition, Saunders New York, ISBN 0534420664

## Large companies in STPs- Why The Public Antipathy?

Should large companies take place in STPs is an age old debate. There is a party who dislikes the idea significantly and argues that STPs are places of “support” and should not be “contaminated” by large companies. For them, large companies do not do much but occupy space and impose their highly capitalistic views into the system. Increased rent rate is a major, although indirect, evidence of their argument.

Small companies who are on a waiting list of a full STP, usually favor this argument. They blame the existing large companies for their wait. Large companies occupy too much space, some complain. Ironically, questionnaires<sup>2</sup> indicate that those very companies are among the reasons behind their attraction in the first place, therefore cause the high demand that they complain about.

One other party who favors this argument is the ones who confuse STPs and incubators. This confusion reduces the STP's reason of existence from a big and colorful ecosystem to that of an incubator. STPs exist to offer that and much more. Such a “shelter-only” approach also draws boundaries around the vision of the small companies by keeping the role models and inspirational success stories out and beyond their reach. Besides, incubators generally are not designed to be profit generating institutions. They need to be funded by external resources throughout their lifetime. This argument also leaves the question, who will pay for them all, unanswered. About 90 percent of American incubators operate on the Elvis-era nonprofit model, taking funds from cities, chambers of commerce and universities, and helping people with little more than good ideas get training, cash and office space<sup>3</sup>.

Incubators, accelerators, startup supports, and other entrepreneurial assistance programs do receive more public attention, this is a fact. They usually are pro-bono or highly subsidized services, with little to none profit expectation in the end. Almost all of them have sponsors, and the possibility of a repetition in the future is usually not certain for the same reason. These events resemble social responsibility programs that are designed to be “publicized”. Public knows about them, likes them and wants them to continue. However, even corporate social responsibility programs have a budget and public would probably want more, if asked. STPs cannot behave as charities for prolonged periods of time. In fact, the most successful science parks are those that have benefited from a continuity of entrepreneurial leadership<sup>4</sup>.

On a different note, large corporations, or fittingly described as anchors, are essential components of the ecosystem. One simply cannot have a flourishing entrepreneurship ecosystem without large companies to cultivate it, intentionally or otherwise<sup>5</sup>. They contribute majorly to the financials of the STP thus make the above mentioned “support” programs possible. They also create new business opportunities, attract smaller companies and improve the overall corporate image of the STP overnight. Exceptionally large companies hold exceptionally large magnetic powers in terms of company attractions. One can say that, the Research Triangle Park success story begins not with the year 1957 when area development efforts were first triggered, but with the year 1965, when IBM and National Environmental Health Center announced that they are locating their facilities to Research Triangle Area. Everything else just “followed”. *“Beyond providing jobs for North Carolinians, the 1965 expansion of IBM into the Park set the stage for an influx of highly-trained workers attracted to the state.. It's no surprise now that the Park is now home to 170 companies that include Biogen Idea, Syngenta, United Therapeutics, Cisco, Bayer CropScience, Eisai and BASF”*<sup>6</sup>

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<sup>2</sup> see Chapter Technology Ecosystem- Expectations Galore

<sup>3</sup> A New Take on Incubators, Today's incubators provide cutting-edge support for your startup , by Dennis Romero, <http://www.entrepreneur.com/article/201228>

<sup>4</sup> The Growth of Research Triangle Park ,Albert N.Link, John T. Scott, Small Business Economics, Volume 20, (March 2003), pp. 167-175.

<sup>5</sup> When Big Companies Fall, Entrepreneurship Rises, Daniel Isenberg, HBR Blog Network,

<sup>6</sup> 7 Reasons It's Finally Time To Live In Research Triangle Park, by David Kroll, Forbes, 2/4/2014, <http://www.forbes.com/sites/davidkroll/2014/02/04/7-reasons-its-finally-time-to-live-in-research-triangle-park/>

In addition, large companies in the overall business ecosystem have the potential to provide important leverage for early-stage companies in their growth and development.<sup>7</sup> In return, they benefit from the various university collaboration opportunities and human resources made available for them by the STP as well as other managerial advantages. They require subcontractors, solution partners, consultants and they are constantly in search for companies for potential investments, buyouts or future partnerships.

Large companies also hold higher office standards. They do not pick mediocre buildings as their offices. They not only request high quality working environments but also require many services to be professionally handled by their landlord. Catering, transportation and security are just to name a few. In general terms, by demanding these services, they raise the bar for everybody in the STP. It is too simplistic to deduce this into “increased rent”. Large companies do not raise the rent, improved services do.

