

Inventor's guide to startups

Launching a new company
using CRG technology/2018

SHORT VERSION





About this guide

This guide is intended for CRG members that are interested in launching a startup company based on their inventions. It is a broad overview of the startup process and provides background on the resources available for CRG entrepreneurs. It also aims to address frequently asked questions about TBDO support and services.

Some of the information in this guide may also be relevant for outside entrepreneurs with an interest in starting a company based on a current CRG technology. These individuals are required to work with the TBDO throughout the process.

In this short version of the guide, there is reference to a number of chapters and appendices which have been produced as separate documents, to minimize the overall size of the guide itself. You can access the full guide and its appendices on the TBDO website at <http://tbdo.crg.eu/entrepreneurs/start-up>.

This guide was written in January 2018. CRG policies and practices may be revised from time to time. Inventors should refer to CRG Intellectual Property and Technology Transfer (IP&TT) policy and Conflict of Interest (COI) policy for current guidelines, as the contents of this brochure are not intended to replace or supersede these policies. Additional information may be found on the TBDO website <http://tbdo.crg.eu> or by contacting the Technology and Business Development Office (TBDO) at CRG_BusinessInnovation@crg.eu.

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This guide is a publication of the CRG Technology and Business Development Office (TBDO). This first edition is the result of good teamwork and efforts from TBDO members, CRG staff and the TBDO entrepreneurial ecosystem. We sincerely thank everyone for their input and contributions. We also welcome your feedback to improve the guide and address any questions or topics that may have been missed.

A MESSAGE FROM THE HEAD OF TBDO



Dr Pablo Cironi,

Head of Technology and Business Development Office (TBDO)

The mission of the Technology and Business Development Office at CRG is to facilitate the exploitation of the institution's research for the public good, and to help the economic growth of the life sciences sector in our region. Our aim is that scientific results generated at CRG will develop into novel therapeutic, diagnostic and other type of products that will contribute to the wellness of our society.

Independently of development stage, or whether we perform basic or applied science at CRG, at TBDO we strongly believe that the most beneficial products and services are the result of disruptive scientific achievements. We expect these results to generate a much higher impact in our society if receiving the right support and channeled through the right commercialization strategy. When these innovations are disruptive or address an underserved market, often the best vehicle for bringing these innovations to market is a start-up company.

This guide is intended to help CRG researchers and innovators understand the process involved in the technology transfer process and the steps to be considered when forming a company based upon their innovations.

This guide will also identify resources available at CRG, in Cataluña and in Spain that can help you develop a plan to go from where you are to where you want to be, and to address and understand topics such as how to analyze the business opportunity, external resources for startups and more.

TBDO is here to help you promote your technology and to support your business ideas.

INTRODUCTION

What is an academic startup?

According to the Association of University Technology Managers (AUTM), an academic startup is a company initiated solely on the basis of an institution's technology. In this respect, startup companies created by CRG should align with the CRG mission to translate new scientific knowledge into benefits for health and value for society. Nevertheless, CRG startups remain private and independent legal entities, whose decisions and activities should be clearly discrete from CRG.

Why start a company?

CRG research results are often very far from being marketable. In order to translate basic investigation into beneficial products and services, CRG secures IP rights and then licenses those rights to private companies that have resources to turn an innovation into a commercial opportunity. When an innovation is disruptive, or can address an underserved market or has the potential to become a platform technology, often forming a startup can be the most rapid, powerful and rewarding vehicle to effectively reach and impact the market.

TBDO's contribution

Not all inventions are suitable for the creation of a startup company. TBDO is here to help analyse the possible opportunities arising from your research and evaluate whether a startup is the most appropriate path to commercialization. We have the scientific background, business expertise, network of contacts and investment capabilities to support you in the process of setting up a company, including IP management, business planning, market analysis, building your team and fund raising.

What's in it for CRG?

CRG position as one of the world's top medical research institutes relies upon conducting cutting edge research investigation. Commercializing the IP generated from this research helps CRG raise not only financial but also reputational rewards as well as comply with its main mission to advance knowledge for the benefit of society. In return for the investments in IP, infrastructure and resources, CRG receives equity in the business, thus becoming invested and committed in the future growth and success of the company.

