Case Study 4.3. Max Planck Inkubators at the Max Planck Society

CRITICAL AREA OF FOCUS 3: "Accessing finance and interacting with financial stakeholders"
BEST PRACTICE FOR: "Investments Readiness Activities "
AIMED AT: TTOs
UNIVERSITY: Max Planck Society for the Advancement of Science (Germany)
TTO: Max Planck Innovation

The context:

The Max Planck Innovation the technology transfer organization for the Max Planck Society for the Advancement of Science was founded in 1970. Registered in Berlin with its administrative headquarters in Munich, it is Germany's largest non-profit basic research organization. There are 83 institutes and research facilities (as of January 1, 2015). These institutes conduct basic research in natural sciences, life sciences, social sciences, and humanities. The society employs 17,284 of whom 5,654 are scientists. In addition, there are 4,718 junior and visiting scientists working in the institutes of the Max Planck Society.

Through its subsidiary Max Planck Innovation GmbH, the Max Planck Society ensures that scientific breakthroughs are converted to economic success. Max Planck Innovation brings patents and technologies to the market and assists founders in setting up new companies based on the research results of the Max Planck Society.

Max Planck Innovation has 30 employees and an Advisory Board of 10 members.

The problem:

The Max Planck Society has a track record as Germany's most successful research organization. Since it was founded in 1948, it has produced 18 Nobel laureates and publishes up to 15,000 papers each year in internationally renowned scientific journals. The various institutes were set-up to deliver ground-breaking research and although they had some processes in place to foster translational research, the hurdles for successfully producing and financing spin-off or otherwise taking the outputs of that research to market were still high.

As part of a recent restructuring and supervision of the Life Sciences research institute caesar in Bonn, Max Planck Innovation was commissioned by the president of the Max Planck Society to develop a concept for fostering the technology transfer via spin-outs in order to retain the basic translational research philosophy that was integral to the original set up of the institute.

The solution:

The Max Planck Society commissioned Max Planck Innovation to establish the Life Science Inkubator (LSI) in Bonn in 2008 and prepare its operational start in 2009. The mandate from the Society was to design the incubator as a pre-seed platform for selected start-ups which would bridge the gap from research to investment. The ultimate goal of the LSI is to create start-ups, but given the early stage of the projects, a failure/attrition rate was planned and a rigorous process of due diligence was established. This is to ensure a steady pipeline of projects during early and later incubation stages and also to achieve a reasonable number of surviving spinouts.

Projects for LSI go through a rigorous due diligence process to select those with the highest potential for commercial success. The process looks at the technology, finances and intellectual property to establish what elements are in place and what degree investment readiness they have. They also closely look at the team running the project and the mix of skills required to form high potential start-ups that will attract finance after the incubation phase. Coaching and supplementing the team with external experts is the underlying principle of the Inkubator.

This project has received funding from the European Union's Horizon 2020 research and innovation programme and Euratom research and training programme 2014-2018 under grant agreement No 643486.

Projects which successfully pass the due diligence process and get a positive vote by the investment committee receive funding to continue the technology development and prepare the later spinout. The Inkubator staff then helps them to put together an R&D plan for their activities during the incubation phase. LSI projects could receive funding of €1.5M or even more, if required. There is a total maximum budget for all projects in a certain period which sets natural limits for the per project funding.

Bi-weekly meetings ensure that the project sticks to the plan and achieves all of the set goals. The project team receives coaching throughout the process to develop the technical, managerial and interpersonal skills needed to guide and develop the start-up in later stages. The Inkubator will look for outside managers if there is a gap to be filled in the team or a need to adjust the mix of skills.

In preparation for start-up, the Inkubator will help the project team develop business plans and guide them through rounds of fundraising. This takes the form of individual training sessions. Additionally, the team can participate in a seminar called "Start-up Days" organized by the 4 largest German research organizations, where researchers learn about a number of basic topics that are very relevant to become an entrepreneur. This involves teaching sessions on topics such as financing and sales. There are also workshops where the researchers work on real case studies. In most cases, if the respective project matches their investment portfolio, the Inkubator will offer to co-invest when the spin-out is formed. For the provision of support and funding, the Life Science Inkubator receives a certain shareholding at founding which is dependent on the time span of incubation. Life Science Inkubator's investment in the start-up comes from its affiliated fund "LSI PSF" and is investing pari passu with the lead investor. The capital is provided in cash and will yield the same shareholding as for all other investors for the same amount.

The Inkubator itself is financed by a mixture of public and private funds. This was requested by the public bodies that Max Planck Innovations approached for initial funding.

