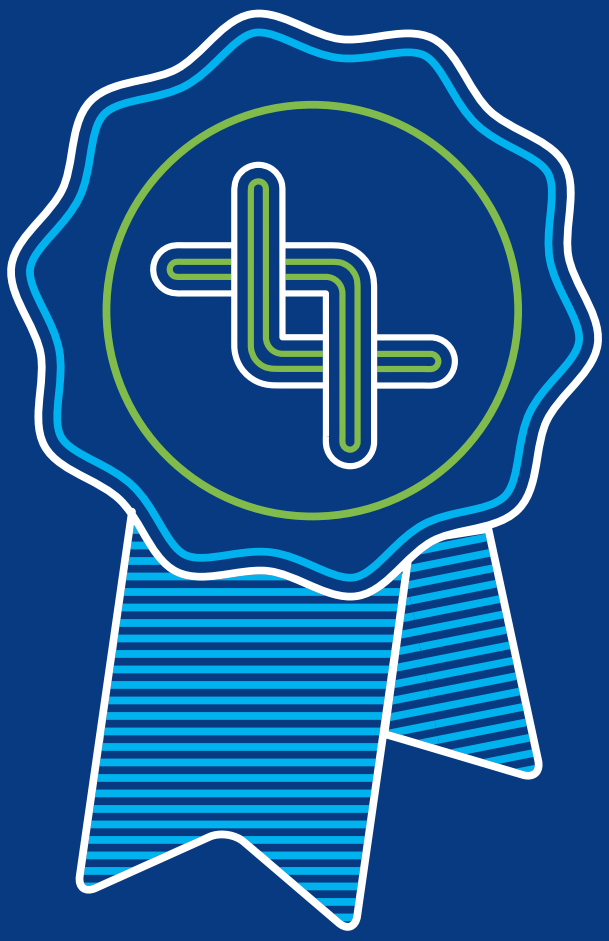
austria wirtschaftsservice aws



aws best of biotech bob

The international Biotech & Medtech business plan competition

Businessplan Handbook

Credits:

Austria Wirtschaftsservice Gesellschaft mbH

Walcherstraße 11A

1020 Wien
Austria

T: +43 1 501 75-548
F: +43 1 501 75-908
E: BoB@bestofbiotech.at
W: www.bestofbiotech.at

This handbook was last updated in January 2017 by winnovation consulting gmbh (www.winnovation.at)

TABLE OF CONTENTS

This handbook was created on the basis of the Science4Life business plan contest handbook. We would like to thank the project team of Science4Life for their kind support.

This handbook has already been used within the framework of previous years' Austrian business plan competitions "Best of Biotech". The handbook has been revised and updated for the eighth edition.

This handbook has been developed by Life Science Austria. Life Science Austria is a program of Austria Wirtschaftsservice Gesellschaft mbH, commissioned by the Austrian Federal Ministry of Digital and Economic Affairs.

1 From an Idea to a Company – Getting started

The game plan of a company start-up breaks down into several phases. It begins with an insight that grows into a compelling business model based on a strong business idea, followed by the preparation of a business plan, and finally, the formation of the company.

Your interest in this book indicates that you have probably already taken the first step: the germination of a business idea. The basics of the idea should now be thought through and formulated in writing. Subsequently a concrete business model should be developed. This outline lays the groundwork for the business plan.

The business model with its underlying idea evolves through a number of planning and research stages, during which it is adapted to the needs of the market. In the course of this process you concretize it, look for its strengths and weaknesses, and form a picture of the opportunities and risks associated with its implementation. If you make a good job of drawing up your business plan, finding investors gets a lot easier.

This manual should serve as a how-to guide to refine your business model and the underlying idea and develop a thorough business plan – in short: to guide you through the seed phase:

1.1 *Developmental stages of a business*

A business is a living organism: It starts out with a rough idea and ideally develops into a mature company. The below outlined phases give an indication of how a business develops. Obviously, phases can overlap and some companies might develop differently.

The **pre-seed phase** is the first stage in a company's life, during which it has not yet been founded, and normally consists of no more than a compelling idea and potential founders. Market potential is roughly being evaluated and feasibility checks to implement the idea are conducted in order to develop the business idea into a viable business model.

During the subsequent **seed phase**, a first business plan is put together (which needs to be revised in later stages) and time is spent on completing the founding team and preparing the concrete founding of the company. During this phase, the capital requirements of the future enterprise usually amount to several ten thousand Euros.

By the time the subsequent **start-up phase** has been reached, the company has been founded and the initial management team is in place. Work can now start on product development, registering patents, obtaining licenses, and perhaps preliminary marketing. During this phase, the investment volume may rise to several hundred thousand Euros.

By the time the **1st stage** is reached, product development has been concluded and – provided that no clinical trials or other processes approval are needed – a marketable product exists and first revenues are generated. If clinical trials are needed, testing starts. First employees join the company. Financial requirements vary at this point.

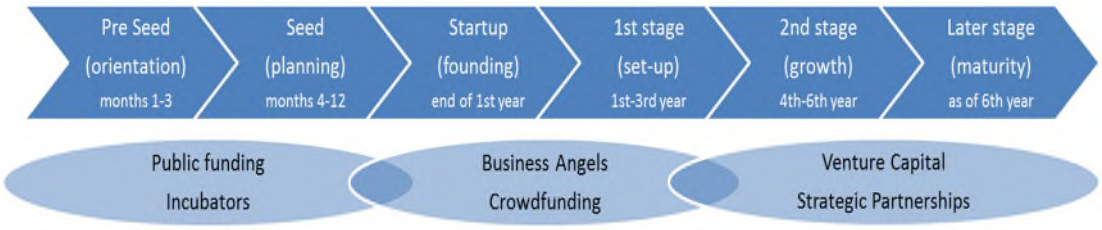
At the so-called **2nd stage,** the company is making profits and aims for expansion. Due to the company's growth, also in terms of employees, the internal organization needs to be re-evaluated and improved.

The **later stage** – when the company reaches a level of **maturity** – allows for sustainable growth. New, future markets as well as new fields of application are being targeted and processes are optimized.

Successful startups oftentimes get acquisition offers from bigger companies or develop into viable small and medium enterprises. For some, the development of an Initial Public Offering (IPO) is the logical step during the later stage.

Figure 1 gives an indication with regard to the timeline as well as potential sources for funding during the respective phase.

Figure 1: Phases of company development[1]



[1] Source: New Venture Scouting (http://www.nvs.co.at/)

2 From Business Idea to Business Model

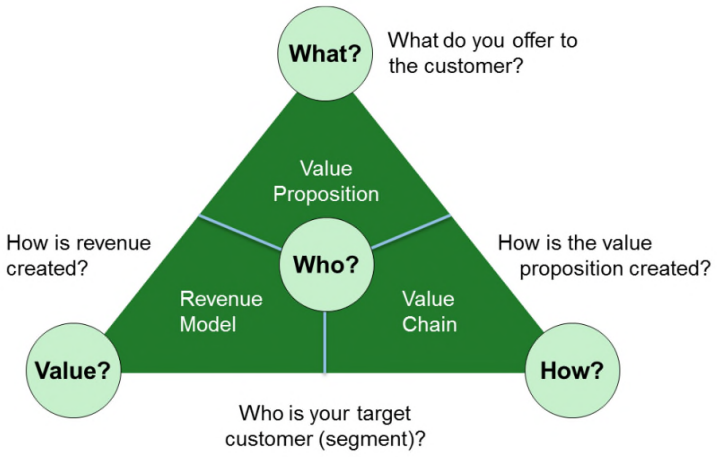
The creation of an enterprise involves intensive learning at all stages. The business idea, its concretization into a business model and business plan do not emerge over night, but require commitment and hard work. However, a crucial starting point is the business idea. It describes a solution (product/service) for a problem that is either already well known or new to the customer, and needs to be outlined on a few pages and analyzed carefully.

The business idea as such is not enough to guarantee business success. The interaction and implementation of several interrelated components must be considered. Therefore, the business idea has to be developed further into a comprehensive business model. According to Gassmann, Frankenberger and Csik[2], any business model should provide for an answer to the following four questions:

1. What is our product's/service's benefit for the customer?
2. Who are our targeted customers?
3. How do we get to offer the new product/service (production)?
4. How do we generate revenue/make it profitable?

The magical triangle puts those four questions in relation with each other:

Figure 2: Business model definition – the magic triangle[3]



[2] Gassmann, Oliver, Karolin Frankenberger, and Michaela Csik. The business model navigator: 55 models that will revolutionise your business. Pearson UK, 2014.

[3] Source: http://www.bmilab.com/fileadmin/images/home/The_St.Gallen_Business_Model_Navigator.pdf

Osterwalder and Pigneur[4] offer a slightly different approach to business model generation. When developing your business idea and the business model around it, it might be useful to consult their approach.

2.1 *Innovative Business Ideas*

It is essential that the written form of your business idea emphasizes its innovative character, since your idea needs to serve a yet un-met need in the market. Independently of its centerpiece (e.g. a chemical substance, a technology or algorithm), the business idea must bring new benefits to your customers. Business ideas can be categorized either as products or services, in addition, the way of working (e.g. how an existing product is brought to the customer etc.) could also be the basis for your idea. As a rule of thumb, test your business idea based on the criteria whether it brings benefits to your customers that they currently cannot get elsewhere and that the customers see a need for.

2.2 *Benefit to the customer*

In the development of new products or service, the various aspects of customer benefits are the prime consideration. A customer requirement is to be fulfilled either for the first time (unmet need), or in a better way than before.

Innovations, in the narrow sense, are entirely new products/services or elements of existing ones combined with a market need, while **product variations** are improvements of existing products/ services, or means of producing unchanged products/services at lower cost, and thus selling them at lower prices.

When refining your business idea, make sure that your starting point is the idea as viewed by the market, i.e. the customer. The customer benefits are the prime consideration, and everything else is secondary. If you say "Our new machine can perform 200 operations a minute" or "Our new device has 25% less parts", then your thinking is product driven. Say "Our new machine saves 25% of production time, and thus 20% of the customer's production costs" or "Our new solution enables customers to carry out new types of work" and your approach is customer driven. The product is a means of providing customer benefits, nothing else.

[4] Osterwalder, Alexander, and Yves Pigneur. Business model generation: a handbook for visionaries, game changers, and challengers. John Wiley & Sons, 2010.

Core benefit

It is worth noting that the **core product** often differs from the **actual product**. For instance, when a customer buys an electric drill, she/he is actually buying a hole in the wall. In other words, the core product adds up to the core benefit – what the customer really needs. The actual product is a means to the end of creating a benefit, and in particular is expected to provide the core benefit. Performance specifications such as drill speed or power are features not of the core product but of the product as a whole (irrelevant if the wall is made of plasterboard).

Core benefits are easy to define where products like drugs are concerned - provided that the patient is also the customer. But if the buyer is a health insurance the core product may not be the therapeutic effect but:

Low cost	Availability in sufficient amounts
A good press	Ethical arguments

When expressing the customer benefits, and thus the business idea, it is therefore essential to think hard about the core benefit and relate it to the question: "Who are our customers?" Only if you know who the actual customers are (where your profits are going to come from) you can tailor the benefits to their needs.

The **customer benefits** of a product/ service represent whatever is new or better about it compared to the competition's offerings or alternative solutions. They are thus key "differentiators" and play a crucial role in the market success of your business idea. If possible, you should express customer benefits in figures, as this helps to win investors over.