What's in it for you?

Entrepreneurship is an increasingly appealing career opportunity for ambitious researchers, who can deliver real impact to a disruptive technology by taking it to the market themselves. The participation of the scientist behind the invention will significantly increase the odds of a successful new company. Before embarking on an entrepreneurial venture though, you should carefully consider several factors that can make or break the success of a startup.

First, you should realize that the qualities required to excel as an entrepreneur are distinct from those needed to pursue a career in academia or an established company. While persistence and timely execution are important qualities in both worlds, entrepreneurs tend to be outstanding communicators, delegators, are prepared to manage risk and uncertainty, and have the ability to make decisions based on intuition.

Second, you need a clear picture of your total net worth and, based on this, you should decide how much you are willing or able to commit to the startup both financially and personally.

Third, as an inventor, you should be passionate about bringing the technology to the market, which might be very different from being passionate about the technology.

Fourth, you should be aware that most startups fail and be willing to accept this risk.

Finally, you should be “all in”. Your commitment and passion will be key to build relationships, secure partnerships and drive an equal commitment from your team.

The local context

In relation to other countries, Spain is by no means a bad place to start a business. Numbers speak for themselves: 5.5% of the adult population launched a new business in the last 3.5 years, with an expected 8% increase forecast for the next 3 years. The country is ranked 23rd on the Forbes list of best countries for business and it scores highly for a number of key factors valued for launching a startup, such as; it’s experienced and relatively low-priced labour force, high quality of life even considering negative factors, like the rigidity of its market and red tape.

Barcelona is a runner-up in the top 20 global entrepreneurship ecosystems, behind European leaders like London, Berlin, Paris and Amsterdam. In particular, thanks to sector-specific investors, networks and support programmes, it can offer extremely favourable conditions for life-science startups, as witnessed by the launch of biotech companies like Minoryx Therapeutics (therapeutics for rare diseases), Oryzon Genomics (epigenetics-based therapeutics), Aelix Therapeutics (immunotherapies for HIV), qGenomics (diagnostics) and Stat-Diagnostica (medical devices) among others.

CRG startup success story: qGenomics



“Creating a company is a tough but rewarding experience. qGenomics was created in 2008 and there is still no day like the other... a constant learning experience!!!”

LLUÍS ARMENGOL
Founder of qGenomics

TT 101 – Technology Transfer at a glance for CRG entrepreneurs

The Technology Transfer process (**Figure TT.1**) can be conceptualized as a continuous process in which CRG research is translated into valuable commercial products and revenues that will in turn fund new CRG innovations.

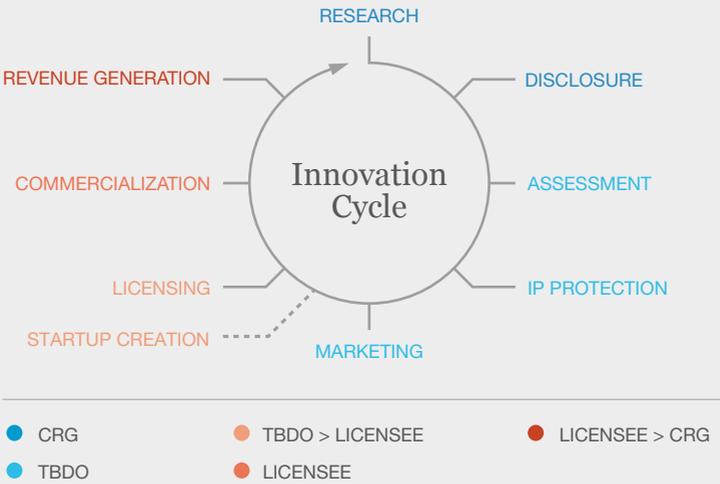


Figure TT.1. The Technology Transfer process at a glance

Research

Research activities often lead to discoveries and inventions, including tools, material, software or other copyrightable work.

