

VALORISATION TOOL BOX

Creating value from research

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From Europe to Japan, governments are proud of their domestic research infrastructure, but frequently raise the “paradox” that their research does not create as many jobs and increased tax incomes as envisaged. It is not a paradox, though. It takes conscious and intensive commercialisation efforts to turn research results into values for business and society. The CERIM project has analysed the situation and has identified a number of key success determinants for creating value out of research. This report summarises the findings.

Commercialisation success depends mainly on

- the motivation of researchers to contribute to the commercialisation process and
- the dedication, resources and competence of the respective commercialisation organisations.

In rare exceptional cases, the above success factors may grow accidentally. However, it is highly preferable that government strategically and systematically creates a framework which stimulates the general understanding of commercialisation and directly supports the decisive success determinants.

Motivate research institutions and individual researchers to contribute to commercialisation processes

Research and Higher Education institutions interpret their mandate as primarily education and research and do not see many benefits for engaging in commercialisation processes.

Researchers have consciously chosen to become researchers. Their intrinsic motivation is based on their curiosity to discover. Apart from salary, their extrinsic incentives are status and position in the research community which is determined mainly by publications. Financial and reputational incentives for engaging in commercialisation are limited; there is a lack of role models who have successfully spun out their own companies or owned substantial money through patenting and licensing.

This means that there is a high need for setting up motivating framework conditions for individuals and institutions to engage in commercialisation activities. Key factors include

- a legal framework which
 - creates *strong and fully transparent IPRs*: only when research institutions own IPR will they be dedicated to investing into generating and commercialising IPR. It is decisive that potential foreign (and domestic) clients can easily identify, approach, and professionally negotiate with the IPR owner respectively its mandated commercialisation unit.

- *specifies fair and motivating distribution of revenues from commercialisation between key stakeholders*: the owner of the research results (the institution), the individual inventor (respectively team of inventors) and the commercialisation unit should all receive a substantial share of revenues from commercialisation; i.e. about one third each. The author has made good experiences with laws specifying only the sharing between research institution (e.g. 2/3) and individual researcher(s) (e.g. 1/3). In these cases, sharing between IPR owner (research institution) and commercialisation unit is negotiated at market terms.
- does not harm the researchers' resp. research institutions' missions of research and education, i.e.
 - The researcher should maintain the right to publish her/his results after a quarantine time of e.g. two months after having disclosed the invention to his employer.
 - The researcher should maintain a non-exclusive right to base her/his future research and teaching duties on the invention.
- an *entrepreneurial climate* at research institutions
 - Success-based financial rewards to institutions and individuals.
 - Ratings of research institutions should cover commercialisation success: additional public means could be given to those institutions who successfully contribute to the nation's commercial innovation success by e.g. creating jobs in spin out companies.
 - Access of entrepreneurial champions to complementary competences and resources like e.g. Venture Capital.
 - Commercial innovation success should be a substantial recruitment criterion besides publications and education success.

Once a substantial motivation has been assured it becomes crucial to establish a professional commercialisation infrastructure. A professional infrastructure could show the following characteristics which have proven to be successful for instance in Germany.

Success determinants of a professional commercialisation infrastructure

In addition to traditional technology transfer services, commercialisation centres also

- engage intensively in commercialisation via spin outs: Commercialisation centres stimulate entrepreneurship and engage very early in the process of setting up

new companies. A commercialisation centre provides soft skills and mediates relationships to providers of complementary resources (e.g. venture capitalists, incubators and techno parks).

and

- take a very pro-active approach to informing researchers about (potential) clients' needs.

A professional infrastructure is characterised by critical mass, commercial orientation, and a wide-spread network of relationships to regional and national sources of knowledge and technology as well as domestic and foreign clients.

Achieving critical mass through partnerships

Commercialisation success demands for a high visibility of research results at (potential) clients and a critical mass of specialist competence. These demands can only be met, in case a commercialisation unit is mandated with commercialising a substantial amount of research results. It is seldom the case that an individual university or research centre, possesses an adequate critical mass relevant for a successful commercialisation process. Instead, it is strongly advisable that the unit works strongly on a both a regional (which is often the more practical solution in the short term) and a national level (foreseeable in the long run) to obtain a sustainable platform for commercialisation. These partnerships shall cover a number of crucial topics, and should not only be seen to boost the number of inventions to be commercially developed. It should also cover factors such as knowledge sharing, sharing of networks and more importantly access to industry, staff alliances, access to funding and a larger impact on a policy level.