2.3 *Unique Selling Proposition (USP)*

Marketing specialists use the term a **unique selling propositions (USPs)** or **value proposition** when talking about the key differentiators. This has two implications:

- *Your business idea must add up to a selling proposition that is relevant to the customer.* Many startups fail because customers do not understand the advantages of the product and therefore do not buy it.

Your selling proposition must be "unique". The customer must opt not just for any new solution that appears on the market, but specifically for yours.

Features of promising business ideas

- Meet a need – solve a problem for customers
- Innovative
- Unique
- Clear objectives
- Profitable in longer term
- Room for expansion

2.4 *Market and competitors*

In order to ensure that you have a viable business idea, you need to know your market:

1. Who is the primarily targeted audience?
2. How big is the market?

At this stage, a detailed market analysis is too time-consuming and expensive. Use your knowledge and common sense. Do an internet search and read publications from specific associations if they are easily available. Speak to future users of your invention and request assessment from them. Essentially, your business idea must clearly show that you have invested thought in this issue.

With regard to your targeted audience, a first lead will suffice. E.g., consider who may be eligible for treatment with a new pharmaceutical. Maybe after thorough research is conducted, a larger scope of application will be conceivable.

Make sure you know the market well: Are there similar or alternative products (substitutes) that match the same customer needs? Your business idea must convey that you know your competitor landscape. And that you are able to explain how to outdo your competitors.

Patent situation

Similar to your market analysis, you should perform a rough analysis with regards to patents and mention the global patent situation related to your product/service. The two largest and internationally relevant patent databases of the USA (www.uspto.gov) and the European Patent Office (www.espacenet.com) are free of charge and provide elaborate patent research. For nation-specific patent databases, you may consult the Austrian

(pubserv.patentamt.at/PublicationServer) and the German Patent Office (depatisnet.dpma.de). A detailed illustration pertaining to patents can be found in section 3.5.2.

2.5 *Profitability scenario*

In this chapter, you should briefly outline how you will make sure that your business will be profitable, in other words: how you will generate revenue with your operations. This could be selling a product or service (including data or advice) or e.g. getting license fees without producing anything yourself.

2.6 *Protecting your idea*

It is important that your business idea cannot be easily copied by competitors. In many cases, however, it is also advisable to obtain legal protection, for instance by:

- **Patenting your product:** Particularly in the field of life sciences and chemistry, early patenting is often a good idea. Investors will want to be sure that your idea will not be rendered worthless by imitation. (For more on this topic see the section on patenting strategy).

  CAUTION: Keep in mind that when patenting your invention at a later date, "novelty" will be a decisive factor. Although the term "novelty" is variably defined in the relevant national patent laws, in Austria, Germany and under the European Patent Convention (EPC), everything that is not in the "public domain" at the time of patent registration is defined as new. The "public domain" comprises all information that is made available to the general public, may it be orally, in written form, electronically or otherwise. Consequently, if you publish your invention in a trade journal or present it to a larger audience at a scientific congress or trade fair before it is patented, it automatically becomes "public domain" and forfeits its novelty. By doing so, you deprive yourself of the basis for a later patent![5]

- **Confidentiality agreement:** Lawyers, accountants and bank employees are obliged by law to maintain confidentiality. A good venture capitalist will also have a strong interest in keeping your ideas confidential, and the same applies to your professional advisers. When talking to other people, it may be helpful to ask them to sign a confidentiality agreement.

- **Material transfer agreement:** Material transfer agreements enable you to continue to give the product as a whole, components of it or materials more wide-ranging protection than a

[5] In the USA, Canada and Japan the "first to invent" principle applies, granting the inventor a grace period of one year (USA) for publications.

confidentiality agreement would do. A material transfer agreement can be used to lay down the scope of cooperation with a business partner, use of the product/materials, exploitation of results obtained with the assistance of the product, collaboration with third parties and transfer of products, materials or information to them, and much else.

2.7 *Formal presentation of the business idea*

Title page

- Name of the Product/Service
- Names of the entrepreneurs
- Reference to confidentiality
- Illustration of the product "in action“ if appropriate

Text

- Max. 5 pages
- Clear structure, optically structured with titles and tabs
- Abbreviations should be explained

Charts/pictures/tables

- Maximum of four illustrations as attachments
- Only if necessary for comprehension
- Explicitly referred to in written text
- Simple, clear illustration
- Consistent format

Business Idea Checklist	✓
What is new about your invention? How is it different from existing products/services?	
How realistic is your idea?	
Is it patentable?	
Are there already any patents held by others?	
To what extend is the business idea unique (USP)?	
Who are the potential customers for the product or service?	
What need or want is the product or service capable to fulfill?	
Do potential customers have sufficient purchasing power to pay for it?	
Does the planned product provide the intended core benefit?	
How can the idea generate revenue?	

Practical advice for business ideas

- Devote plenty of time and care to formulating your business idea: it is the seed, which your future company will grow from!
- "Seeing is believing": besides text, use visual forms of communication. Also: An illustration of the prototype, finished product or service "in action" or a flow diagram of a process will help the reader to form a clearer picture of it in his/her mind.
- The more simply and clearly you explain your idea, the better it will be understood: try it out on a layman.

3 The Business Plan

A business plan should follow a certain basic structure. Its main focus is on making quantitative and qualitative statements about the projected development of the company, its potential and the risks that it faces. It should be treated as if it was a living organism, meaning that your business plan has to be revised and updated on an ongoing basis. The planning horizon normally lies between three and five years.

How to draw up the business plan

When preparing the final draft of the plan, bear the following points in mind:

- The style should be clear, factual and concise and the contents should be understandable for laymen – investors are often non-scientists
- Use tables and diagrams – illustrations usually put the point across better than words
- Criticism is a source of strength: ask outsiders to review your plan for weaknesses, seek expert advice at an early stage (e.g. from Life Science Austria) and improve it accordingly
- If you are planning to market a variety of products develop a strategy for each, and show how the various strategies will fit together

The business plan should consist of the following ten sections and an annex.

1. Executive summary
2. Product idea incl. technology & scientific data
3. Team
4. Market and competition
5. Barriers to market entry and patent strategy
6. Marketing and distribution
7. Organization
8. Milestone plan
9. Finance
10. Opportunities and risks

This structure is based on investors' information requirements. The various sections contain information on your business idea, corporate philosophy, objectives, market and competitive

situation, financial plans, capital requirements, potential return on investment, opportunities and risks.

3.1 *Executive Summary – the showcase of your plan*

As the key component of your plan, the executive summary contains the main elements of the business plan, expressed in a clear and concise form. It is like a summary and sketch of your future enterprise, while the subsequent parts of the business plan give the full picture.

The summary should cover the following points:

- *Object of business / business idea:* Describe the product(s) and/or service(s) you wish to supply and the target markets for them.
- *Business mission:* Remember to explain why you want to found the business, and what **your motives** for the venture are. Agree on a mission statement with your team.
- *Corporate objectives and visions:* Set out the goals, visions and growth opportunities of the planned enterprise. Make no secret of your optimism, but keep your feet on the ground.
- *Success factors:* Explain what makes your idea unique, and describe the customer benefits and your competitive advantage.
- *Management team:* Give an account of your expertise; your career and experiences as well as the composition of your team are key!
- *Financial targets and capital requirements:* Set out your turnover and earnings targets, and provide estimates of your capital requirements. It is important to introduce some key data in support of your ideas. However, the detailed information, on which your forecasts are based, should be presented in the financial plan itself.

Executive Summary Checklist	✓
Is your executive summary easy to understand and readable?	
Is your summary short and to the point?	
Does your summary explain the business idea properly?	
Will a layman be able to understand the summary?	
Will the executive summary awaken readers´ interest and entice them to keep reading?	
Do you know what your goals are and what *you* want from the venture?	
Will a potential investor recognize why he/she should invest?	

Practical advice for executive summary writing

- Make sure your Executive Summary can be read and understood in no more than five minutes, comparable to an elevator pitch: within five minutes everything essential has been said.
- Complex scientific reasoning must be presented in a simple form. Give a logical and consistent account of your idea.
- Make sure that the summary is clearly constructed, persuasive and complete.
- Make sure that the typography and layout will not put readers off.
- Try your summary out on friends and colleagues.
- Reread the executive summary after drafting each chapter of the business plan and revise it accordingly.

3.2 *Product Idea*

In this chapter of your business plan, you clearly and simply explain which problem your business idea convincingly solves and how. When putting your business idea to paper, you have already roughly illustrated fundamentals: customer benefits, market and profitability scenario. Now, you must go into greater detail, using a language that is understandable for laymen. It is important that you add technical and scientific data.

Checklist Product Idea	✓
Which problem do you solve with your idea?	
Which customers and which of their needs do you address?	
What kind of product or service do you want to sell?	
What exactly do you offer? Which elements does it comprise?	
What makes your product/service innovative?	
How is your product/service unique?	
How do you intend to safeguard this uniqueness?	

3.3 *Management team*

Investors agree that the founding team = management team is crucial for a start-up's success. The best business idea will fail if the team behind is not capable, or in other words: The team will bring success, not the business idea as such. It is therefore key that you team up with others who bring a wide range of skills to the table. You will need to engage in division of labor such as sales and marketing, human resources management, research and development, cost accounting, raising finance, facility management, dealings with the authorities and negotiations and you need the right fellow campaigners to succeed. Keep in mind that teamwork furthermore reduces the risk that the loss of one key individual will cause the collapse of the whole company.

3.3.1 Building a strong team

A good principle to start out from is the tenet that "not every friend makes a good business partner". The choice of your co-founders is crucial, and your venture's chances of success will be considerably better if you ensure that you and your co-founders set about the job as a genuine team. A strong team is characterized by:

- Complementary strengths and skills
- A common vision - everyone is genuinely committed to the success of the company
- Flexibility and willingness to compromise when difficulties arise
- Resilience in the face of setbacks, determination to keep trying

A true team adds up to more than the sum of the parts but this requires the right line-up and working methods. Devote a lot of your energy to assembling a trusted team. Personality,

professionalism, interpersonal skills and commitment on the part of the initiator and his/her team account for as much as 80% of the investor's decision for or against a project.

To prevent "blind spots" in the business development, the composition of your team should reflect the main capabilities needed for business success:

- Financial skills (budgeting, controlling, accounting)
- Marketing and sales skills (channels, pricing, targeting)
- Entrepreneurial mindset
- Networking and presentation skills
- Project management skills
- Product-related knowledge and technical expertise
- Human Resources management skills

3.3.2 The founders and their shares

Few founders of companies are in a position to employ and pay the team members (co-founders) they need at market price. Often, they compensate the lower wages they pay by giving out shares. To prevent disappointments on who gets how many shares for what, it is necessary to establish a clear picture of the ownership of the start-up before entering into discussions with investors. A good approach to deciding on the relative shareholdings is to look at the previous and future inputs of the founding team members including their risk taking, e.g. own investments. For instance, the "inventor" of the idea and the future chief executive could have higher shareholdings than other members.

3.3.3 Introducing the team

Forming and strengthening a team of entrepreneurs marks a big step forward. Make sure that potential investors get to know your team, its motivation and dynamism. For instance, you could provide the following types of information to highlight the members' abilities and its collective strengths:

- **The team as a whole:** Discuss team members' complementary skills, show evidence of their ability to work and stick together even when the going is rough, prove the personal commitment shown by the team, the ownership structure and the roles of individual team members.