Innovation disclosure

The Technology Transfer process begins when you confidentially report the key data of your innovation during scouting meetings with your TBDO manager and then formally submit them for revision via the **CRG Inventor Portal**. Successful evaluations rely on full disclosure transparency.

Innovation assessment

The disclosure is assigned to a Business Development Manager (BDM) in the TBDO team, who will evaluate the commercial potential of the innovation based on IP protectability, technical feasibility, market needs and other critical factors.

As the innovation assessment will guide the consecutive marketing strategy, you should inform a BDM as soon as possible if you are considering starting a company based on your innovation.

Intellectual property protection

During the assessment process you are encouraged not to disclose any unpublished information, to avoid the loss of any potential patent rights. If your innovation is deemed commercially viable and there is a need to protect the intellectual property, TBDO will pursue IP protection in the name of the CRG.

Marketing

TBDO assesses the best route to market for your technology. Depending on the type of technology and its stage of development, the suggestion may either be to license your technology to an industrial partner or to a startup company.

Please note that following careful assessment, few of the total inventions received by TBDO are deemed suitable as the technological foundation of a startup, whilst the vast majority are more appropriately licensed to existing entities, which have more chances to bring the technology to the market.

Startup Creation

If it is decided that starting a company is the best option to exploit your innovation, the TBDO will guide you throughout the whole process, from analyzing the opportunity to incorporating the business, including the crucial steps of drafting a business plan and pursuing funding. It will also guide you through the TBDO resources and tools available to support entrepreneurship, such as the Bio-Business School (BBS) and the Science to Business (S2B) concept challenge.

Additionally, you may be referred to external consultants, including technology experts, business advisors, serial entrepreneurs and early-stage investors, who can provide field-specific startup advisement.

There are a number of factors that TBDO takes into consideration to help determine whether or not a startup is the most appropriate path to commercialization of your innovation:

Intellectual Property (IP) position: Who owns the IP? Is IP coverage possible (through patent, copyright or trade secret)?

Freedom to Operate (FTO): Will the company have FTO to develop and exploit the innovation?

Technology readiness: How much time and money is required for the innovation to reach market?

Technology innovation: Is the innovation disruptive and/or sustaining?

Product strategy: Does the innovation open up opportunities for future multiple products?

Market need: Does the technology have a clear application and a definable market?

Market potential: Is the market big enough? Is there a growing trend?

Competition: Are there other companies offering similar or alternative solution(s)?

Licensing: Are there existing companies interested in licensing your innovation?

Financial potential: What prediction can be made for future market share?

Inventors commitment: What is the level of involvement from the inventors?

Management: What is the level of passion and experience of the startup executive team?

Support: Is there a business champion for both the innovation and the new venture?

Investment opportunity: Will private investment be required initially/later? Will investors have a clear exit strategy?

Licensing

Either scenario will result in a license or option agreement between the CRG and the new or established business partner. The agreement will incorporate terms and conditions for the use of the technology in return for both financial and other benefits. Typical terms include diligence milestones and the amount of compensation to the CRG and inventors in fees, royalties and equity.

Commercialization

Most CRG innovations are very early stage and it is fairly common that the licensee needs to adapt its commercial strategy to new market opportunities. After a license agreement is in place, TBDO continues to support the licensee and is open to re-negotiate license terms if the request(s) are reasonable and required to ensure success within the marketplace.

Revenue generation

Royalties received by the CRG from licensees are distributed annually. The inventors, including those who are involved in a startup, will receive their share under the CRG Intellectual Property and Technology Transfer policy. Royalties shared throughout the CRG collectively fund research fostering the next generation of innovation.

START YOUR STARTUP

The action plan

Launching a startup company requires not only a compelling technology, but also passion, commitment, good timing and at times, luck. The right timeline for launching will depend on multiple factors, including the technology readiness, the market maturity and the funding opportunities. Before embarking in this challenging journey though, you should carefully consider your action plan, by focusing on the qualities that are typical of success stories: a compelling solution to a factual market need, a significant market opportunity, a sound competitive advantage backed by strong IP protection, a solid business plan; and a qualified management team. The 10 main steps to launching a successful startup company are summarized below and discussed in detail in the full version of the guide (available on the TBDO website at <http://tbdo.org.eu/entrepreneurs/start-up>).