In sum, cause and effect fallacies should not derail the STP from its mission. STPs cannot afford to leave large companies out is a mere understatement.

### Technology Ecosystem- Expectations Galore.

STPs offer varying value propositions for different companies, at different stages of development. Each company chooses to locate to an STP for its own reasons. Once in, benefits they get from STP continues to differ as well.

In this framework, who needs what and why is a key question to be asked. This basically draws the roadmap of a successful STP management. In very brief terms, it is a general understanding and expectation that STPs play a “nourish, boost and shelter” role for start-ups through pre-incubation , incubation programs and alike. For mid-size companies with a history of revenue generation, STPs provide a much required “stage and exposure” opportunities by commercialization and promotion supports, matchmaking interfaces and introductions to Business Angels and other important networks. For large corporations and multinationals, on the other hand, STPs role is rather to provide them with a professionally managed ecosystem, university collaborations and joint research programs.

In this study, it is aimed to answer the question in a more methodical way. Questionnaires and interviews made with the tenants of Bilkent Cyberpark are used as a reference.

Established in 2002, as a joint establishment by Bilkent University and its affiliate Bilkent Holding, Bilkent Cyberpark is among the leading STPs of Turkey. Founded on 39.2 hectares of land with a total of 100,861 m<sup>2</sup> of office space in 13 buildings, Bilkent Cyberpark stands as a strong role model for emerging STPs. It currently hosts 213 companies and 9 Research Centers with a total of 3000 personnel, all employed by a wide array of members from one person startups to large corporations employing over 250 people. Bilkent Cyberpark hosts around 60 startups, 100 medium-sized companies and around 50 large companies, Microsoft, Ericsson, Karel are to name a few.



<sup>7</sup> Entrepreneurial Ecosystems Around the Globe and Company Growth Dynamics, Report Summary for the annual Meeting of the New Champions 2013, World Economic Forum



views of Cyberplazas, Bilkent Cyberpark, Ankara , TURKEY

In order to analyze the difference of expectations of companies at different stages of growth, a comprehensive questionnaire that was performed as a part of the “Impact Evaluation Study” by the Turkish Ministry of Science, Industry and Technology, in 2013 over Bilkent Cyberpark resident companies is used as a basis. Information gathered through periodic interviews of the tenants are also utilized for the interpretation of results.

A two-way categorization approach is used to analyze the outcome. The first categorization is one made according to the company age and the second by the number of employees.

A total of 170 companies participated in the questionnaire. The participants were asked several questions including one to indicate their reasons for locating to a technopark(used synonymously with STP) in general in a multiple choice format. The answers offered included the following choices along with a free text area for “other”.

- the financial incentives provided
- to be able to benefit from university resources (laboratories, libraries and researchers)
- inter-company partnerships, network and collaboration opportunities
- access to qualified Human Resources
- services offered by the Technopark Administration (training, seminars, cluster programs, platforms and incubation services)
- added prestige and corporate identity support, ease of institutionalization
- benefit from the ecosystem and the synergy created by its members
- other

The answers and their percentiles categorized by the criteria described are reported in Tables 1 through 4 in the following chapters.

Table 1: Why did you choose to locate in a Technopark, Answers grouped by Company Age

BY AGE		Financial incentives	university benefits (infrastructure, researchers)	intercompany relationships, partnering	access to qualified HR	services provided by Technopark Administration	Added prestige and corporate identity	to take part in the ecosystem
67 count		<b>48</b>	<b>39</b>	<b>26</b>	<b>31</b>	<b>39</b>	<b>44</b>	<b>35</b>
Less than 5 yrs	startup	<b>72%</b>	<b>58%</b>	<b>39%</b>	<b>46%</b>	<b>58%</b>	<b>66%</b>	<b>52%</b>
48 count	growth	<b>42</b>	<b>21</b>	<b>22</b>	<b>31</b>	<b>19</b>	<b>22</b>	<b>20</b>
5-10 yrs old	spurt	<b>88%</b>	<b>44%</b>	<b>46%</b>	<b>65%</b>	<b>40%</b>	<b>46%</b>	<b>42%</b>
55 count	mature	<b>47</b>	<b>31</b>	<b>26</b>	<b>33</b>	<b>18</b>	<b>29</b>	<b>26</b>
>10 yrs old		<b>85%</b>	<b>56%</b>	<b>47%</b>	<b>60%</b>	<b>33%</b>	<b>53%</b>	<b>47%</b>
total		<b>137</b>	<b>91</b>	<b>74</b>	<b>95</b>	<b>76</b>	<b>95</b>	<b>81</b>
170 count		<b>81%</b>	<b>54%</b>	<b>44%</b>	<b>56%</b>	<b>45%</b>	<b>56%</b>	<b>48%</b>

The questionnaire also included questions to see which services were of use to the tenant companies. Participants were asked to indicate whether they agreed or disagreed with the mentioned statement on a scale from 1 to 5. Table 2 reports the answers of these questions by indicating the percentage of group members who “agreed (or strongly agreed)” with the statement.