- **Individual team members:** Represent major milestones in their careers, such as their educational background, professional training, practical experience, foreign experience, employment record in regard to their task in the start-up. Also, if relevant,

indications of special talents might be added. Keep these profiles brief, a maximum of a third of a page per team member is sufficient. You can include full CVs as an annex.

Pictures of the team members will help investors to get a better impression of the team.

Your team for the competition

What do you do if you have a good business idea, but your team of entrepreneurs is not complete in time for the BoB business plan competition? The right approach is to describe the present team, and compare it with the range of talents you will need to assemble. Convey your team's strengths and weaknesses realistically and without wishful thinking. Outline necessary steps to add to its expertise.

It is worth remembering that an important reason for taking part in the competition is the opportunity to network with like-minded people. Who knows? Perhaps this is how you will find the missing team members.

Management Team Checklist	✓
Who do you have on your team?	
What are their strengths and weaknesses?	
What does your team profile look like as a whole?	
How well-matched is your team as a whole?	
Are you aware of the weaknesses of your team?	
Do you know how to compensate for these?	
Why do you and the other founders want to found the company?	
Are your motives and aims really the same?	
Is the division of roles in the team clear?	
Has the ownership structure been clarified?	
Is there an exit scenario for members who want or need to leave the team?	

3.4 *Market and Competition*

This and the following chapter ("Barriers to market entry") demonstrate how much you know about your potential market. Therefore, you need to be as thorough in the market analysis as you are used to being in your scientific endeavors. When working on your business idea, you have already spent some time thinking about your market and the competition you will have to deal with. Now you have to go deeper and add reliable data and forecasts to your business plan.

3.4.1 Defining your market

As a first step you need to be clear for which customers you want to create benefits (= target group) and describe them as precisely as possible. This could be for example patients in certain situations, with certain indications or of certain demographics, but also doctors, other health professionals or hospitals. Once the target group is set, you can define the market accordingly.

It is relatively easy to define an existing market to which you want to offer an “improved” product. There will be statistics, industry reports by associations, market studies by business consultants, and annual reports published by market players.

Fortunately, the internet offers an immense abundance of data and information. **Table 1** offers you several useful websites.

The research task is more difficult for innovative companies that have invented products for entirely new applications. First, you have to either find or define your market and infer the market's size and growth potential. It is highly recommended to undertake market research of your own by interviewing potential customers or opinion leaders early on, and by using basic data, e.g. from statistical offices on demographic and social trends. In addition, with the aid of relevant publications in scientific databases, you can get an idea of the current trends and potential target market.

Table 1: Internet links for the market analysis

Internet Address	Type of information	Costs[6]
INDUSTRY ORGANIZATIONS		
www.bio.org	Biotechnology Innovation Organization (USA and in more than 30 nations)	m
www.phrma.org	Association of US biopharmaceutical companies	m
www.bioindustry.org	BioIndustry Association, BIA (UK)	m
www.pharmig.at	Association of Austrian pharmaceutical companies	n+m
www.fcio.at	Association of Austrian chemical industry	n
portal.wko.at	The Austrian Economic Chambers	p
www.efpia.eu	The European Federation of Pharmaceutical Industries and Associations (EFPIA)	n
www.ifpma.org	International Federation of Pharmaceutical Manufacturers & Associations	n
www.abpi.org.uk	Association of the British Pharmaceutical Industry	n
www.medicinesforeurope.com	Medicines for Europe, association for the European generic, biosimilar and value-added pharmaceutical industries	n+m
INDUSTRY NEWS		
www.biospace.com	Life science news	p
www.bioportfolio.com	Life science, pharmaceutical and healthcare industry news	n
www.biocentury.com	Industry news	y
www.bioworld.com	Biopharmaceutical news and information	p
www.pharmatimes.com	News stories, interviews, features, case studies and analysis in the pharma and healthcare sectors	p
btobioinnovation.com/biopharmaceutical-news	Weekly pharma/biotech news	n
www.biopharma-reporter.com	News on Biopharmaceutical Development & Manufacturing and daily/ weekly newsletters	n
www.biopharmadive.com	Clinical trials, biopharmaceutical news on a daily/ weekly basis	n
www.pharmtech.com	Information source by Pharmaceutical Technology and Pharmaceutical Technology Europe	n

[6] n: free, y: fee required, p: partially fee required, m: memberships available

Internet Address	Type of information	Costs[6]
COMPANY INFORMATION		
Annual reports are published by publicly listed companies (Investor relations section)		
www.hoovers.com	Company databank	p
JOURNALS		
www.genengnews.com	American industry journal ”Genetic Engineering & Biotechnology News“	n
www.transkript.de	German-speaking life science industry journal ”Transkript“	n
www.chemiereport.at	Austrian Chemical/Life Science journal	n
www.devicelink.com	Industry journal – medical devices	n
www.boerse-express.com	Austrian stock market news, incl. weekly newsletter “Venture Woche”	n
www.lifescienceresearch.net	Monthly life science journal about research tools, technologies, products and services	n
www.biotechniques.com	International journal of life science methods and techniques for lab scientists	n
www.lifescienceglobal.com	Publishing company offering several journals, which cover a wide range of academic disciplines.	y
PUBLIC INSTITUTIONS, AGENCIES AND REGULATORS		
www.sec.gov	„Securities and Exchange Commission“, US regulator of all public companies. EDGAR Search Tools contains all annual reports	n
europa.eu	European Union	n
www.help.gv.at	Online help of the Republic of Austria	n
www.ris.bka.gv.at	Legal Information System of the Republic of Austria	n
www.fda.gov	US Food and Drug Administration	n
emea.europa.eu	The European Medicines Agency for the evaluation of medicinal products	n
www.cdc.gov	Centre for Disease Control and Prevention	n
www.nih.gov	National Institutes of Health	n
www.who.int/en	World Health Organization	n
STATSTICAL/MACREOECONOMIC DATA		
www.statistik.at/web_en	Statistics Austria, The Information Manager	n
ec.europa.eu/eurostat	EUROSTAT	n
www.oecd.org	Organization for Economic Cooperation and Development. Look for biotechnology section.	n
www.eiu.com	The Economist Intelligence Unit	p

Internet Address	Type of information	Costs[6]
VENTURE CAPITAL		
www.investeurope.eu	European Private Equity & Venture Capital Association (formerly known as EVCA)	n+m
www.avco.at	Austrian Private Equity and Venture Capital Organisation	n+m
CONSULTING FIRMS		
www.mckinsey.com	McKinsey & Company	y
www.bcg.com	Boston Consulting Group	y
www.ey.com	Ernst & Young; published yearly biotech industry report “Beyond Borders” until 2014	y
MARKET RESEARCH REPORTS		
www.marketresearch.com	Lists professional market research reports and industry analysis	n
www.the-infoshop.com	Lists professional market research reports	y
www.imshealth.com	Professional market reports	y
www.datamonitor.com	Professional market reports	y
www.freedoniagroup.com	Professional market reports	y

The following definitions will help you to systematically analyze the market for your product: The **market size** or **volume** is the sum of all solutions to a given problem sold by all competitors. Here again, we are faced with the problem of defining the core benefit and accordingly your real competitors: Who else solves this problem? To take the example of the electric drill, here the market size can be the total sum of all electric drills sold, but could also be the total of all electric drills, percussion drills, hand drills and other comparable tools. If you think about selling the service (a drilled hole) and not the product (the drill), you have to even consider the market size for holes sold in the market. The market size tells us how much business there is to be done. The market volume is usually defined as the total turnover of a given **industry** per year and geographical region expressed in Euro. In those markets that are essentially defined by a product type (e.g. cars or basic chemicals), the market size is also defined in terms of the total volume sold, e.g. by units or tonnage. In any case, make sure you concentrate on relevant markets. Overstated data derived from irrelevant markets will not make a good impression to investors. When investigating market size, also keep the geographical scope of the market in mind: Where are the target markets located and what geographical areas are even relevant to your strategy, assessed, e.g. based on market size?

Market growth is usually expressed as annual absolute or percentage revenue or volume growth.

The **market potential for your product** consists of the total volume of, or revenue generated by your product or service that is theoretically possible in each year. In the case of a treatment for Alzheimer's disease for instance, this would be all cases around the world times the prescribed annual dosage of your medication. But as your medication will not be prescribed to all Alzheimer's sufferers, and some will not be able to afford it, what really counts is the **attainable market potential,** i.e. the total prospective annual sales. The attainable market potential will always be smaller than the total market potential. For some industries and products, historical figures can be used as a reference, otherwise you will have to rely on estimates.

Your **market share** is defined as your total sales relative to the volume of the market as a whole, or your total budgeted sales relative to the attainable market potential for a coming year. In other words, it is that share of total turnover that is or will be claimed by your company. The size of this share will depend on the strength of your competitors. Here again, you have to rely on estimates, but can also make comparisons on the basis of historical figures.

Figure 3: Market parameters

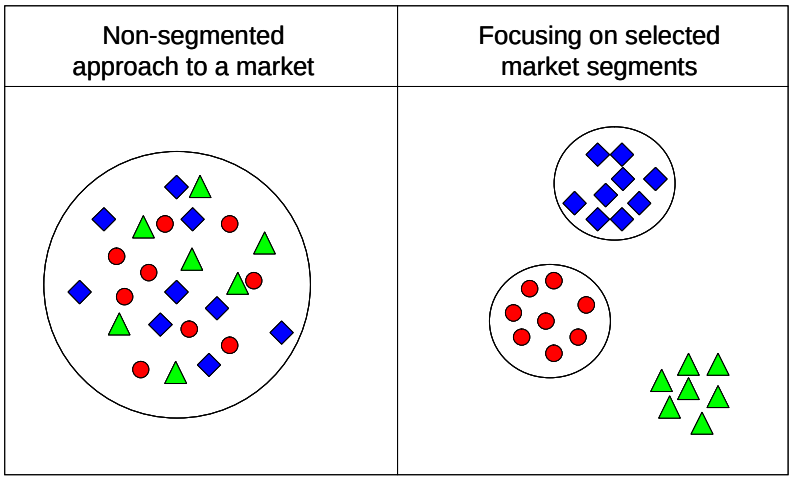
	Volume	*Potential*
All companies	**Market volume** Sales generated by all companies	**Market potential** Market volume + Potential customers - Customers w/o purchasing power
One company	**Sales volume** Sales generated by one company	**Potential sales** Sales volume + Customers that can be won + growth

3.4.2 Choosing your target market

Within the market, you have to detect the group of customers that would benefit most from your product or service, that you are able to reach and that have the willingness to pay for it. This means choosing a target market (the market served) and determining its characteristics. Hence, your business plan has to answer the following questions:

- Who are your potential customers or customer groups ("segmentation")?
- Which potential customers or customer groups are particularly attractive to you from a financial point of view?
- What market share and turnover can you expect to reach with these customers?

Figure 4: Market segmentation



The left-hand graphic depicts an approach whereby the whole market is serviced without making any distinctions. This might be useful in very early explorative phases when you test the market with a minimum feature set of your offer (Minimum Viable Product[7]) in order to find out which customers are attracted how by this offer and how you might change your offer. The right-hand graphic shows potential customers divided into groups with common features, so that the marketing strategy can be adapted to suit each group. A customer segment can even be left out. Thus, successful marketing begins by examining the market and the needs of potential customers as early as possible and, if suitable, defining possible segments you want to target.

Criteria for customer segmentation

For **consumer goods** (B2C = all goods that are sold directly to the end-user) the following are potential segmentation criteria:

Geographical: Country or population density

Demographic: Age, gender, income, occupation, company size, etc.

Lifestyle: Techies, greens, generation X, etc.