They wanted the Inkubator formed in a way that part of the risk and benefit was taken by private entities that were interested in funding it. The scheme was immediately opened to all other German intuitions with Helmholtz Association and Fraunhofer Society joining as a formal partner, to provide a healthy pipeline of project proposals to select from. This selection process was primarily designed to provide an element of excellence in the projects funded.

The process, as a whole, was used as an exemplar scheme for setting up similar early-stage incubators and Max Planck Innovation has (co-)initiated three incubator facilities. With the Lead Discovery Center GmbH, they have also established an early drug discovery entity which focuses on creating lead compounds from suitable projects at the end of the incubation phase. The pre-seed incubators are active in 3 different disciplines:

1. Life sciences (as described above)
2. Photonics (Photonik Inkubator in Göttingen)
3. Information Technology (IT Inkubator in Saarbrücken) with a focus on software development

The original concept of the Life Science Inkubator was designed in such way that the experience gathered could be transferred to other industrial sectors. Photonics was chosen as the second area for an incubator as Germany is particularly strong in this field but start-up activities are rather low.

Two of the three Inkubators, Photonics and IT, have more recently started operations and the projects are not yet mature enough to attract funding. Given the different funding requirements, the funding level for projects in the IT Inkubator and Photonik Inkubator are lower than the funding provided by Life Science Inkubator.

The Life Science Inkubator in Bonn has a longer history. Out of 8 incubated projects, 3 were spun out, one is in the final incubation phase and one is currently preparing for spin-off and financing. This is in line with Max Planck Innovations original assumption that, due to the early development stage at entry, only 50% of the incubated projects will finally result in a spin-off.

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The three spin-offs have raised the following amounts:

- Bomedus GmbH: approx. €2.5M from business angels, public and private VCs (including contribution from the associated LSI PSF fund).
- Neuway Pharma GmbH: approx. €6M from VCs and business angels (including contribution from the associated LSI PSF fund).
- EpiVios GmbH: approx. €0.5M Seed funding, currently in restructuring and preparation of relaunch with new angel funding.

These spin-offs have also acquired several million Euros in additional public grant funding.

Given the rather low number of venture funded life science start-ups in Germany, the contribution to the ecosystem by LSI´s spinouts is not insignificant: For 2015 EY reported only 11 new biotech start-ups and 7 initial VC funding rounds for Germany (source: EY German Biotechnology Report 2016, http://www.ey.com/DE/de/Industries/Life-Sciences/EY-Potenziale-besser-nutzen).

Alignment to PROGRESS-TT:

This case is a good illustration of the "Investments Readiness Activities " Best Practice in PROGRESS-TT Critical Area of Focus 3 "Accessing finance and interacting with financial stakeholders".

Although the Max Planck initiated Inkubators can draw on the outputs from the large number of researchers in the Max Planck society, they decided to partner with other German research organizations like Helmholtz Association and Fraunhofer Society and open-up the program to other German universities in order to establish critical mass of researchers and high quality projects. The IT Inkubator was started as a joint venture with the University of Saarbrucken. The Max Planck Society and the university had joint projects, but lacked the resources to further validate the technologies and commercialize them effectively.

In contrast to the Life Science Inkubator and the Photonik Inkubator, this scheme is only open to projects from these two entities and they are developed to a stage where they can easily license them or where a spin-out can be created.

The gap between research outputs and investment ready solutions is universal in the TTO process. There is no way to side-step the need for funding but the real question is how to use these funds in the best way possible and to maximise the potential for success once the decision to invest has been made. The incubator approach is gaining favour across the world of technology transfer, both as a pre-seed platform and as a later-stage process for established start-ups and spin-outs. It provides an opportunity not only to pre-select projects with the potential for success but also to ensure that all of the necessary growth factors are in place to support the start-up after the incubation phase is finished. There are, however, pros and cons that should be considered when external physical incubators are established. On one hand, the researcher or entrepreneur will be more focused on the development of spin-outs, but on the other hand, they may need to leave their department and teaching career to incubate and later establish the spin-out.

Chief among the critical success factors is access to enough grant funding for each incubated project. This must be backed by a pipeline of research outputs or other source of projects that will keep the process going. Public-private partnership can be leveraged to kick-start the process and a carefully managed process of investment for equity and exit could be the basis of a sustainable incubator on a long-term basis. A rigorous due diligence process will maximise the use of resources but this will also need skilled staff to scout and evaluate projects as well as provide expert advice and training for the project teams.

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