Table 2: % Agreed, by Company Age

"Agree / Strongly Agree"		Age of the Company		
		less than 5 yrs old	5-10 yrs old	Older than 10 yrs.
1	Being in a technopark has helped us for joint research project with the university	87%	85%	82%
2	Being in a technopark has helped us reach projects grants	81%	79%	65%
3	We benefited from Technopark's Technical Assistance Services	72%	67%	55%
4	We benefited from Technopark's Administrative Assistance Services	55%	56%	78%
5	We benefited from Technopark's Marketing & PR Assistance Services	36%	27%	65%

Analysis of Results

There are several important conclusions that can be drawn using these outcomes. These conclusions are elaborated in detail in the following parts. Yet, one major observation remains to be critical. Although the priorities and decision criteria for relocating to a technopark differ, one common preference - the financial incentives- holds the lead for all companies at all categories, by far. This result is a mere reflection of the ecosystem boosting policies of the Turkish government over the past two decades. To fully comprehend this effect, a brief history in Turkish R&D Policies is required.

Having realized the importance of high-value-added products on overall country competitiveness in the early 1990s, Turkish government has declared an R&D heavy support policy and initiated several programs to go along with it. The declaration of Technology Development Zones (Technoparks) and the legislation undertaken in 1991 was a part of this rigorous effort. This specific legislation, namely “Article 4691: Law on Technology Development Zones”, introduces many concepts breaking way to a whole different understanding of R&D activities in bureaucratic terms. What makes this legislation a historic development is the never-before-seen incentives it brought to the private industry for encouragement of R&D activities. With the intention of jump-starting the ecosystem, this extremely generous clause offers much to many. Introduced in the form of a “temporary clause” at the very end of the article, it serves almost all shareholders; entrepreneurs, employees and university members. It entails corporate tax immunity for companies, personnel income tax waivers for R&D personnel, value added tax immunity for software, elimination of departmental deductions for university - industry collaboration projects and permission for faculty members to take on entrepreneurial duties.

This clause, without a doubt had a very strong effect on attracting companies towards the newly established Technoparks all around the country at a time where the word “ecosystem” was still new to most people. One can safely say that if the same question was asked to the first settlers of the Turkish Technoparks twenty years ago, almost all would indicate the incentives as their one and only decision criteria, for the lack of an alternative .

Twenty years later, it is observed that there is now a 20%, of all sizes and ages, who would locate to a technopark for all the reasons other than financial incentives. Hopefully, as the ecosystem grows and deepens this percentage will increase significantly fulfilling the promise of the temporary nourishment.



The answers of companies at various ages differ rather significantly, pointing out to the fact that their “priorities” also differ. Aside from the effect of financial incentives, below are several observations that are made using the outcomes reported in the questionnaire.

**Early Stage- Start-up Companies (<5 years old):** It is observed in Table 1 that the added prestige of being in a Technopark is more important to early stage companies than it is for any other class. So is getting a ticket in to the ecosystem.

Interviews yielded similar results. Almost all of the interviewed start-ups mentioned the existence of Microsoft and Ericsson among their reasons to locate to Cyberpark. One startup was particularly thrilled to be able to use the same elevator with them, another, to be able to park his car right next to theirs.

There is also an increased preference over the benefits of university infrastructure for this group. This is not a surprising outcome considering the fact that a large portion of the start-ups, more than one third, are academic spin-offs that rely heavily on the university laboratories and research infrastructure. They are usually established by entrepreneurs in graduate programs or faculty members who are willing to pursue commercial applications of their research and require being in close proximity of the university. Results reported in Table 2 supports the argument with this group reporting the highest ratio of benefiting from the joint research opportunities.

Also, this group relies heavily on the services provided by the Technopark Administration. These services (seminars, trainings and incubation services etc.) provide them tools that they cannot afford on their own. Table 2 indicates this group as the group who benefited from Technopark assistance services the most.