Behavior: Frequency of product use, type of use, etc.

Purchasing behavior: Brand preferences, price consciousness, purchasing channels.

Regulatory environment: Collective public purchasing vs. out-of-pocket payment by patients

For **capital goods** (B2B = goods that are sold to businesses to enable them to

[7] MVP, a term used in the Lean Start-up Method by Eric Ries

produce other goods and services), on the other hand, segmentation can be different:

Demographic: Company size, sector and situation

Operational: Technology applied

Purchasing behavior: Centralized or decentralized purchasing, purchasing criteria, contracts with suppliers, etc.

Situational: Urgency of need, order size, etc

The market segments you will want to enter are those that promise to generate the most profit in the long term, i.e. those segments:

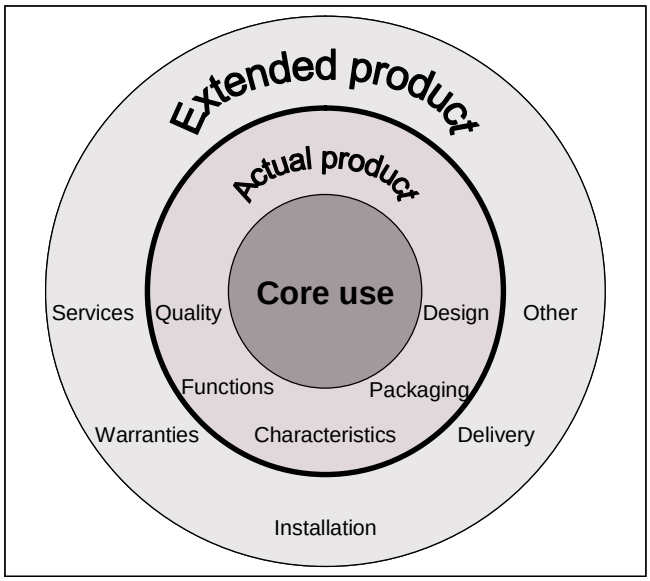
- Where the product best corresponds to the customer's requirements, hence the benefit is the greatest
- Which offer the most possibilities to differentiate your product from those of your competitors, in other words where the customer can be convinced the most easily
- Where the market volume, growth and profitability are the greatest, thus the ones promising to earn the highest profits
- Which are known as trend-setters in their industry, and can consequently make a significant contribution to the reputation of your new product

3.4.3 Positioning vis-à-vis competitors

When you set out your business idea, you were already endeavoring to draw up a unique selling proposition (USP). What you have to do now is validate the uniqueness of this proposition and then firmly lock it in the customer's mind by means of effective communications. The expression used for this is "positioning" a product, brand or company. The key is to view your image from the customer's point of view. It is not a matter of presenting specific product features, but rather the benefits that these features have for the customer.

We already used the so-called "core benefit" as a yardstick earlier. Now let's take another look at this criterion as it relates to the product.

Figure 5: Core use and extended product use



A product can be distinguished from the competition's and firmly embedded in the customer's mind (**positioning**) in a positive context in all three spheres of the product, but most frequently this differentiation occurs in the extended product sphere, which is where the additional benefits come in.

You may not succeed in positioning your product convincingly the first time around. You will have to work very hard on it, repeatedly revising your positioning before you finally convert your target audience. Since positioning is so crucial to market success, and hence to the long-term success of your company, it is well worth devoting a great deal of attention to this aspect. In many cases, it will be difficult to even decide on a positioning right from the start. The so-called Lean Startup method[8] recommends testing your product early on in the market. Important feedback from customers and non-customers will allow you to adapt the product and its positioning appropriately after entering the market.

Important aspects of successful positioning

The following points can serve as a guide to position your product successfully:

1. Detect relevant customer needs or problems
2. Define clear, discrete and sufficiently large customer segments
3. Offer a competent range of products and additional services

[8] See http://theleanstartup.com/

4. Define the uniqueness of your product by differentiating it from the competitors

5. Continually monitor customer satisfaction after the sale is made

3.4.4 Market growth and market life cycle

Market growth is generally defined as **CAGR** – the compound Annual Growth Rate in form of a certain percentage.

Being aware of the growth rate of a market can have a considerable impact on strategic issues. Generally, four phases can be distinguished in the life cycle of a market: introduction, growth, mature market and downturn (see **Table 2**).

Example: Deducing market potential

In order to assess the market for a new vitamin preparation, one could conduct studies on vitamin deficiency or conduct consumer surveys. This research might show that about one in ten consumers is potentially interested in the vitamin preparation, meaning that the **market potential** is 10% of all consumers (in a population of ten million this would amount to a market potential of one million people).

But it is not enough for a consumer to express an interest in a product without realizing it - the consumer must also have purchasing power, combined with the willingness to pay. Furthermore, the product must be obtainable, e.g. available at a nearby chemist's. Thus, not all potential customers can be reached, which means that the **attainable market** is still smaller (perhaps 40% of the market potential, hence 400,000 customers).

In addition, the product could compete with other preparations. Assuming that the other preparation is taken by 20% of the population, the **addressed** or **qualified attainable market** in this example thus consists of only 320,000 customers.

As an entrepreneur, you may decide not to supply certain sales territories owing to such factors as exchange rates and trade barriers. This would make the **actual market served** even smaller - say, 250,000 customers.

Finally, not all of these potential customers will actually buy the product - the **actual sales** might be reduced to 200,000 people. Often, it is this last figure that is used to define the market for the product.

Besides the evaluation of the target market's growth, it is important to spend some time reflecting upon the target market's developmental stage based on businesses' life cycle. Assess your own market based on below characteristics and outline in your business plan how your target market's level of maturity will impact your business development and success.

Table 2: Market life cycle

	Life cycle phase			
Characteristic	***Introduction***	***Growth***	***Mature market***	***Downturn***
Market growth	Growth higher than in overall economy, small quantities	Growth higher than in overall economy, large quantities	Growth similar to overall economy	Growth smaller than in overall economy
Product technology	Highly innovative	Emphasis on product variations	Small innovations based on balancing cost cutting vs. improvement	Small amendments to product
Production technology	Flexibility dominates	Production flow is specialized	Efficiency dominates, specialization	Small amendments to production technology
Price	High, but strongly fluctuating	Pricing drop due to growing competition	Gradual decline in prices due to decreasing expenses and increasing productivity	Low and stable
Advertising	Innovators act responsively, rising awareness	Brand establishment	Splitting of the market into segments	Market limitation
Market entry and exit barriers	A few pioneers investigate the market	Strong growth attracts an abundance of companies	Saturated market leads to market adjustment	Few survivors supply the market
Competition	Limited, focused on production	Growth can conceal the success of competitors	Peak	De-escalation
Investments	Substantial	Growth financing	Simple investments	Sale of corporate assets
Profitability	Unprofitable	Profitable, but negative cash flow	Sinking profit, positive cash flow	Low profits, small positive or negative cash flows

3.4.5 Competitors analysis

Anyone who wants to supply the market with a product will be faced with competition. Once you have decided which market(s) you want to enter, you have to find out who the most important players in the market are and learn as much about them as you can. Furthermore, you have to gauge whether another competitor may enter the market with a similar product and how that would affect the success of your business. Above all, you need to ask yourself whether your idea could be copied by other companies and, if so, how long that could take. In addition, you need to take care to protect your ideas against imitation by other firms - patents, etc. have already been mentioned above.

Above, it was already pointed out that various products may create the same core benefit (as with an electric drill, percussion drill, nail, etc.). So, in addition to existing and potential competitors, you will also have to devote some attention to **substitutes**. These are products and technologies that provide the same or similar customer benefit in another way, as is the case with railways and buses. Thus, your analysis of the competitive situation will have to be somewhat broader, factoring producers of substitutes into the equation.

Scrutinize your competitors: Examine your competitors' product portfolios and catalogues public research reports, dig into their financial statements (of public companies these are easy to obtain and can reveal a great deal about a competitor's liquidity and financial room for maneuver), and even consider forming strategic alliances with competitors.

The most important points to address in analyzing potential competitors are:

- Their product ranges
- The advantages and disadvantages of their products in comparison with your own
- The strength of their distribution channels and access to markets, e.g. whether a product is well established in hospitals or doctors' offices
- The potential additional benefits offered by their competing products and the possibility of combining these with others
- Their market shares
- How long they have been in business, and the value of their brand awareness
- Their appeal to customers relative to all other market players (customers easy or hard to poach)
- Their innovative capabilities (do they stick to established products or do they have a major development effort ongoing and frequently launch novel products)
- The size of their research departments and of their marketing and advertising expenses
- The strength of their balance sheets and earnings figures

- The history of the competing products (you can learn a lot from this for your own business)
- Their recent acquisitions and rumors about upcoming acquisitions

Of course, there are many other points that could help complete the picture. Just try to examine your competitor as carefully as you can from every possible angle. A precise analysis can furnish numerous points of reference for your other estimates and plans, as well as showing that you have examined the market in depth.

Getting estimates right

Estimation is an integral part of planning and decision-making processes. It is extremely rare to have all the facts and figures needed to be sure of making an absolutely right decision. This is especially true when it comes to estimating the size of the total market or customer segment.

Those who work in the natural sciences are used to dealing with exact figures. In market analysis, however, it is more common to use estimates based on plausible assumptions to reach a reasonable approximation. It is better to have an estimate with known risk factors than a precise figure that is devoid of a realistic background or involves undue expenditure of time and money.

Here are some advices for making estimates:

1. Build on firm foundations: If you rely on figures that are easy to verify, e.g. those obtained from statistical offices, your estimates will have solid foundations. It is essential to say what your assumptions and estimates are based on in the business plan.

2. Logical methodology: It should be easy to trace the logic behind an estimate, meaning that your argumentation should not jump around or be based on unnamed assumptions.

3. Compare sources: Whenever possible, verify information by using a variety of sources. In particular, market studies and survey data can often be obtained from different institutes.

4. Creativity: The best way from A to B is not always a straight line. If a variable is unknown, look for substitute variables related to the unknown magnitude.

5. Verify plausibility: Does the result really make common sense?

Market Analysis and Competition Checklist	✓
Do you know what your market is?	
Which other products/services are you competing against (in the view of potential buyers and users)?	
Who are the potential buyers and end-users for your product?	
What is the market volume today? What will it be in the next five to ten years?	
What are the assumptions behind your estimates?	
How could the market volume develop in the long term?	
Who are the main competitors?	
What are their products compared to yours?	
What is the financial standing of your competitors?	
What are your strengths and weaknesses?	
How large are competitors' market shares?	
How strong is the competitors' hold on the market; how loyal are their customers?	
Are there any market entry barriers?	
How fast would competitors be able to imitate your idea?	
What market shares can you/do you want to achieve?	
Under what conditions?	

3.5 *Barriers to market entry and patent strategy*

Successful products and profitable businesses usually attract imitators. This competition almost inevitably leads to a reduction in the originator's market share and thus to dwindling profits. To prevent this, one should at the earliest possible opportunity consider how to build effective barriers to entry to prevent potential competitors from entering the new market one has created.

In life sciences and chemistry, patents play a crucial role in this respect, which is why we put so much emphasis on them here. If your product is not readily patentable or if you intend to offer a service, you should briefly describe the barriers you intend to use to keep the competition at bay, as well as your strategy for breaking into or building a market.

3.5.1 Designing a strategy to keep the competition out

When you found a company, you are either creating a new market or entering an existing one. In both cases, you naturally need to consider how you will tackle the existing competition and how you will protect yourself against future entrants.

