

**Draft – Draft – Draft**

**Concept Outline for a  
Technology Transfer Financial Facility (JRC.A.4)**

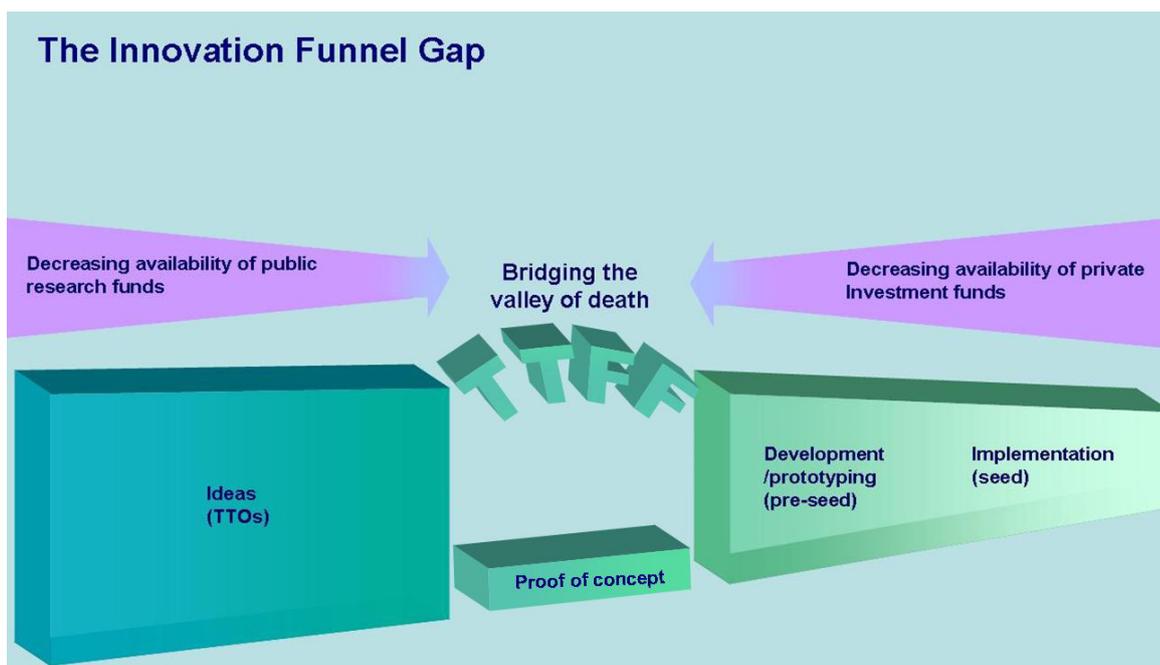
## The Proof of Concept

From Malmo to Milano and from Sevilla to Sofia, tens of thousands of researchers are constructing a better and more prosperous future for Europe. Scientists in disciplines as diverse as biotechnology, medicine, renewable energies, information technologies and new materials invest their talents every day in order to carry out research and develop technologies that promise better standards of living and address the societal challenges that can unlock the prospect for a socially, economically and environmentally more sustainable Continent.

But performing research is not enough. It is essential for the future of Europe to ensure that new discoveries are transformed into new products and services and in the end commercialised with the view to deliver growth and jobs. One of the most imperious challenges facing researchers, not just in Europe but all over the world, is getting these new discoveries and technologies to a point where they have been proven to work outside the laboratory and where potential investors can clearly see that they could have meaningful real applications. The stage at which a technology reaches such a critical point and at which investors start to express an interest is commonly referred to as 'proof of concept' (PoC).

While funding for basic or applied research is relatively plentiful and the mechanics of its distribution are quite transparent, getting technologies through the proof of concept stage is considerably harder. The main reason for this is that, on the one hand, publicly available research funds tend to become scarce at the PoC stage which normally involves not only prototyping, but also a number of ancillary activities like market studies, preliminary business model development, identification of the end customers etc. that are not considered part of the R&D process. On the other hand, business angels and venture capital investors, usually involved in financing high risk technology based new ventures, are often sceptical towards investing in the development of technologies whose solidity has not yet been proven. For this class of investors, though they are used to operate in environments with low and highly volatile returns on investments, the risks of financing PoC studies in emerging technologies is just too high. Moreover, investment in technologies at the PoC stage is rendered more challenging by the frequent absence of a company structure and the related difficulties involved in arranging investments against equity transactions.

This state of affairs generates a critical funding gap in the innovation value chain that goes from the laboratory to the market. This gap, which is mainly localised at the proof of concept stage, is commonly referred to as 'the valley of death' and it is the point at which most technologies are shelved due to lack of funding, long before they manage to reach the market and consumers at large and deliver tangible benefits.



## Bridging the Innovation Gap

The issue of technologies that have been developed but cannot be commercialised is particularly relevant to and important for European Public Research Organisations (PROs).

These entities, which include European universities and public research laboratories, make considerable investments to ensure that technologies are validated and commercialised. Despite their efforts, however, and according to a comprehensive study<sup>1</sup>, about 40% of European patents are never used for commercial purposes. This is not simply the result of a lack of funding and expertise. It is also dictated by the increasing specialisation and fragmentation of the intellectual property market, meaning that single technologies can hardly generate a usable product or service unless they are bundled with other, complementary IP and know-how.

