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Disruptive models for early stage innovation commercialisation

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Disruptive models for early stage innovation commercialisation

Executive summary

STP-s, companies and universities are struggling to get their innovations and business models to the market. There a lot of IP based knowledge in the universities that have strong commercialisation potential but lack of good execution. Start-ups and grown companies are facing similar problems. The R&D activities for generating new innovative products or services don't have the decent driver that helps to launch the products or services.The traditional measures (trainings, seminars, workshops) for raising the awareness of potential executers don't work, because the skillset for launching innovative products is already there, but the IP or risky technology related projects lack the triggers that make the projects sustainable and successful. Within recent years the author has discovered that the most relevant and best working triggers are: strong and motivated team, money (early stage investments) and prototype (early stage product). The execution potential of knowledge intensive project is related to this these triggers and can be systematically managed to increase knowledge transfer potential.

Introduction of the topic

Universities, start-up companies, STPs and technology based SME-s or large international companies are holding an enormous amount of skills, knowhow, intellectual property and execution potential that is clearly underused. STPs have a role of improving the interaction between all the interested parties in order to have more knowledge transferred into global scale businesses, but the activities of STPs in not sufficient in these days. The main problems that occur in activates of the STPs is related to the changes in economy and in the models that are actually used when it comes to launching an innovative product or service.

Commercialisation of innovative products or services is also related to high risk especially in the early growth stage. Firstly, the teams executing for instance an IP based innovation in the university have strong technical teams but lack the business knowledge, STP companies trying to do the same, eventually face the obstacle of lack of finances available in early development phase. This problem is highly recognized by the STPs, universities and the companies themselves. There is a lot of unused knowledge collecting dust on the shelves, but no good idea how to change the situation

STPs used to have business incubation programs and physical infrastructure that has played a central role in bringing together universities, start-ups and technology companies (spin-offs). The main aim of the incubation service is to give first hand business skills that can be used to commercialize the knowhow that the university or company has. Although this is the right approach to the problem it still lacks some really crucial activities that the start-up projects need. These activities are:
a)Increasing the investor readiness and directing the projects to first seed round investments. Helping to attract the investors or investing by the funds of STP;
b)Product development procedure that includes the knowhow of prototype building in addition to the laboratory and R&D facilities;
c)Team building and talent finding services that help the teams to have all the required competences in first development phase.

As the result there are plenty of trained executives and leaders but not so many hands on teams that are willing to commercialise the intellectual property of knowledge that the companies or universities are holding. Based on the statistics of Tallinn Science Park Tehnopol in Estonia, only 10% of the knowledge based companies are strongly related to the universities (R&D activities); only 8% of the teams entering the business incubator are coming from the university; the IP commercialisation rate in one of the largest universities in Estonia, Tallinn University of Technology, is around 12%; only about 5% of the investments (from private sector) is being invested before the innovative business idea has a prototype ready; about 80% of the technology based start-up companies are failing because of the team or lack of investments.

This ends up with the situation where the risks of knowledge transfer into business are relatively high; STPs are unable to provide sufficient support for the knowledge transfer because the used models are out of date; universities seek the help from innovation centres and STPs but don't receive the results needed; a lot of start-up, spin-off companies fail to deliver the innovation to marketable product or service.

Triggers for commercializing early stage innovation

As mentioned, the triggers like injecting entrepreneurial mind-set to the potential executers (students, researchers, start-up leaders, company managers) does not work because it only has the effect to initiate new innovative ventures, but not to grow the full scale market penetrating companies. Entrepreneurs bringing

the knowledge to the market need to have stronger motivation to work with the projects and this motivation can be increased using the following measures:
a)Money – Money is one of the strongest triggers for early stage ventures trying to commercialize the knowledge. First early stage seed round investments from business angels or VC-s have the tendency to bath the way through teambuilding processes, product development processes till the first customer interaction. Initial finances also increase the motivation of the team and drive the entrepreneurs quicker to the market.
b)Team – The team can be as motivational when it comes to knowledge commercialisation as investments, but is more easily achievable. If the strong team can be put together around the new product idea or IP that the university is holding then it normally results with the success. That's mainly because team members complement each other with skills and knowledge, but most importantly, motivate each other to finalize the project and reach the expected outcome. As a part of a strong team it is difficult to fail because of the group mentality that increases momentum, prevents errors and has positive impact to the end results.
c)Prototype or early stage product – Innovative and knowledge intensive projects have the tendency of being complicated and difficult to gasp. Prototype or initial product example is something that clarifies the project results to team members, shareholders, potential clients and investors. Prototype can be used to show the real market value and potential of the innovative product or service. The importance of building the prototype is often underestimated by the universities and start-up, spin-off companies, and results with the unused IP on the organisation´s shelves.