You need both to develop a **market entry strategy** and to create **barriers to entry**. A well-designed market entry strategy can serve at one and the same time as a barrier to competitors and as a way of overcoming a competitors' barriers. It is important to explain how you intend to put clear water between yourself and the competition.

Some typical situations and strategies that you may encounter in the marketplace are described below.

3.5.1.1 Niche strategy

As in all sectors, there are numerous businesses and individuals that specialize in particular niche markets. They deliberately concentrate on their chosen segments. (Beware: Small units of large firms often cover niches and must therefore be considered in a competitor analysis.)

By adopting a niche strategy, you can make good profits even from a small customer base. A major advantage of this strategy is that the supplier knows his small group of customers better than his competitors, who address a wider market, and can better respond to their needs and hence potentially command a premium price.

- Niche marketers can choose to pursue one specific or a combination of several niche strategies: **Specialization in an end use:** Concentrating on a particular application of the product.
- **Specialization in a particular part of the distribution chain**: For example, operating as middleman, broker, supplier of raw materials, logistics sub-contractor, etc.
- **Specialization by customer size or other types of customers:** For example, supplying small businesses, or only hospitals above a certain size. Concentrating on relatively neglected small customers can be particularly rewarding.

- **Product specialization:** The business concentrates on a single product or a very restricted range of products. This is typical of the early phases of new ventures. Later one should not forget the possible need for a change of strategy.
- **Quality specialization:** It is possible to target products at particular quality or price niches.
- **Services:** Many new ventures partially or completely specialize in given services.

Niche strategies are however not without risks: There is always the danger that a niche market will disappear or that the competition will invade the selected niche. Planning well ahead and continuing product development are the best defense, together with occupying several niches.

3.5.1.2 First mover advantage

This is where market players deliberately exploit their position as market front-runners. Let us examine the example of L'TUR, the last-minute travel agency that was the first to exploit the possibility of branding the unutilized capacity of tour operators and selling it cheaply. By the time that others entered the market it was hard to attack L'TUR's dominant position. This type of strategy often leads to market leadership. An organization that opens up a new market profits from any subsequent enlargement of the overall market due to the efforts of its competitors. It will therefore also try to expand the market itself. The expansion can come from attracting new customers to the product or by stimulating increased consumption.

On the other hand, first movers are facing higher risks as they have to bear the costs of establishing new markets. Suppliers of probiotics for instance follow both strategies, attempting to raise consumption through advertising, and to attract new users by emphasizing the health aspects. First movers with well established brands in this market also benefit from the communication activities of their competitors.

3.5.1.3 Technological leadership

This strategy is similar to the first mover approach and may also result in market leadership. The main aim is to establish one's product as the standard for the whole market. In the 1970ies, for example, CPI successfully introduced its new lithium technology pacemakers (first mover in this market). The market leader, Medtronic, wanted to reap the full benefits of its existing product range and delayed investment in new technologies. This delay allowed CPI to capture market shares with its new technology and take over as the technology leader. "Leadership" in this context does not need to mean that the technology is the newest or the best in the market: market penetration alone may be enough. There are many instances of technologies that were not the best, but still won out: take the triumph of blu-ray over HD-DVD as an example.

3.5.1.4 Product differentiation and cost leadership

Product differentiation can be used to sideline the competition. Typical sources of product differentiation include differences in functionality, design, quality and availability as well as in the realm of marketing and promotion. Cost leadership allows for differentiation via lower prices. However, market leaders often react to low price strategies by immediately cutting their prices, so that the competitive advantage of the new entrant disappears. A solution to this kind of price war could either be a reduction in production cost or an increased investment in marketing activities.

Following the concept of **economies of scale**, established organizations usually have volume advantages leading to lower production costs over new ventures, so that the latter are obliged to take approaches such as product differentiation because they cannot win over market shares through price leadership. Hence, new ventures often need to create new markets and aim at establishing barriers that will be difficult for imitators to breach.

Free riders circumvent the problems mentioned above. A new venture avoids head-to-head competition with the market leader. Instead, it exploits its pioneering role by offering new products that resemble the market leaders' but are superior in a few respects. Providing similar products with better documentation or additional software is an example. If you adopt this strategy, **be particularly careful not to infringe patents or other protected rights.**

If you create a **new market** yourself, you must keep checking that the barriers you have erected are high enough to keep the competition out. However long a firm has been on the market, it will still need to defend its position against new players who will often have better skills and who may add new dimensions to competition. Regular monitoring of the competition is the essence of market leadership or a successful niche strategy.

3.5.2 Patents – essential market entry barriers in the life sciences

Companies operating in the life sciences and chemistry need to invest very large sums in product development. It is not unusual for research costs to amount to several million Euros, so that over a period of years very high losses are accumulated.

However, the value of the results of the research can compensate for this. In order to be in a position to realize this value, an organization should protect its inventions wherever possible.

The most elegant method of keeping competitors at bay is the patent, which serves to protect the inventor's market position and is in effect a temporary monopoly.

During the formation of a new venture and in its early phases of growth, the patent is useful in a second way: it greatly increases the willingness of an investor to buy into a business or an invention. Under certain circumstances, patents, industrial property rights, inventions not legally protected and other business advantages (sometimes including trademarks) can be included in the balance sheet of the organization as assets. For this reason, entrepreneurs should consider in the early stages which Intellectual Property (IP) strategy they wish to employ in order to protect and commercialize their product.

Some inventions and business ideas, however, will be difficult to patent, e.g. from the field of medical IT. Consider how to best protect your invention (you can find some options in the box below) – patenting is not always the best option as it is very costly and not always possible.

Protection of Intellectual Property (IP) – selection

A patent gives its owner the exclusive right to exploit an invention commercially for a limited period, generally 20 years, so that the owner has the right to prohibit others from commercially exploiting the invention. The patent is valid only in the jurisdiction of the country that granted it. There are a number of different ways for patent holders to exploit their invention:

- They can produce, distribute and sell the patented products themselves,

- Alternatively, they can leave their patents unexploited, with the idea to either exploit them later on once a market has sufficiently developed for the inventions, or to use them as "blocking patents" to make it more difficult or impossible for competitors to enter a certain market segment,

- The holders of patents can grant licenses, sharing their rights and thereby earning licensing fees,

- Finally, patent holders can sell their patents.

Trademarks

A trademark establishes a direct link between a product and its producer, and can be of very great value. Once you have found the right name for your product or technology, you should definitely have it protected.

Copyrights

Copyright protection extends to the particular form in which an idea is expressed (not to the idea as such) and arises automatically upon the creation of an original work of authorship. However, this a rather weak IP protection.

Trade Secrets

A trade secret is any formula, practice, pattern, compound, device, process, or

mechanism that is maintained in secrecy by its owner. It gives its owner a competitive advantage because it is kept secret.

Industrial design rights

Design rights or design patent protect the visual design of objects that are not purely utilitarian and extends to the shape, configuration or composition of pattern or color.

3.5.2.1 Technology Analysis

In your business plan, you should provide for an overview of the state-of-the-art in the technology and of the competition's relevant patents. In addition, key patents held by third parties which are – in the wider sense – active in your operational field should be identified. For the analysis, the following are useful:

- Literature searches and participation in specialist conferences
- Patent searches in the patent offices' databases online
- A professional patent search, e.g. by your patent agent or at the patent office (free for students of Austrian technical universities for their master or doctoral theses, see http://www.patentamt.at/Beratung/Patent_Scan/)
- Evaluation of the results in conjunction with your patent agent
- aws Consulting / Patent Research

A good technology analysis will both identify the technology leader and reveal the extent to which one is dependent on other patents (restriction of "freedom to operate"). It can also identify competitors who are infringing one's own patents.

Businesses active in the life sciences and chemistry often need to operate internationally. Where this is the case, patent analysis needs to be carried out for all the countries in which one wishes to operate or in which the product is to be sold. Patent offices or patent agents can provide you with information.

3.5.2.2 Consolidating your patent position

An invention can only be patented if it is truly novel. If an invention has already been published in any form, it counts as an established technology and can no longer be patented.

Note:

Discussions with BOB experts naturally remain confidential. By entering the competition, you do not risk damaging the novelty of your invention.

Protecting one's own patents involves:

- **Filing patent applications as soon as possible (first to file principle):** The date of first filing establishes priority in respect of similar patents filed subsequently.
- **Covering all aspects of the technology/product/value chain:** This means that every aspect of an invention should be protected, which sometimes involves separate patents.
- **Filing follow-up patent applications:** Most importantly, subsequent applications filed in other countries within a year of the original filing are deemed to have been filed with the original priority date.
- **Analysis of patent application loopholes (one's own and those of others):** This helps to remedy one's own weaknesses and identify the weaknesses of others.
- **Closing the loopholes** with additional patent applications and in cooperation with third parties.

3.5.2.3 Securing freedom to operate and developing a licensing strategy

If the patent analysis has revealed, that no other patents are covering your area, you have the freedom to operate. However, if it showed that you are potentially infringing patents or property rights belonging to others, this is no reason to throw in the towel. Organizations often own patents, which are not of great importance to their corporate goals and therefore are of no great strategic interest to them. In such cases an agreement can often be reached, which might take the form of:

- Taking out a license/cross-license
- Purchase of the industrial property rights
- Cooperation
- Legal action (e.g. appealing the award of the patent)

Moreover, there may be a loophole in the competitor's patent, so that one's own relevant process is not covered. Careful research with expert assistance is often helpful. The same applies to loopholes in one's own patents, open to exploitation by competitors.

It can also prove rewarding for you to license out your idea, thus increasing your profits, so you should give this option serious thought.

Types of licenses

- Non-exclusive or simple license: The licensor grants licenses to several licensees.

- Exclusive license: The license award excludes others - including the licensor - from the exercise of the rights protected. This can be part of a successful patent management strategy.

- Sub-license: If authorized by the original licensor to do so, the licensee grants a sub-license to a third party.

- Cross-license: If two inventors find themselves blocked by each other's patents, they can grant cross-licenses. In some countries, cross-licensing is even legally enforceable.

3.5.2.4 Patent portfolio management

A patent portfolio is a bundle of patents functioning together to provide protection against competition. One patent alone is no longer sufficient to give any real protection against imitators. Where possible, it is therefore advisable to patent an idea at different levels. Thus, with a chemical compound one can patent the compound itself (substance protection), the method of synthesis and production (process patents) and product applications (applications patents). A good patent portfolio limits the opportunities for competitors to find clever ways of circumventing the original patent.

For effective portfolio management it is helpful for the inventor and the patent experts to meet frequently to discuss current problems arising in relation to projects and property rights. This can help make clear whether a project is necessary for the protection of strategic patent interests, in order to close a loophole in the patent portfolio.

3.5.2.5 Ongoing patent and technology monitoring

Once the business is established on the market, procedures should be put in place to ensure that the relevant areas of technology are kept under permanent observation, in order to identify new developments at their early stages. A "technology watch", as it is often called, involves monitoring both competitors' new publications and patents and the legal status of one's own patent applications and patents. This work can well be delegated to the patent agent or to patent information centers. In addition, one should always keep an eye on emerging technologies, which, though not in exactly the same field, may have the potential to provide similar customer benefits (technology scouting).

3.5.2.6 Monitoring infringements of rights

Patent rights are **exclusive rights**. The inventor has an economic interest in identifying infringements and using a patent agent or lawyer to assert his/her rights.