While this is a problem that affects some 1,500 PROs technology transfer offices, there is no instrument available to address it in a coordinated pan-European manner. Instruments are available upstream, for the financing of pre-competitive or basic research (e.g. FP7, ERC), and also further downstream for financing innovation and competitiveness within established companies (e.g. COSME and H2020 financial instruments), but no dedicated facility exists for financing Proof of Concept in a sustainable manner. In addition, those few instruments that do provide funding at the PoC level do so only in the form of grants, operate only at the level of an individual entity or technology, and do not ensure financing continuity with the downstream pre-seed and seed stages.

## The Technology Transfer Financial Facility

The Technology Transfer Financial Facility is a new equity based financial instrument currently under analysis at the European Commission. It will provide support for the validation of research results with a potential industrial and/or commercial impact (i.e. proof of concept - PoC), and to the creation and development of high-tech start-up companies. The TTFF will be a sustainable not-for-profit instrument that will operate at the PoC, pre-seed (POC+) and seed level. In other words, it will provide support for the attainment of proof of concept, it will help in the prototyping and initial market roll out phase and it will finance the creation of companies and their initial development and growth.

The foreseeable main benefit of a single instrument operating at the PoC, pre-seed and seed level is that this continuity will make the financial instrument sustainable. As it is not feasible to estimate upfront with any degree of accuracy expected rates of return for projects at the PoC level, it will be the pre-seed and seed compartments of the fund that will generate the necessary returns to activate a reflow mechanism ensuring that the facility as a whole remains viable.

This highly innovative financial instrument will be managed and implemented by an external financial partner(s) that will be responsible for implementing and monitoring the operation of the fund including project submission, evaluation, financial disbursement and reporting processes. The managing entity will also manage the TTFF portfolio of securities (restructuring, liquidation, reinvestment rounds, licensing, etc).

Engaging an external financial partner(s) will allow to leverage the investment to be made by the European Commission into the fund as a basis for co-investment by the managing financial partner(s). In addition, the TTFF will be open to investment by other market operators such as angel and venture capital investors, public banking groups and seed funds established at leading universities. This will ensure that the fund will be able to deploy multiples of the amounts put at its disposal by the European Commission thereby considerably increasing its potential

<b>TTFF Facts and Figures</b>	
<b>Link with innovation union flagship initiative</b>	<b>Commitments 10 and 21</b>
<b>Evaluation time at the PoC level</b>	<b>4 or 5 weeks</b>
<b>Funding (PoC level)</b>	<b>€ 100-250K</b>
<b>Funding (PoC +)</b>	<b>Up to € 750K (70% of investment cost with 30% co-investment rate)</b>
<b>Funding (seed compartment)</b>	<b>Up to € 3 Million (average € 2 Million) Co-investment ≈ 60%</b>
<b>Financial envelope</b>	<b>€ 420 Million</b>
<b>Commitment period</b>	<b>1 to 15 years</b>

<sup>1</sup> FINAL REPORT OF THE PATVAL EU PROJECT, Contract HPV2-CT-2001-00013, January 2005

impact. Effectively, the fund will operate as a Public Private Partnership between the European Commission, public and private investors, facilitating an alignment in the use of resources of all these actors and generating the necessary critical mass (both financial and in terms of technical expertise) to achieve results

The TTFE will generate deal flow by working together with European TTOs. The direct involvement in the conception of the facility of the European Technology Transfer Offices Circle (TTO Circle) and of the League of European Research Universities (LERU) will further strengthen the buy in from TTOs. This will ensure that the fund has continuous access to a critical mass of world class emerging technologies to invest in.

The structure and emphasis of the TTFE could also act as a catalyst to accelerate collaboration between European PROs and between European PROs and industry. The fund's evaluation methodology could in fact privilege collaborative projects with industry and other R&D partners (e.g. SMEs, start-up and spin-off companies), thereby contributing to building bridges between the various actors involved in the innovation eco-system.

## At the centre of an eco-system

The TTFE will not, as an instrument, exist in a vacuum. In order for TTFE to be successful it is fundamental that a plethora of issues and a variety of dimensions and constraints in the technology transfer domain are addressed simultaneously in a coordinated fashion. This is why the TTFE is positioned at the centre of the European TTO Circle, an initiative aiming to address a variety of bottlenecks in the European technology transfer domain by piloting new ideas and instruments prior to their wider diffusion. The European TTO circle (see figure below) brings together representatives of TT offices from some of the major European research performing organisation and is structured around four distinct focus areas, each addressing a specific bottleneck in the public research innovation chain. Such a holistic approach takes into consideration not only the need for financing to support the deployment of new technologies but also tries to address the need for developing streamlined IP sharing and cross-licensing agreements, the necessity assist scientists in developing entrepreneurial skills and the need for the European technology transfer profession to be supported by the professionalization of its workforce through an integrated system of training, staff exchanges and exchange of good practices. The TTFE is, therefore, positioned at the centre of a complex eco-system to ensure that framework conditions impeding the development of new ventures and collaboration between European TTOs are addressed.