These three triggers have shown the tendency of guaranteeing the success when it comes to knowledge intensive products, new innovative services or products, or knowledge transfer activities. These triggers should also be adapted to the services of the STP, facilitating the cooperation and knowledge transferring procedures to find new possibilities in interaction between the companies and universities.

Tallinn Science Park Tehnopol and Tallinn University of Technology, situation in Estonia

Tallinn Science Park Tehnopol (Tehnopol) together with Tallinn University of Technology (TUT) combines one of the largest technology business and study campus in the Baltic Sea region. There are more than 200 innovative technology companies, 15`000 students and 3´600 researchers, 5 R&D centres, more than 60 laboratories in the campus. The problems of innovation commercialisation have had strong influence in strategy planning for Tehnopol and TUT. There have been numerous attempts to capitalise the IP of the university through the STP incubation program, to match-make the researchers with companies to run effective R&D activities and to bring the entrepreneurs to the university faculties or laboratories to initiate cowering. Very often these initiatives have failed because of the following reasons:
1.Businesses and researchers or students have different motivation when working with innovative IP based products or services. Companies try to make money from the day one to cover the costs; researchers are ready to invest more resources (and time) to fine-tune the product. Market potential and sales is irrelevant and can be postponed because there is no pressure from the academia.
2.Lack of finances available. Early stage IP development is underfinanced and this doesn't encourage strong teams to work with them. Matchmaking best professionals around innovative ideas fail because they can't find resources for next steps (building physical prototypes, conducting R&D activities etc.).
3.Innovation products and services do not have proof of concept and they are in too early stage to face the feedback of potential clients. As client feedback is the best possible way to test your product and start commercialising, it occurs as one of the most crucial problems.

All these problems are very strongly related and linked to the triggers that highly successful team and entrepreneurs need - the triggers that the interaction between university and STP is clearly lacking. In the

case of Tehnopol and Tallinn University of Technology the absence of these triggers has resulted with the following: only about 30% of start-up companies consider themselves innovating new products or services in their portfolio; approximately 18% of the grown companies have considered starting spin-off projects beside their main product development procedures; the IP capitalization of the university has remained at same level for years.

To tacke all these challenges Tallinn Science Park Tehnopol has been constantly renewing its value proposition and tuning the services for universities, start-up companies and large corporations. Most often normal and traditional measures like trainings, seminars, meet-ups, workshops, matchmaking events, networking etc. are being used in different angels and across different organisations. By doing that Tehnopol still couldn't provide solutions to these challenges and the situation remained almost the same within all the verticals. There has to be better solutions for boosting the level of knowledge capitalisation.

New disruptive models for early stage innovation commercialisation

Gathering all the feedback from the university students, start upand grown companies the main problem drawn out by all the parties was the lack of finances available in early stage of innovation commercialisation. These R&D activates are too early for business angels or VC funds, public grants available are not sufficient and they often come with the amount of bureaucracy that the teams cannot handle. Acceleration programs require equity sharing that is not an option for example university IP based innovations and companies are often to finance their own risky innovative ideas when the result is difficult to achieve. Willingness of taking financial risks is low in all the segments, but the gaining opportunities for national economic growth are attractive enough to activate the STP-s.

As the main aim of these early stage investment the companies, start-ups and students brought out the following:
a)Investment to finance the initial work of the team (without equity sharing). This is important to keep the team going for at least 3 months so the concept of the knowledge intensive product or service could be proven.
b)Investments to finance the prototype building. There really is a financial cap between the excellent business idea and first seed round investment. The investors are evaluating based on the product and customer validation, but the team lacks the finances to present these results.

To test and try alternative solutions Tehnopol started negotiations with large private corporations that are multinational, have the social responsibility approach to some investments, and are ready to promote themselves through innovation savvy target groups. The aim was to fill the gap between risky idea and first investment with private money that is used for promotional aims – no equity sharing needed.

After different negotiations the results were achieved and together with private partners Tehnopol launched two initiatives for innovation commercialisation and knowledge transfer. These initiatives were directly build to meet the need needs of the entrepreneurial community and universities and to capitalize the IP that is unused today.

Case study 1 – PROTOTRON

In order to fill the gap between idea and working product Tallinn Science Park as an STP decided to go into negotiations with private sector to get the funding for great new ideas. It took a long time to seal the deal with

Swedbank (one of the largest private commercial bank in the Baltics and Scandinavia) and Tallinn University of Technology. The agreement was simple – University brings in the ideas, Tallinn Science Park Tehnopol works with the ideas and monitors the progress, Swedbank brings in the money to finance prototype building.