3.5.2.7 Application strategies

As a general rule, filing a patent involves the publication of the invention. If such publication is not desired, keeping the invention within the business as a trade secret is advisable. On the other hand, however, the opposite may be desired. By publishing an invention (e.g. in a scientific journal) it enters the public domain and competitors are deprived of patenting the invention themselves! This particularly applies if the relevant technology cannot be imitated due to a lead in know-how or an insufficiency of investments: no one needs a patent for themselves!

Market Entry and Patent Strategy Checklist	✓
Which market entry strategy will you select?	
Can you occupy market niches or change resp. define industry standards?	
How do you intend to protect yourself against imitators and competitors?	
Can you protect your business or product idea?	
What kind of protection do you envisage (copyright, patents, trademarks, registered designs, etc.)?	
How extensive should the protection be (on a market-by-market basis, AT, EU, globally, etc.)?	
Which existing patents cover rights in the same areas?	
Do they have loopholes? Do your patents have loopholes?	
How different are your patents from existing ones?	
Do you enjoy freedom to operate?	
How do you intend to consolidate your patent position?	
Do you need to acquire licenses?	

Do you intend to grant licenses under your own patents?	
What is your long-term intellectual property strategy?	
What are your rough estimates of the size and timing of patent and licensing costs?	
What profits can be expected from your licenses?	

3.6 *Marketing and Distribution*

Satisfying customer requirements and doing it better than the competition must be every company's central concern. The basic idea behind marketing is to direct all company activities towards achieving this goal. By considering the ideas presented in Chapter 3 on your market and competition, you have already done some of the marketing work.

This chapter will help you take a structured approach to the subject. Specifically, you will learn:

- How to select and evaluate your target market
- How to position your product
- What marketing tools are available and how to use them

3.6.1 Use of marketing tools

You have made it your company's goal to achieve a specific market share, turnover or image. To accomplish these goals, you can use the "4Ps" of marketing: product, price, placement and promotion. To this we add a fifth "P", one that is particularly important for young, research-oriented, innovative businesses: partnering. The instruments are defined by the following questions:

- **Product:** Which features does your product have to have to meet the relevant customer needs?
- **Price:** What price can you charge for your product and what objective are you pursuing in your pricing strategy?
- **Placement:** How do you intend to reach customers with your product?
- **Promotion:** Which communications tools do you want to use to get across the advantages of your product and induce the purchasing decision?
- **Partnering:** Which other companies can you cooperate with to improve your product and achieve a strong market position?

3.6.1.1 Product features

When you came up with your original business idea, you had already described the features of your product or service and defined your USP. You have carefully considered its core benefit and the differences from competing products. Now it is time to look at the design of the final product, its appearance, quality and packaging. After conducting a more precise analysis of the needs of different customer segments, you must ascertain whether your actual product truly meets these needs and to what extent it has to be adapted. This raises the question of whether you want to make a uniform product for all customer segments or adapt it to satisfy the requirements of individual customer segments.

You also have to design the *extended* product or service. In the case of technical equipment, this could e.g. mean product maintenance or providing spare parts, in the case of analytical instruments, to supply consumables.

3.6.1.2 Pricing

When positioning your product, you decide how to differentiate your product from the competitor's products. When setting a price for your product you should carefully consider the following:

- What price can you ask for your product?
- What kind of pricing strategy do you wish to pursue?

3.6.1.2.1 What price can you ask for your product?

The basis for an attainable price is the customer's willingness to pay it. A classic misconception is the belief that the price is defined by adding together production, distribution and administrative costs per unit and then adding a mark-up. Your costs are only relevant to pricing if they are not covered by the attainable price.

The price you can charge depends solely on the benefits the customer receives by acquiring your product or service. This can be tested, analyzed and calculated. In making the purchase, the customer is striving to maximize his/her value gain. This is the difference between the product's positive value and the "negative value" of all the various cost components. Put simply, if the customer saves €100,000 by buying your product and has costs of €50,000, then his/her **financial benefit** is €50,000. However, the time saved can also be considered a positive benefit and this is often hard to quantify.

The **attainable price ceiling** (maximum price) will be somewhat lower than the financial benefit to the customer, and the **price floor** (minimum price) somewhat higher than your production costs (cost of goods sold), and temporarily somewhat higher than the variable production costs. In determining the sales pitch, this "value-based pricing" is a very promising approach.

Fixed costs vs. variable costs

Let's take the example of a simple production line. Maintaining the line costs €500,000 a year and 100,000 units are produced, with the production itself costing an additional €1 per unit.

In this example, the total production costs are €600,000. The fixed costs, which are not dependent on the volume produced, amount to €500,000, while the variable costs, which are dependent on the number of units produced total €100,000.

The profit (at a sales price of €7 per unit) is € 100,000. If the price falls to €6 per unit, the revenues will be just barely enough to cover the variable and the fixed costs. The **price floor** has been reached.

If the attainable price should decline to €1 per unit, a unit of production will still not incur a loss, but you will have to find another way to cover the fixed costs.

If the price falls below €1 per unit each unit of production will incur a loss, so your losses will increase in line with output volume.

The variable costs are thus the absolute price floor, while the total costs are the long-term price floor for a product.

3.6.1.2.2 What is your pricing strategy?

Your pricing strategy will depend on the objective you wish to pursue. Do you want to penetrate the market fast by aiming at high sales numbers and pitching your price low ("**market penetration pricing**") or do you want to generate the highest possible revenues right from the start by setting a high price and then gradually lower the price as time goes by ("**market skimming pricing**")? New companies, especially manufacturers of unique innovative products with patents pending, tend to pursue the latter strategy for good reasons:

- Thanks to its patents, a new and innovative product will not yet be exposed to competition from imitators. Consequently, rapid market penetration will not be a matter of life and death.

- For an innovative high-tech product, it is easy to put across the cost advantage for the customer by comparing it with the current state-of-the-art, and as a result customers feel that the higher prices are justified (psychological effect).

Note that it is easy to cut prices, but it is much harder to raise them again!

Under the penetration strategy, not only does production have to be geared towards large volumes but your distribution channels, too. This increased investment risk and the related *fixed cost burden* should be avoided by a young business with a small capital base. You should also remember that established competitors are often better established on the market and may have better distribution channels.

However, if you want your new technology to become the industry standard and you have sufficient financial reserves, the penetration strategy can be effective. By selling large volumes, you are "occupying" the market swiftly by claiming large market shares, which a competitor could only win back by making great financial sacrifices. This is a costly marketing strategy, oriented towards the long-term, such as that adopted by Google with Android.

How to determine your pricing strategy

Your pricing strategy is determined by the following factors:

- The customer benefit you offer (in comparison to existing products)

- The customer's willingness to pay the price

- Your costs

- The ratio of supply to demand
- The intensity of the competition
- The targets you have set for market shares and turnover

3.6.1.2.3 Placement: Distribution

The choice of distribution channels has a great influence on your company's organization and business system, as well as the other marketing decisions. In any event, the distribution system must suit the intended positioning of your product. For instance, once you begin selling a homeopathic remedy intended for an organically-minded target group via supermarket chains instead of health food stores, you will have watered down your "natural" brand. The selection of distribution channels is influenced by several factors:

- Who are your potential customers? Where are they located?
- How you do reach your potential customers? Where do they usually buy products like yours (e.g. chemist chains, specialist retailers or via internet) and would these existing distribution channels be usable for you?
- How important is it for you to have direct contact with the market, i.e. the end-user (feedback and market analysis)?
- Does your product need explanation to the customer and after-sales service?
- Can you afford distribution all the way to the consumer?
- What kind of treatment does your product need during transport? Can it be stored for long periods?
- How large are individual orders? Can your product be posted? Are there regulations that have to be observed?
- Are there any import or export restrictions?

You have to consider whether it is better for your company to handle distribution itself (direct distribution) or outsource the job to a specialist (indirect distribution):

Direct distribution is your best bet if distribution can be done efficient (e.g. e-commerce), your product or service is complex, high-priced and requires customer service, or if direct contact with the end-user is important for further development of the products. However, setting up your own distribution system can be expensive. If a company primarily manufactures therapeutic drugs available only on prescription and only in pharmacies, working with existing pharmaceutical distribution channels will often be unavoidable.

Direct distribution via the internet can be particularly effective, as it allows selling your product around the world at low cost. However, your e-commerce system and logistics must operate properly, because mistakes here can be especially harmful to your business due to the high degree of transparency and contact between customers.

Indirect distribution is the right choice for self-explanatory, less complex products such as branded and consumer goods sold to customers in remote locations, goods that can be stored for long periods and those for which there are many small orders. If perfectly fitting distribution partners are available (e.g. wholesales platforms, sales agents and/or specialty logistics companies) are able to provide the product in high quality and, if necessary, provide assistance in how to use the product, you should definitely examine this option. Compare the costs working with partners with the costs of setting up your own distribution channels.

3.6.1.2.4 Promotion: Communication with the customers

Potential customers must know that your product exists before they can consider buying it. It is up to you to get the word out by communicating (and advertising). The purpose of your communications effort is to attract attention, inform, persuade and engender confidence. Your communication must explain to the customer the advantages (customer benefits) of your product or service and convince them that it meets their needs better than competing products or services and alternative solutions.

In the case of consumer goods, mass media are frequently used for print and online advertising, as well as radio, TV and cinema commercials. In the life sciences and chemistry, however, many products are sold on a business-to-business basis, in which case other communications channels make more sense and cost less:

- **Direct marketing:** Contacting selected customers individually e.g. via letters, emails or social media
- **Advertising in trade, scientific and medical journals (online & offline)**
- **Conferences and trade fairs**

- **Customer visits**

Calculate exactly how much advertising you can afford per unit sold and choose your communications media accordingly. When addressing customers, focus on those who actually take the purchasing decision. Often these are not the group leaders or senior scientists, but rather assistants or even technicians.

3.6.1.2.5 Partnering: strategic partnerships in marketing and sales

The idea of a strategic marketing partnership is to help you attain one of the objectives of your company and its marketing plan, whilst also benefiting the partner. The next two examples demonstrate that the - seemingly unattainable - dream of a global product launch that will allow you to see the competition off can be achieved through a partnership.

Achieving market leadership through partnerships: Suppose that you have developed a test kit with which bacterial impurities in drinking water can be detected much more quickly and precisely than by existing products. You can sell this test kit by distributing it directly to waterworks, where you will face stiff competition from domestic and foreign companies that will try to keep you from entering the market by lowering their prices. In your competition analysis, you spotted that there is one big market leader and many small and medium-sized water treatment companies. If you succeed in entering into a strategic distribution alliance with the market leader by landing this company as your exclusive distribution partner (with a time limit, of course) and this company replaces its own product with yours because it is objectively superior and thus offers a competitive advantage, you will have made it. You will become market leader much faster with your product in the market leader product range than you would have if you had started off on your own. You will save yourself the expense of setting up your own distribution organization, while at the same time giving the market leader the benefit of your application know-how, thereby increasing its profits.

The disadvantage lies in the lower margin for your product, which you would have to accept due to the market power of the market leader. Once this partnership expires, however, you will still have the option of selling your product, which has since become well-known, through your own distribution system at higher margins.

Establishing the industry standard through alliances: Suppose that the inventor of a component for high-temperature superconductors (HTSL) faces competition from other technologies and materials. The company knows that the market success of its invention depends on whether it is used by the major electrical engineering firms supplying the power stations. It succeeds in joining forces with two of the market's leading electrical engineering

firms, Siemens in Germany and General Electric in the USA, offering them a development alliance involving free supply of its products in the hope that these two industry trend-setters will exclusively use his HTSL component in the power distribution systems currently sold to electric power plants. Due to the large market shares and the excellent reputation of these partners, in the future solely the HTSL components of this manufacturer will be authorized, thus becoming the standard. With the help of this strategic partnership, the inventor has a chance in setting an industry standard that secures his position as the supplier of all manufacturers of current power distribution equipment.