Finally, this group is the least dependent on the financial incentives provided by the legislation compared to the rest of the participants. This is a result of the fact that their operational running cost is significantly low (thanks to the highly subsidized incubation services), combined with the fact that there are numerous alternative mechanisms that provide seed-capital and start-up support for such companies such as business plan contests, entrepreneurial camps and social responsibility grants by big companies. Handing out minimal amounts of seed capital is the easiest thing to achieve in a young ecosystem, figuring out what to do next, however, is far more difficult.<sup>8</sup>

**Growing up- Companies (5-10 years old) :** R&D companies experience growing pains in a more intense way compared to other companies in terms of human resources, as their line of work requires highly skilled employees that are either hard to come by or hard to please, or both. That is why any service that brings these companies closer to the high quality human resource pool is reason enough for them. Moreover, after 5 years, the initial pat-on-the-back gifts and grants run dry and the battle of finance goes up a level. As if this is not enough, most public R&D grants leave development and commercialization stages out of their support scope, hanging start-ups out to dry.

Thus, this is the time to be finance savvy and Technopark incentives are most important.

This group, being most aware of the financing issues, expects services that not only guide them towards alternative mechanisms but also hold their hands through the journey. Grant notices, proposal preparation assistance, sharing of good and bad practices are among the services that they benefit most. Not surprisingly, this group holds the highest agree rate for Table 2 question 2.

**Mature Companies (> 10 years old):** It is observed that companies that are strong enough to leave a decade behind are more interested in the university interaction opportunities offered by the STP than anything else. Their intention is slightly different than the start-ups’ dependency on university infrastructure, as they are rather interested in the joint research projects between university researchers and they can afford to pay for it too. Supporting graduate studies, contract research projects and technology transfer licensing agreements are outcomes of such interactions. For them, “proximity” is also an important factor for different reasons than start-ups do.

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<sup>8</sup> A Guide To Post Seed Financing Options, by Paul Mortino, [www.techcrunch.com](http://www.techcrunch.com),

Of all the 84 ongoing “contract research” projects run by Cyberpark tenants and faculty members in the year 2013, 47 belongs to this group. Table 2 question 1 results and interviews concur with the interpretation.

**Alternative Categorization - Size Does Matter**

As a different perspective, size -instead of age- is studied as an alternative categorization. Table 3 reports the outcomes of preferences according to groups that have less than 5 people on payroll (micro), between 5-10 employees (growth stage 1), 10-50 employees (growth stage 2) and more than 50 employees (anchors). Similarly, Table 4, reports the results for services used accordingly.

Table 3: Why did you choose to locate in a Technopark, Answers grouped by Number of Employees

BY EMPLOYEE COUNT		Financial incentives	university benefits (infrastructure, researchers)	intercompany relationships, partnering	access to qualified HR	services provided by Technopark Administration	Added prestige and corporate identity	to take part in the ecosystem
65 count		<b>47</b>	<b>35</b>	<b>26</b>	<b>31</b>	<b>39</b>	<b>40</b>	<b>33</b>
Less than 5	startup	<b>72%</b>	<b>54%</b>	<b>40%</b>	<b>48%</b>	<b>60%</b>	<b>62%</b>	<b>51%</b>
34 count	growth	<b>26</b>	<b>13</b>	<b>19</b>	<b>21</b>	<b>14</b>	<b>23</b>	<b>18</b>
5-10 employee	spurt -1	<b>76%</b>	<b>38%</b>	<b>56%</b>	<b>62%</b>	<b>41%</b>	<b>68%</b>	<b>53%</b>
46 count	growth	<b>41</b>	<b>27</b>	<b>18</b>	<b>24</b>	<b>16</b>	<b>21</b>	<b>17</b>
11-50 employee	spurt -2	<b>89%</b>	<b>59%</b>	<b>39%</b>	<b>52%</b>	<b>35%</b>	<b>46%</b>	<b>37%</b>
25 count	mature	<b>23</b>	<b>16</b>	<b>11</b>	<b>19</b>	<b>7</b>	<b>11</b>	<b>13</b>
>50 employee		<b>92%</b>	<b>64%</b>	<b>44%</b>	<b>76%</b>	<b>28%</b>	<b>44%</b>	<b>52%</b>
total		<b>137</b>	<b>91</b>	<b>74</b>	<b>95</b>	<b>76</b>	<b>95</b>	<b>81</b>
170 count		<b>81%</b>	<b>54%</b>	<b>44%</b>	<b>56%</b>	<b>45%</b>	<b>56%</b>	<b>48%</b>