TBDO is committed to guide you through all the steps.

1. **Liase with TBDO** > Contact the TBDO as early as possible in the process to discuss your invention and decide whether a startup company is a viable option.
2. **Manage intellectual property** > A major asset of a startup company, and thus a major tool for attracting investment, is the associated intellectual property. Work with TBDO to get a patent application filed on your invention before any public disclosure.
3. **Seek input and network** > Leverage the TBDO entrepreneurial ecosystem to review your strategy, network with like-minded entrepreneurs, meet potential investors, attract board members, and validate your technology with potential customers.

4. **Build the entrepreneurial team** > A critical piece to the success of your company is building a strong, cohesive team and establishing expectations concerning roles and commitments.
5. **Analyze the opportunity** > Analyze opportunities and challenges, the unmet need, the competitive advantage of the solution that you are proposing, the market situation, the funding needs and the company's viability.
6. **Plan the business** > Choose the planning method that best suits your opportunity and plan your business carefully.
7. **Develop a communication package** > When validation of the business opportunity is complete, the startup company will need to develop a standard package of communication materials that convey the value of the company and the business strategy.
8. **Get CRG support** > Negotiate a license agreement from CRG to demonstrate to potential funders that the startup has secured the rights to the technology, while respecting CRG policies.
9. **Pursue investors and funding** > Structure financing according to technology development. Find the right and timely balance of non-dilutive and dilutive funding and account for the different expectations of your investors in the different financing rounds.
10. **Establish the business** > At a point when the opportunity has been validated and the startup team has reached the right combination of expertise, experience and personalities, a new company can be formed.



CONCLUDING REMARKS

This guidebook has progressed from general concepts of Technology Transfer to more specific guidelines for Business Development, via an overall view of legal aspects that should be taken into account to successfully launch a startup. We have tried to address many of the common hurdles faced when starting a company, to help you prevent them and help reduce the number of mistakes made along the way. We hope that it can be a useful resource for you.

We encourage you to contact TBDO for further guidance in any step of your entrepreneurial journey and we leave you with two final lists of recommendations: 10 tips to follow and 5 pitfalls to avoid in order to launch a successful startup.

TIPS TO LAUNCH A SUCCESSFUL STARTUP

1. **Do not idealize entrepreneurship.** Entrepreneurship may be an opportune career choice, but it should not be treated with idealism. Define to yourself and others why you are starting a company and be prepared to change your reasons. Before deciding on pursuing an entrepreneurial career, imagine yourself as an entrepreneur and form a realistic picture of what your working life, day to day, would be like. Are you prepared for that?
2. **Establish a relationship with CRG at the onset.** Your IP is probably going to be your most valuable asset at inception. Reassure investors that IP rights and Conflict of Interest issues are being properly managed by the company.
3. **Decide equity and responsibilities before you start.** Remember that even your best relationships will be strained when forming a company. Be wary of everyone's goals and expectations.
4. **Evaluate the opportunity first and then plan it thoroughly.** This will help you avoid many potential errors. Remember that a great technology and a business idea are not enough to make a successful business.

If there is something fundamentally wrong with the opportunity, be honest with yourself: acknowledge it and think twice before launching.

Once the opportunity has been validated, use the methodology for its launch that suits the opportunity most. Whatever method you use, devote a lot of time to it and do not favor a method just because it appears to be the easiest.

5. Get the users' point of view from the start. Understand how users will interact with your product or technology. Will it help them? Will they appreciate all functionalities and are they ready to accept all side effects? Is your solution better than existing ones?

6. Commit to your company. Define from the start what of yourself you are willing to put in the company, in terms of money and time, and at what point you will be involved in the venture. It can be a milestone or a calendar date, but set an objective. If you cannot be involved, then get professional business help early.

7. Determine the cash needs of the venture. Make a concerted effort to predict how much the venture will require for each phase. Do not count on the best-case scenario. Instead, build in contingency buffers, run sensitivity analyses and have alternatives or a plan B whenever possible.