Marketing and Sales Checklist	✓
Is your USP carefully thought and evident to the customer?	
How is your market segmented?	
What is your target segment?	
What makes this particular segment so appealing?	
What is your positioning strategy?	
Are you aware of all the aspects of your product (core benefit, actual product, extended product)?	
Have you tailored them to your target segment (product)?	
What price have you defined, what is your price ceiling and floor? (Price)	
Which pricing strategy have you adopted?	
Which distribution structures are worth considering for your product? (Placement)	
How do you intend to communicate with the customers? (Promotion)	
Do you have an integrated communication concept? (PR and Advertising)	
Have you considered strategic marketing alliances? (Partnering)	

Once you have completed your strategic thinking, made your appraisals and prepared your projections, you need to give some thought to the practical details of how your venture is to be organized.

You must also decide which operational activities your company will undertake itself, and which non-core functions it can outsource.

3.6.2 Business organization and processes

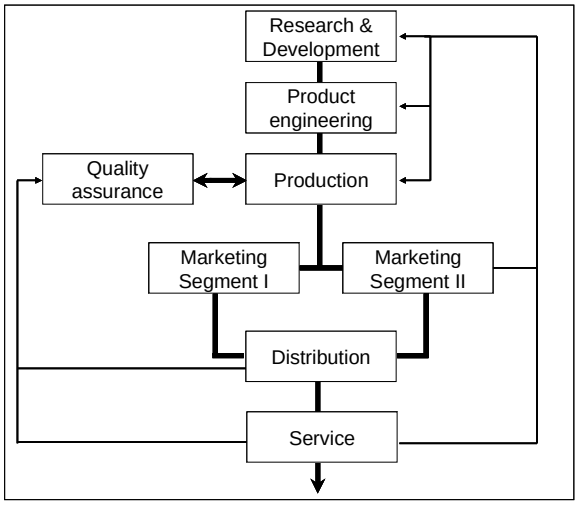
Running a business involves coordinating sets of individual activities. To do this properly, you need to establish business processes (**process organization**) and subsequently create an operational structure (**organizational structure**).

When planning your organizational structure you should bear the following aspects in mind:

- The product, technology or service and its development as well as technological and organizational requirements
- The location chosen, with its advantages and disadvantages (distribution, for example, may be more expensive if the transport links are poor)
- The staffing structure and number of employees
- The information you will need to run the business (internal management information system)

This will result in a structure, which may look like the following:

Figure 6: Process organization



3.6.3 Human Resources planning

The **process organization**, once established, needs to be embodied in an organizational structure. First, the work to be done is divided into appropriate units. Next, you need to think

about the positions to be created in order to ensure the planned processes are carried out. For your business plan, a rough estimation and outline with regard to your human resources planning is expected. Leave yourself plenty of freedom with regard to your future organization, as your company is likely to undergo major changes in the start-up phase.

With regard to staffing and the related cost, be aware that oftentimes startups cannot afford to pay market-compliant salaries. A common way to circumvent this issue is to offer company shares.

3.6.4 Make or Buy – outsourcing and cooperation agreements

Once you have developed an appropriate model for your way of operating, you then need to determine which of the planned activities you intend to focus on. Even in the area of your core competencies, which may well be research and development, partial outsourcing may become necessary or desirable. Subcontract production is a typical example. Biomedical startups may be confronted with the problem that their production has to conform to the **GMP Standard** in order for the drug to be marketable. However, the cost of a compliant production facility is extremely high and many new companies are therefore happy for their products to be made under license at the production facilities of larger organizations.

Factors to be taken into consideration when deciding on make or buy include:

- **Strategic importance:** Products and services that contribute significantly to your competitive advantage - i.e. core competencies - are of strategic importance and must of course remain under your control. Technology firms, for example, are less likely to outsource research and development. The structure of the firm, combined with your team profile, can give useful clues here.

- **Available skills:** Every business activity requires specific skills, not all of which the management team will necessarily possess. On a case-by-case basis, you should review whether or not to outsource certain tasks to outside specialists. For example, a team capable of developing an enzyme test obviously has a mastery of the relevant biochemical techniques but it may not have the necessary production skills, so it will be better to transfer these tasks to external specialists who may be able to bring you cost advantages due to the economies of scale they enjoy.

- **Marketability:** Before you can buy a product or service, you need to find out whether it is available on the market in the required form and with the necessary specification. Negotiate with a number of suppliers, if possible. Not only can you expect better terms,

but you will learn more about what you are buying. If there is nobody providing the required service, perhaps you yourself can develop the necessary capabilities in cooperation with a partner.

Also of importance in the pharmaceuticals industry, and again associated with high costs, is the **GLP standard**. This is mainly applicable to contract research organizations (CROs). These organizations, which do contract research for others involved in drug development must meet the FDA-mandated GLP standard. Cooperation agreements with the pharmaceuticals groups (rather than complete outsourcing) may also be necessary here.

GMP and GLP

Good Manufacturing Practices (GMP) is a quality management system covering the design, production, packaging and labeling, installation, storage and servicing of medical equipment intended for human use.

Good Laboratory Practices (GLP) is a quality management system covering all toxicological studies in Europe, the USA and Japan. This ensures that research carried out in accordance with GLP has worldwide acceptance and need not be repeated, which is also in the interest of animal welfare.

Even if your firm is not involved in GMP or GLP, bear in mind that, in order to support subsequent patent applications, you must in some cases document your research in specific ways. Examples for lab books following the relevant guidelines can be found at www.eurekalabbook.com.

3.6.5 Legal forms

Having now decided on the internal structure of your organization, you need to decide upon its legal form. It is recommended that you operate in a team and run your organization as a corporation with limited liability of shareholders. However, the costs of incorporation are higher and corporation tax is payable. The two most important types are Aktiengesellschaft (= AG, public limited company or stock corporation) and Gesellschaft mit beschränkter Haftung (= GmbH, private limited company). In Austria, a GmbH may also be founded with a foundation privilege (i.e. nominal capital is limited to 10,000 €) for a maximum of ten years.

Most business entities are constituted by their articles of agreement (sometimes other documents are required as well). The agreement governs the relationships between shareholders and their rights and duties to the extent that these are not laid down by law. Furthermore, it forms the basis for the organization's business activities.

3.6.6 Partnerships and joint ventures

Whether and to what extent to cooperate with other organizations, e.g. suppliers, research organizations or distribution partners is a particularly relevant question for new ventures. All forms of cooperation have advantages and disadvantages.

- A loose, informal relationship involves no great obligation on either side. Either party can simply and swiftly end it, but both parties must live with the certainty that supply by the one or demand from the other can suddenly disappear. And a mere supplier will probably not agree to all of a customer's special requests. Loose relationships are therefore typical for mass-produced goods, standard services and standardized components, where alternative suppliers and customers are readily available. If you work in such a loose relationship, do not forget the need for confidentiality agreements to protect business secrets.

- A close relationship is often the result of a high degree of mutual dependency, and is common with regard to highly specialized products and services, or in high-volume businesses. In such situations, it is usually difficult for either party to find a replacement for the other. For instance, it would be hard to find another research partner, or buyer, or supplier of large quantities of special components. For both parties, the advantage lies in the security conferred by a stable relationship and in the freedom to concentrate on one's own strengths whilst relying on those of the other party.

Cooperation offers entrepreneurs the chance to take advantage of the strengths of established partners and to concentrate on developing their own core strengths. Building a business ecosystem usually makes it possible to grow at a faster pace than you could by yourself.

Distinctions are made between the following forms of cooperation:

- **Research partnerships:** At the intersection of research and businesses; They allow for the transfer of very specific knowledge from research intro practice.

- **Co-promotions and co-marketing agreements:** Marketing and promotional activities are undertaken jointly with another firm and costs can be saved.

- **Licensing agreements:** A business buys (or sells) a license which is key for the production of a specific product.

- **Joint ventures for sales and distribution:** Close cooperation between two firms, often for a limited period of time, e.g. in order to open up a new market.

Partnerships often involve high financial risks or major capital investment and may entail long-term commitments.

3.6.7 Location planning

The choice of location is a major strategic decision, though different factors will be of varying importance, depending on the nature of the business. The choice of an advantageous location may be more crucial in the case of a contract research organization than that a bioinformatics business. In selecting a location, you should take the following factors into account:

- Proximity to universities and major research institutions and availability of academic support
- Availability of entrepreneurial support, e.g. incubation programs, co-working and networking with other startups
- Cost per square meter of space and terms and conditions of the lease (e.g. minimum rental period, and reimbursement of improvements)
- Possible grants, subsidies
- Existing furnishings and fittings, access to infrastructure (labs, meeting rooms, etc.)
- Availability of skilled labor (see universities above)
- Legal requirements (Genetic Technology Act and operating license)
- Accessibility for clients and suppliers (transport links, etc.)

Personal interests, e.g. proximity to residence of founder(s) many cases biotech clusters or business incubators can offer attractive first locations. Review the available offers carefully against the option to set up you own location.

3.6.2 Business Organization and Processes Checklist	✓
What is your corporate mission and what are your business policies?	
What is your business organization like?	

What are your business processes like?	
How does the organizational structure look like?	
Roughly how high do you expect your staff costs to be?	
What do you intend to do yourself, and what do you mean to buy in?	
Will you comply with Good Manufacturing Practices (GMP) or Good Laboratory Practices (GLP)?	
Do you want to do this quality management work yourself or are you planning to outsource it?	
What legal form will you adopt for your organization and why?	
With which partners do you want to cooperate?	
Why are they your partners of choice?	
What are your and your partners` strengths and weaknesses?	
What is the timeframe for your cooperation agreements?	
What are the potential costs of cooperation?	

3.7 *Implementation plan*

The implementation plan has a significant influence on the financing and the risks of the business. Therefore, it is helpful to you and your partners to think through the interactions between the various factors and work out the consequences in advance.

3.7.1 Fundamentals of planning

Planning is about making your objectives operational, i.e. making them attainable. The process can be summarized as follows:

Who does

what with

which resources by

when and in

which way will results be monitored?

Such an outline provides the framework for all planning activities. Without allocating resources, without designating responsible individuals and without setting timeframes your planning will be incomplete. And without effective performance monitoring it will be meaningless.

The effort of good planning is often underestimated. Progress chasing has to be built into the plan from the beginning. Objectives must be clearly formulated and responsibility for putting them into effect clearly allocated.

It goes without saying that no plan is written in tablets of stone: entrepreneurs should observe the principle of **rolling planning**. Plans should be modified in the light of experience and extended further into the future. This does not mean that plans should not be adhered to.
Gantt charts can be of great help to you and the readers of your drawings. In addition, you should use flow charts to help visualize your planning so that steps that depend on others follow each other in a logical sequence. Special-purpose software can be useful here.

3.7.2 Effective planning

Organizational and procedural factors play an important part in efficient planning. Four simple rules are of help here:

- **Grouping work into tasks:** The complexity of building up a business can be reduced by grouping individual activities into packages of tasks. The business plan should not contain more than a dozen such tasks. Divide each task into individual steps and define an explicit goal for each step.

