

**Spin-off:
an obligatory outcome or an occasional
result from Technology Transfer**

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Spin-off definitions - 1

Various spin-off definitions can be found:

- A spin-off is the creation of an independent company through sale or distribution of new shares of an existing business or division of a parent company.
- A spin-off is a type of divestiture. The spin-off companies are expected to be worth more as independent entities than as parts of a larger business or structure.
- A byproduct or incidental result of a larger project.
- A subsidiary of a parent company that has been sold off, creating a new company.
- A spin-off as a kind of Technology Transfer (TT) derivate.

Spin-off definitions - 2

- Spin-off (or spin-out) is a term commonly used to describe a new company, designed to commercialize intellectual property/product (IP), developed in a given university or research organization.
- An IP might be a technology or a new software program, a new plant variation, a new product or service idea.
- Whatever the main product of the new company is, the “base idea” necessarily stems from research, undertaken by the parent organization.

Spin-off: when?

- Spin-offs, created in the frame of a university are usually established in the event that there is no existing company to conduct a significant scientific breakthrough in a given sphere,
or
- because a certain scientific work has clear capabilities to create many products and applications, and this is potentially extremely valuable.
- Such a types of development are called "platform opportunities" or "disruptive technologies".

Terminology

- The terms "start-up" and "spin-off" are often used interchangeably to describe a type of commercialization activity.

but

- More often, the term "spin-off" is used specifically for a company where the university has a stake in the capital.
- Spin-off is sometimes used to describe the collocation of a company to operate the academic facilities and expertise. The company may be a new one, based on its core production or service of technology, or knowledge, transferred from the scientific base.

Spin-off companies as a transferring mechanism

- Companies set up under license from university laboratories;
- According to OESD (2001) these are:
 - Companies based by public sector employees in universities and other higher education institutions, including lecturers, professors and post-doctoral students;
- or
 - Start-ups based on a public-sector technology license;
 - Companies in which a public-sector body has a stake or which is directly created by a public research organization/university.
- According to the European Union a spin-off is:
 - A company based on the use of scientific results from the public research sector.

Spin-off: why?

- If a given university team has a promising research product, successfully transferred to market introduction;
- Spin-offs allow investors to buy shares in a more specific type of business that fits their investment objectives;
- If a part of the company business is heading to a completely different direction and has different strategic priorities, allowing it to operate independently can have more value;
- Focusing on limited resources; better management, thus a larger long-term product potential;
- Businesses which crave to streamline their operations often sell less productive or unrelated subsidiary businesses as spin-offs.

Spin-off opportunities

- Spin-offs may be an optimal way of commercialization if:
 - Licensing is not possible;
 - Research product – a basis for IP has clear opportunities to create many products and applications and is therefore potentially extremely valuable;
 - IP has a capacity to ensure that additional efforts and possible risk will have returns;
 - IP has a potential for "platform capabilities" or "subversive technologies“;
 - Additional investments in technology and related infrastructure are needed to reach the market, and this can only be achieved by creating a legal entity.

Spin-off functions

- Developing a new type of culture among researchers to bring the world of science and business closer to the world (especially for the EU, which falls behind in terms of innovation and entrepreneurship);
- A way to increase return on investment in public research;
- A way to transform the type of university - for instance in 4th level or entrepreneurial university;
- Most often these companies are in the field of high technologies i.e. spin-offs are at the crossroads of innovation and industrial policy.

How to foster spin-off companies?

- Granting intellectual property rights to universities (research organizations) from research with public funds;
- Reducing constraints to researchers for working outside the universities;
- Provision of seed capital for the purposes of commercialization;
- Infrastructure development - especially service centers or incubators to help scientists commercialize their results.

Coherent spin-off activities

- Creating attitudes to knowledge transfer (seminars, courses);
- Business plan development;
- Finding investors and an appropriate infrastructure;
- Prepare for regulations, share distribution agreements and cooperation agreements;
- Help in growing the company and internationalization process through networking and technology clusters, and manage the company portfolio.

Criteria for creating a spin-off - 1

- HR capacity availability:
 - Highly motivated and skilled people
 - Management and marketing experience
 - Knowledge transfer or circulation
- Proper strategy:
 - Long-term vision
 - A viable business model
 - Support from the university/scientific institution
 - Stock of venture capital

Criteria for creating a spin-off - 2

- Adequate financing frame:
 - Costs of incubation
 - Overall cost of the project
 - Required capital
 - Subsidies
- Uniqueness
 - Distinctive technological qualities
 - Specific differences
 - Comparative advantages
 - Patent protection

Spin-off added value: a three-dimensional vector system

1. Business point

- Communization = maximization of university revenues;
- Realization of benefits from risks taken;
- A spin-off as a future partner in a university.

2. Social/economic point

- A key indicator of the activities of a university;
- Provides employment in high-tech activities;
- Strengthen the local industry technology-wise.

3. Human resources point

- Development of individual and group ambitions;
- Fast track for carrier development.

Commercialization of IP approaches

The main task is to choose the most optimal way to commercialize IP.

- Intellectual properties from universities is usually commercialized in two ways:
 - by licensing the official IP (e.g. patents, plants, copyright, trade mark);
 - by setting up spin-offs based around IPs. It is important that the university management carefully investigate which commercialization is more appropriate.
- Technology commercialization is specific and often, but not necessarily, it is a result of university research. It turns a primary result into commercially viable product or service that is demanded by the market. It is known as an IP commercialization or technology transfer as well.