Table 4: % Agreed by Company Size

		Company Size			
		less than 5 employees	5-10 employees	10-50 employees	>50 employees
"Agree / Strongly Agree"					
1	Being in a technopark has helped us for joint research project with the university	83%	79%	91%	84%
2	Being in a technopark has helped us reach projects grants	75%	71%	78%	76%
3	We benefited from Technopark's Technical Assistance Services	71%	59%	57%	72%
4	We benefited from Technopark's Administrative Assistance Services	58%	35%	43%	44%
5	We benefited from Technopark's Marketing & PR Assistance Services	35%	15%	22%	32%

**Micro companies (less than 5 people):** Results are much similar to early stage start-ups that are less than 5 years old. This is not a coincidence considering the fact that most startups do have less than 5 on payroll to begin with. Companies that stay small even after the first 5 years is what makes the difference between Table 1 and 3. It is observed that due to the additions to this class, there is a slight shift towards financial incentives and intercompany relationships, which are concerns of a more “aged” start-up. This group also holds the highest benefit percentage of Technopark Public Relations and Marketing Assistance, as seen in Table 4.

**Growth Stage 1 (5-10 employees)** Companies with less than 10 people on board are considered as a separate group on its own as this stage is a transition period from a micro company towards a medium sized company. Resource scarcity is experienced at a heightened level for these companies. There are usually not enough personnel to do all the work that comes in. Ironically, they even do not have the time conduct applicant interviews although they need them desperately. It is no surprise that the questionnaire turnout is the lowest in this group, as only half had the time to



answer the questions. Interviews also showed that this group was the least aware of the services offered by partners of the ecosystem and also had the lowest participation rates for events organized in the Technopark both technical and social. Another observation made during the interviews is that, this group will not consider a service as a “service” if they have to do the work themselves. They expect a more “plug-and-play” type of approach.

**Growth Stage 2 (11-50 employees):** Having reached a critical size, companies shift their preferences towards financial incentives, business development and university benefits. This group benefits from proximity and networking and intercompany relationships. Tables 3 and 4 support this argument. At this stage, companies grow a more structured organization and can afford to distribute duties among several people. They can reserve a portion of their workforce for their own marketing and financing duties. Growth however brings in money problems. Interviews yielded the result that companies at this stage offered the most uncomfortable office environment (cramped spaces, diminishing quality in catering, and scarcity in office supplies) for its employees due to penny-pinching operation style.

**Mature Stage (>50 employees):** Not surprisingly, this group is most interested in joint research capabilities with the university along with the ecosystem offered by the Technopark rather than anything else. Results for this category are parallel to those of companies that are older than 10 years with minor differences. This group relies on quality Human Resources slightly more than the latter. They also use Technopark services the least, as they can afford to reserve human resources of their own for administrative, technical and marketing services. Instead they themselves offer services as a part of their social responsibility projects such as sponsoring events, mentoring startups and handing out smaller contracts for others.

In fact, almost all of the entrepreneurial events that take place in Turkish Technoparks have a mature company either as a sponsor or as the sole executor.

## Conclusions:

The ultimate target of an STP is to become a self-sustaining ecosystem. Otherwise, it is doomed to rely on government supports or somebody else’s money. Companies and entrepreneurs should be willing to join an STP, not forced in, not lured in and establishing a fully-functioning self-attracting ecosystem is the only way to do it.

An ecosystem is not complete if certain members are left out. Diversity is good, diversity introduces dimensions and diversity is necessary for the health of the ecosystem. This translates into having a healthy mix of companies of all ages and sizes. In order to grow, companies need partnerships, interactions and inspirations. Existence of large companies in technoparks is a much debated subject, however once they are in, their contribution is undeniable both qualitatively and quantitatively. Large companies are like whales of the ocean, they perform an important role for the livelihood around them. Even their carcass is a valuable input in the ecosystem.

As a part of the ecosystem, companies join technoparks for different reasons. These reasons change as they get older and also as more people join the company. Questionnaires and interviews were carried out to figure out the different expectations of the companies. Results indicate that for the initial stages of development, added prestige and benefits of services are the leading reasons to locate to an STP. For later stages, when companies go on a growth spurt, access to qualified Human Resources, and collaboration opportunities offered by the network take the lead. For mature companies, however, joint research opportunities with university become more important.

In sum, a colorful and self-attracting ecosystem is composed of many members with many different expectations. STPs who would like to establish self-sustaining ecosystems are suggested to customize their services accordingly.

*“There are not more than five musical notes, yet the combinations of these five give rise to more melodies than can ever be heard.*

*There are not more than five primary colours, yet in combination they produce more hues than can ever been seen.*

*There are not more than five cardinal tastes, yet combinations of them yield more flavours than can ever be tasted.”*  
– Sun Tzu, *The Art of War*