Commercial orientation through private public partnerships

A regional commercialisation centre needs to be dedicated to commercialisation success. This implies e.g. that the centre is co-owned by public and private partners and managed by a private partner.

It is highly preferable that the research institutions hold shares in the commercialisation body - either directly or in case they are not allowed to hold shares in a for-profit business indirectly through an intermediary organisation (e.g. a to be established innovation foundation). Experience from other European countries show that shareholding by public research institutions has the following impacts:

- The research institutions value commercialisation as it generates free money to be re-invested into research. Consequently, research institutions support commercialisation activities and individuals who might face envy by some less commercially oriented colleagues.

- It sends a clear signal to researchers that commercialisation is not a side activity but part of the strategic mission. Also it demonstrates that commercialisation has to be done through the respective body.
- It empowers the commercialisation body as the commercial arm of the respective research institution which substantially improves its negotiation position towards industry.

On the other hand, the German examples clearly demonstrate that a private lead partner ensures that the commercialisation centre:

- is regarded as “one of us” by the business community when it comes to a joint understanding of time frames, language, confidentiality etc.
- is motivated and capable to define and implement an HR strategy and incentive mechanism that fully takes into account the commercial mission.

Mandate of the regional commercialisation centres

The regional commercialisation centres are to serve as independent units which are dedicated to achieve a sustainable return on investment for research institutions, individual researchers and themselves. They will do so by satisfying the needs of regional, domestic and foreign private and public clients drawing upon existing research results and on research potentials (e.g. by motivating researchers to attempt to address specific market demands). They will not be in charge of mediating and controlling contract research, this will be a major task of the individual commercialisation offices.

Key functions comprise of

- Assisting research institutions in creating a workplace and an environment which stimulates entrepreneurial behaviour and need oriented research.
- Assisting individual researchers and research groups in developing research results which can be commercialised.
- Providing the IP owner (the research institution) with thorough high quality decision support on whether or not it should invest into the commercialisation of an invention.
- Implementation of commercialisation.

Organisational set up of regional commercialisation centres

- Management/staff. A regional commercialisation centre should preferably be staffed by the private majority owner. Ideally staff in a regional commercial centre comprises of at least six experienced full time equivalents with generalists

- (experienced serial entrepreneurs) and specialists (e.g. in technology screening and patent law)
- It is crucial that the staff is fully accepted by the research institutions. This means that
 - Staff should live in the region and stay in the region (no consultants flying in Monday and leaving Thursday). It is not a consultancy job but a value creation job, although some services are offered for money.
 - Majority of staff should have a background in relevant fields to the majority of researchers (e.g. natural sciences, medicine), preferably higher academic degrees (e.g. PhD). At least one staff member should have a legal education.
 - All staff must have high social competence and think result-oriented.
 - It is crucial that the staff is intensively connected in the business world
 - Either individual staff has the relevant connections itself or they have easy access via their team (which can be placed at another location).
 - Incentives to staff should mirror the commercial success orientation of the business, i.e. staff should receive motivating boni when business is good.

Getting started

Experience from Europe and North America shows that it takes five to eight years before a commercialisation centre delivers significant returns from licensing and selling of shares in spin out companies and probably ten years before it is established as a sustainable profit generating business: Assuming that the learning curve of staff is extremely steep it still takes time to build up trust and relations to researchers at individual and institutional level as well as to business partners (e.g. VCs or potential licensing partners); it takes time before patents are filed and even longer before they are granted. It takes time to negotiate license deals and set up companies. It takes time before significant royalties come in and before the value added in spin outs can be materialised in e.g. trade sells. As powerful as the approach is, it is still highly demanding to implement it effectively and efficiently. It is advisable to profit from an insight into the mistakes and tricks made by countries like Germany that started this process about ten years earlier.

This has to be taken into account when defining a roadmap for establishing regional commercial centres. In order to attract private investors there must be both a possibility to break even rather quickly and an attractive upside potential. This means that the centre should be paid for delivering initial service packages (like e.g. developing an entrepreneurial climate at Higher education institutes) and receive a substantial share of

all commercialisation income. International good practice suggests that about 1/3 of all income should be allocated to the commercialisation centre.

Setting up a professional commercialisation infrastructure is a strategic task and requires a strong implementation mandate to a national body. Such an approach will bring together all necessary competences and resources to master the challenges of the future and build sustainable competitiveness.