Common mistake at IP commercialization

- Assuming features will become benefits
- Using a “top-down” market analysis
- Failing to put someone “in charge”
- Not completely valuing new technology
- Lack of comprehensive risk assessment
- Lack of financing mix fit

Spin-offs and universities: links and opportunities - 1

- Spin-off activities are the next level of research achievements, created in a university;
- A spin-off idea is supposed to be:
 - Often a novelty;
 - Unproved beyond the laboratory;
 - Untested on the market;
 - Difficult to assess in commercial terms;
 - Hard to fund.
- Sources of spin-off IP:
 - University/corporate research centers;
 - Individual inventors.

Spin-offs and universities: links and opportunities - 2

- The formation of a spin-out company usually arises after completion of the proof of concept work (PoC);
- The product is usually a result of a grant, that should not be returned;
- A prototype comes after a proof of concept activity. It can be paid with a grant or credit, by a spin-off company or a university;
- There is a possibility for the loan to be converted into a share of the capital when forming a spin-off.

Role of the university for sustainable spin-offs

A university can contribute to spin-offs by its Technology Transfer Office (TTO).

A TTO could contribute to:

- identifying IPs or commercially-valued technology projects;
- helping commercialize given technologies;
- identifying technologies, potentially profitable for the university from a spin-off;
- contributing venture capital to spin-offs;
- planning and implementing business strategies for spin-off companies;
- helping develop spin-offs through management, sales and marketing consulting.

Spin-off general funding

- Spin-off companies are considered to be "high-risk" companies and do not have enough assets to secure bank debt;
- Many spin-off companies face a great difficulty to gain funding at the stage between the creation of the prototype and the start of actual sales;
- This period, when the risk is considered very high and the value of the company - a very low one, leads to the so-called "equity gap".

Spin-off funding sources - 1

- University funding - via a subsidy or internal research funds;
- National research funding (various instruments) - national funds, targeted research and/or innovation programs;
- European programs - FPs, COSME, IPA, foreign funds for targeted countries;
- Bilateral research programs;
- Projects funded by industrial companies;
- Risk funding instruments.

Spin-off funding sources - 2

- Schemes or calls in the frame of Operational Programs under SF;
- Business angels - wealthy persons who invest personal capital in startup companies. They invest in return for an equity stake (obtaining a percentage ownership of the start-up business);
- Crowdfunding - an exotic opportunity that allows accumulation of funds by people (usually around the world) who like your idea;
- Equity funding - it is granted against a certain stake in the company. It may be categorized as wither venture capital funds or equity fund financing.

University - spin-off practices

- Rather similar structures to old member countries - United Kingdom, Belgium, Germany.
- Not so steady functioning structures in new member countries or if there are, then with a limited life cycle.
 - WHY?
 - Lack of experience
 - Lack of sustainable funding opportunities
 - Lack of strong motivation
 - Lack of balanced eco-innovation system
 - Some good beginning - fostering spin-offs via targeted schemes of OPs.

University - spin-off: benefits to universities

- A spin-off is a chance to enrich the overall university milieu;
- Spin-offs could be a generator of new business ideas, developed via university cooperation;
- A university can enlarge its financial portfolio via possession of spin-off;
- A university can increase revenue (through provision of specific services) to spin-offs, or perform joint activities;
- A university can transform itself into an entrepreneurial type or into 4th generation university;
- A university could become more visible and valued at regional, national and international level.

Bulgarian case - state of the art?

- Not too many successfully functioning spin-offs vs too many TTOs, but not performing their inherent functions/tasks. Both types have been built via EU funding opportunities;
- Where can we find classical spin-off structures?
 - Several spin-offs in TU-Sofia;
 - One spin-off in Sofia University;
 - One spin-offs in Bulgarian Academy of Sciences (BAS);
 - Two spin-offs in AAS.
- There is no steady pieta towards building typical spin-offs. Preferences – to be on the “safe side”, relying on financial support by the university.

Some interesting facts

- All of them are still part of academic structures - one is an independent juridical body only (Genomic Center) ;
- Almost all of them rely on public funds. A minority operate with business financial support - sales, contracts, services, etc. A part of the budget still comes from the university;
- Part of them apply distributed structures - at various locations, but the main bodies are located at the university;
- Only one of them is a result of TTO activities;
- All of them have registered patents or useful models, but haven't sold any IPs. IP owners are researchers.

What is the reason about these state of the art?

- Lack of targeted national policy;
- Lack of existing financial portfolio for spin-off support;
- Late implementation of applicable financial schemes, targeting spin-offs (second OP programming period);
- Lack of culture to take risk because of insufficient customs/habit to live and tackle with market economy media;
- Incomplete eco-innovation system.

General conclusions

- TT is not an obligatory element for spin-off and start-up companies, but very recommended;
- TT lays a good foundation for innovative development and high tech performance;
- Spin-off companies are more sustainable if they apply research, accompanying or upgrading innovation of their products;
- Universities and research organization can be a reliable partner and mentor of spin-offs. They also can profit from efficient spin-off functioning.

**Thank you for your
attention!**