8. Raise funds efficiently from a mix of sponsors. Rely on public funds if possible, minimize cash needs and manage working capital efficiently. Raising a lot of money from investors is not necessarily a good thing, if you could have raised it from more economical sources. Engage financing rounds as an opportunity and manage them as projects, with subtasks and deadlines. Make sure that you devote enough time to them.

9. Understand finance well. Being an entrepreneur implies managing money and doing it well. Make sure you have a good understanding of basic operating, accounting and corporate finance concepts. Refer to **Separate Appendix D** for a summary of financial considerations in startups.

10. Invest in your network. Your value as an entrepreneur and that of your venture depends on the value of your network. Map the entrepreneurial ecosystem of your city and commit yourself to attending a networking event every week or two.

TYPICAL STARTUPS PITFALLS

Launching an academic startup is a high risk objective, marked by high failure rates. Being aware of the common issues that cause startups to fail can boost your chances of success:

NO COMPELLING NEED. At the TBDO we often assess brilliant solutions to inexistent or marginal problems. The dispute is not about the science, which is typically cutting-edge and exciting, but rather about the absence of a compelling customer need or even the presence of a big customer pain in a small market niche. The first step for self-evaluation should be asking yourself: "Ok, I've created a great technology to solve my problem. But have I built something that other people want? How many are them? And even so, would they be willing to adopt my solution and abandon consolidated technologies and common practices?" In other words, after evaluating the *problem/solution* fit, we will help you assess the *solution/market* fit. If you have a good answer to these question you might have a good business opportunity.

BAD TIMING. Even when a strong commercial need exist, you should be careful not to miss your window of opportunity in the market. Launch too early and the market might not be ready. Launch too late and you will have too many competitors. Good business opportunities need to be timely.

INEXPERIENCED MANAGEMENT. *All* startups need a winning team, with multi-sectorial expertise and a consistent strategic vision. Early decisions will affect the company's health for long, so you need to promptly fill any managerial and scientific gap. In particular, it is crucial for inexperienced founders to build a strong initial advisory board and to be prepared to delegate control as the company grows. Finally, ask yourself (and show investors): "Why is my team *uniquely* qualified to run this venture and successfully reach the market?" In other words, you should thoroughly assess the *market/team* fit. Otherwise, your entrepreneurial idea can be a business opportunity, but for someone else.

LACK OF FUNDING. Once you have validated your business opportunity, you need to make sure to raise sufficient funding to develop a commercial product. To attract investors you've got to be prepared to sell your team and your business plan, and to give them an exit route with good returns. Don't underestimate the importance of your pitching material.

BAD LUCK. Even with careful planning, venture can fail due to unexpected events. Resilient entrepreneurs should take failure as an opportunity to learn from their mistakes, recognize their strengths and create a plan to improve and move forward.

APPENDICES

Appendix A:

HOW TO DRAFT AN OPPORTUNITY REPORT

An opportunity report addresses the key factors underpinning your opportunity, and can serve as the base to validate your idea before shaping it into a comprehensive business plan.

Appendix B:

HOW TO DEVELOP A BUSINESS PLAN

A business plan should be clear and concise and address the main factors that investors will evaluate: a convincing product, its market potential, your competitive advantage (including IP) and a proven management team.

Appendix C:

ALIGN WITH CRG INTERNAL POLICIES

An outline of the main steps that entrepreneurs should follow to align with CRG internal policies and to demonstrate to potential investors that the startup has secured the right to exploit the CRG technology.

Appendix D:

FINANCIAL CONSIDERATIONS IN STARTUPS

It is very important to fully understand the equity/debt structure of your company and what it means for you as the company grows.



Appendix E:

STEPS TO INCORPORATE A “SOCIEDAD LIMITADA” IN SPAIN

An outline of the key steps that must be followed to launch a new business venture in Spain.

Appendix F:

COMPANY DOCUMENTATION

A checklist of the main documents that need to be in place to incorporate a startup and to provide a solid foundation for the startup's organic growth.

Appendix G:

RESOURCES FOR ENTREPRENEURS

An outline of useful resources to start your new venture, available through the TBDO and its entrepreneurial ecosystem.





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