In 2012 Tallinn Science Park Tehnopol in very close cooperation with Tallinn University of Technology and Swedbank have put together all the right conditions for creating innovation and established a prototyping financial fund called PROTOTRON. The aim of PROTOTRON is to hunt down technology based product ideas, select the best out of best and to finance the development of their first working product – the prototype. The partners of PROTOTRON don't take any equity nor cut from the future income of the created company. All that is needed is a great idea, great team and prototyping plan. It's simple as that!

Applying for PROTOTRON funding is really simple. PROTOTRON is opened for students, entrepreneurs or spin-offs; there are no limitations for the amount of money needed for building the prototype (because we believe that there is always money available if the idea is good enough).

PROTOTRON supports the ideas in the field of ICT, electronics, bio- or health technologies, mechatronics and green technologies. The main criteria for successful applicant are defined as follows - absolutely new idea, business potential, scalability and strong team. All the ideas will be assessed by business experts and the final decision is made by expert panel. After positive feedback from the expert panel the finances will be given to the team.

Since PROTOTRON was launched in autumn 2012 the fund has attracted more than 1200 really good prototype applications. Till now the PROTOTRON fund has financed 21 ideas to take the shape by giving out the grants in total sum of 275 000 euros. 10 teams have successfully launched their product and are now active entrepreneurs. Teams that have started with the prototype building with the help of PROTOTRON have raised additional 3 million euros of private investments. It's the great result in terms of ROI as the average investment to build the prototype is around 10 000 euros. The size of the fund has now reached close to 350 000 euros with the help of different supporters (private sector).

PROTOTRON is the first and only successful financial fund in the world that is supporting the building of prototypes. University has finally found a way to capitalize their IP and give hands-on experience to students; Tehnopol has got a good deal flow for the incubation program; Swedbank has good value for money marketing outcome. It's the win-win-win situation.

PROTOTRON initiative is a good example to emphasize the role of STP in between the private sector and university to catalyse innovation. It is crucial to understand that it is really difficult to initiate such project by the university or by private sector alone. STP has an extinctive knowledge of how to find scalable business ideas, how to generate market behind the ideas and how to keep the team of entrepreneurs on track. In addition STP-s play neutral role in terms of negotiation between universities and private sector companies.

Case study 2 – SUMMER OF STARTUPS HACKATHON

Summer of Startup is an intensive 3 month summer program for creative minds. Each year more than 500 students, entrepreneurs and engineers apply for the program to pitch their business ideas and knowhow to fellow participants and to form teams around the strongest ideas.

Summer of Startupsbegins with team building as one of the most crucial part of the whole program. Each

and every idea, if it is a university IP based idea or a regular business case from the larger company, can be executed from all the participants if they commit themselves to the core team.

If the teambuilding is completed and the idea gets enough followers for the execution, the teams enter the intensive 3-month hackathon growth program. Each team receives up to 15 000 euros of funding from the organizers and commit themselves for the whole period to the business idea only.

The growth program consists of mentoring and business coaching (provided by local and international incubators or accelerators), prototype building and market validation. After the program the teams have working prototype and customer validation. Teams become the owners of the ideas or IP that they were developing and capitalize it as they wish.

Summer of Startups is strictly privately financed and has the track record of forming 15 innovative and sustainable companies over three years. The companies participating the program have raised additional of 1 million euros funding and most of the companies are active in international markets.

The main value of Summer of Startupshackathon is connected with teambuilding model that becomes the core of the execution. The teams that are willing to work with the ideas are motivated because they become the owners of the IP if their execution is successful. The Summer of Startups` teambuilding method also attracts people from different sectors to work together and is popular among students and business executives at the same time.

Lessons learnt

The main lesson learnt considers the knowhow, how to attract seed investments (private sector investments) to the core programs provided by incubators or STPs in creating high risk innovation community and entrepreneurs. Tehnopol has managed to attract the investments without equity sharing, but providing only promotional opportunities and cross-marketing solutions to different corporations. It is really possible to attract private money when the value proposition is right and attractive to all the parties. Today the statistics show improvements in all the target groups. The innovation capitalisation based on university IP has increased substantially and the number of new spin-off and start-up companies show rising trends all across Estonia. The model that Tehnopol has built has been selected amongst the best in Europe and is today followed by many other STPs and incubators in more than 10 countries.

These initiatives are strictly directed to innovation and technology sector and create approximately 200 additional start-up companies annually. As its privately financed, it serves as a great example in building sustainable innovation promoting system that can be introduced to different other STPs and countries.

The models and triggers practiced during these programs can also be a great source of inspiration to build new generation incubation services or business development services. STPs can focus on the crucial elements that the knowledge transfer requires and become the leading partners in the communication between universities, private companies and public sector.

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