- **Ask the experts:** Use experts' or peers' (experienced founders') knowledge to make sure the major steps in the plan are soundly based. There will be experts for different parts of the plan. Consider linking up with accelerators: For a pre-defined and limited period, they provide mentorship and coaching, often in exchange for small shares in the business.

- **Watch the critical path:** The "critical path" is the sequence of interdependent activities where a delay in any activity will inevitably hold up the whole project because the subsequent activities cannot begin. There is more flexibility in the timing of other activities. Hence, it is clear that you will pay most attention to activities on the critical path, particularly if you want to save time.

- **Minimize risks:** Wherever possible, try to undertake the activities that reduce risks at the start of the project. For example, it makes more sense to investigate market needs at the beginning rather than just before the product launch. If the initial survey shows that your business idea has real potential, then this information can be put to good use in planning the development of the business.

3.7.3 Potential consequences of poor planning

Planning always has to be based on assumptions and there is the danger that yours will be either too optimistic or too pessimistic. Both mistakes can have severe effects on the progress of your start-up.

Excessively optimistic planning is damaging in two ways: you rapidly lose credibility in the eyes of all your partners, and you may cause the subsequent collapse of the new business, typically, as follows:

- Somewhere a delay occurs, perhaps in developing the product, bringing it to market, or in achieving planned sales targets. This means that income is delayed, while the costs of assets, which cannot be put to adequate use, continue to accumulate. Not only is the company making accounting losses, it is also losing cash.

- Inevitably the money runs out before the planned success is achieved. The result is a hunt for new funds amid a crisis.

- If nobody can be found to make the additional investment, then that is the end of the company. If investors continue to believe in success (which becomes twice as hard for them given the loss of credibility caused by poor planning), they will invest more money, but this often results in a painful reduction in the entrepreneur's share of the business, if not the total loss of his/her equity.

At first sight, pessimistic or conservative planning does not seem to pose any problems. You and your partners are pleasantly surprised by how good the results are, everything turns out better than planned and goes more quickly than expected. Nonetheless, the effects of excessively cautious planning can be just as unpleasant, as the following two scenarios show:

- Business is good, but there is a shortage of resources. One can either try to satisfy demand with the resources available, which will inevitably result in problems with quality and jeopardize the long-term success of the business. Or one can continue to grow as planned, knowing that potential turnover and profits are being lost and that there is a risk of competitors entering the market.

- The business grows more quickly than expected. Growth requires additional working capital in the form of liquid funds (cash) and usually also investments in production capacity. But the necessary liquidity may already have been used for other purposes, which have generated paper profits but no cash flows. As a result, the entrepreneur is forced to look for more money prematurely and under pressure of events may only get it on unfavorable terms. The ultimate threat is bankruptcy - not for no reason is this known as "growing broke".

Try to be honest with yourself and plan as realistically as possible. Ask experts and peers for feedback on assumptions. Make allowance for uncertainties by openly acknowledging risks and taking the possible consequences seriously. By thinking the various activities and their interdependencies through, you will acquire credibility in the eyes of your partners and investors as well as increasing your business's chances of success.

3.7.4 Presenting your plans

Focus the presentation of your implementation schedule on the significant milestones and the relationships between its most important elements. As a rule, three main sections are sufficient:

- Overview of the implementation process
- Significant milestones, i.e. points by which you want to have achieved certain things
- Important relationships and interdependencies between tasks

Try to make the presentation clear and concise. Remember that charts should not be too complicated and should be capable of being understood at a glance. Flow charts convey a realistic impression of processes and how long they will take.

Don't hesitate to test presentations in advance or to engage a coach for important ones (on additional expense). Business presentations are not scientific lectures, they must convince and sell.

Implementation Plan Checklist	✓
What are your objectives (content, timeframe, scale and geographical market)?	
What is the timing of your objectives?	

How do you plan to achieve them?	
Is every planning step analyzed in terms of the “five Ws”?	
What are the most important milestones in your plan?	
By when must they be achieved?	
Have you identified your plan´s critical steps?	
How interdependent are your plan´s steps?	
What feedback on your implementation plan have you received from people outside the business?	

3.8 *Finance and financial planning*

The first question in connection with financing is how much capital you need in total in order to set up and start the business. Often, you will be incapable of financing your enterprise from your own assets; consequently, you depend on financially strong partners! However, especially the high-tech sector displays a high risk of losing investments, making it difficult to find daring investors. Traditional forms of financing such as bank loans will only be available in exceptional cases due to the combination of high risk and no securities. Nevertheless, the high-tech sector offers also a high growth potential and is consequently very attractive for certain investors.

Seeking investment will obviously be a major goal for you. At the same time, it is always worth trying to keep your costs down, e.g. by using the services of business incubators. They can e.g. support you with office space or different types of assistance and training.

3.8.1 Financing options

Generally, three forms of financing can be distinguished (see "Balance sheet"), namely financing through:

- Debt capital
- Equity
- Crowdfunding

People or entities who participate in an enterprise by contributing **equity** – typically the founders, business angels, venture capital funds – are the "true owners" of the company. By contributing own assets, a series of rights are gained:

- Entitlement to a proportional share of business profits
- Entitlement to a proportional share of business profits after creditors have been satisfied
- Proportional decision-making powers

Debt capital (e.g. bank loans, corporate bonds, short-term liabilities) is supplied to the company by creditors. The company owes its creditors the loaned amount including interest. In contrast to the owners, creditors neither are entitled to profits, nor do they have decision-making powers. In case of bankruptcy, however, creditors will be satisfied before owners until all debts are paid. Debt may be secured or unsecured. Particularly company assets (e.g. machines, buildings, property) are suitable for collateralization (meaning that you can pledge these assets as recourse to the lender in the event that you default on the initial loan).

Since unsecured loans constitute a high risk for creditors, they are generally expensive.

3.8.1.1 Equity

Keep in mind that you grant partners who contribute to your efforts with equity share control over your company and a portion of profits.

Initially, equity is what you, your relatives and friends invest in the enterprise from your/their own pockets (**family, friends & fools** – "3 Fs"). This first financing is of utmost importance, since it demonstrates your **commitment** to your company.

Finding investors for your risky high tech enterprise beyond your "aunt's savings account", however, may prove to be more difficult. One option are so-called business angels. These are people, who have accumulated experience in a certain field over the career (e.g. CEO of a pharmaceutical company, serial entrepreneur) and are willing to invest some of their knowledge, contacts and financial capital. Business angels in Austria are usually not investing more than 5-digit Euro sums, but internationally business angels can also invest higher amounts. They are essential because they offer you their management expertise and market knowledge. Therefore, they play an important role in investing in early stage startups.

However, business angels do expect revenue for their invested capital. Austria Wirtschaftsservice GmbH have created a certain program named **i2**, acting as an exchange platform that can assist you by referring such business partners. Another private institution is the Austrian Angel Investors Association (AAIA).

A further source of equity can be found in **venture capital**, which is another form of risk capital, similar to business angel investments, but invested in later stages and higher amounts. Business

angels invest their own money, venture capitalists on the other hand collect funds from institutional investors such as pension or insurance funds, wealthy individuals or financially strong companies and invest them in a portfolio of young businesses with strong growth potential, hoping that strong **capital gains** will render their investments funds profitable. Thus, venture capitalists want to make their investments to money in the medium term (investment term of approximately 5-10 years), either by selling the company under the framework of a **trade sale** (sale to an industrial investor) or in an initial public offering **IPO** where stock of a private company is offered to the public for the first time.

The above should provide you with realistic expectations regarding the possibility of receiving venture capital in the initial phase of your company's founding.

Life Science Austria disposes of excellent contacts with important international venture capital firms. If you decide to approach venture capitalists, be sure to make a short and well-arranged presentation of your business plan with a concise executive summary. Often this will be the only portion that has a chance to be read. International investors often receive hundreds of business plans a week as well as numerous interesting investment offers; this is where you should stand out!

The process that leads from a first meeting to an **investment** agreement is similar with all venture capitalists. If common interest (also you should prudently choose your investors and gather references) is established, a thorough analysis of your company will be performed, so-called **due diligence**, which may take four to twelve weeks. During this time period, a non-binding **term sheet** will often be concluded. The term sheet outlines key financial and other terms of the investment such as type of share, valuation and milestones, liquidation preference, redemption, conversion rights, information rights etc. After due diligence has been performed with a positive result, the term sheet is converted to an investment agreement, containing a large number of provisions.

Information about risk capital entities in Austria is offered by the Austrian Private Equity and Venture Capital organization (www.avco.at) as well as by the Austrian Angel Investors Association (www.aaia.at). The umbrella group for all European venture capital entities is the European Private Equity and Venture Capital Association (www.evca.com).

3.8.1.2 Debt capital

3.8.1.2.1 Bank credits and loans

A conventional bank credit will rarely be considered for financing risky high tech startups, since sufficient collateral for the high risk will often not be available. However, credit can be mobilized with the support of **guarantees**.

3.8.1.2.2 Mezzanine financing

Mezzanine capital is **subordinate** and generally **unsecured** risk capital, often characterized as a hybrid of equity and debt financing: if the business develops as scheduled, mezzanine capital will be treated as committed assets (i.e. the loan will be repaid at interest), in crisis situations, however, mezzanine capital becomes inactive capital. Additionally, mezzanine capital will always be equipped with a performance-related yield component in favor of the mezzanine capital provider and may offer participation in the increasing company value with a so-called "**Equity Kicker**" at maturity in form of a call option for company shares. Due to the fact that mezzanine capital is subordinate, borrowing additional committed assets is facilitated. Mezzanine capital providers will often invest in fast-growing sectors, though under the premise of positive cash flows and an established market position. As a result, mezzanine capital will be most helpful if you are already expanding your enterprise.

3.8.1.2.3 State funds

State funds (grants, subsidies etc.) are of particular significance for startups. Governmental funding can be project or company related. The government will support the financing of businesses under certain conditions. Among others, the following are instruments of corporate economic development:

- **Grants** ("lost" grants or "performance-linked repayable grants"): These are either paid at once or in installments. Lost grants must not be repaid. Performance-linked repayable grants are repaid based on pre-defined conditions. Such grants like the aws Seedfinancing must only be returned in case of sale or profitability of the enterprise.
- **Interest grants**
- **Guarantees and Sureties**: a guarantor is someone who promises to satisfy the creditor if the debtor fails to pay. Providing a guarantor can be compared with insuring the debtor. In comparison with conventional credit insurance, an aid component becomes involved, if the "premium" for this "insurance" turns out to be lower than the market price.
- **Direct Governmental investment** is not available in Austria on the federal level. However, some Austrian federal states have founded participation entities.

- **Exemption from taxes**: e.g. research contribution

These instruments are intended to mobilize investments for sectors that are responsible for long-term growth (research and development). The EU requires its member states, in order to avoid distortion of competition, to inform the European Commission of existing, intended or amended forms of governmental aid as well as respective individual cases. Such may only attain legal validity if the EU Commission does not object (**notification duty**). To reduce the administrative burden, the "**de minimis**" rule allows that grants which are awarded to a company over the course of three years and do not exceed the total sum of € 200,000 are exempt from the notification duty. Furthermore, the EU has defined upper limits for maximum allowed aid[9]. These **upper limits** are defined as a portion of the **aid cash value** in overall expenses and may not exceed 70%[10] for research and development projects of young, innovative and small companies. The aid cash value (also known as **gross grant equivalent**) is defined as the gross sum of the grant before taxes, while all expected future aid is to be discounted to its present value. The discount rate is defined as the interest reference rate annually reported to the Commission by every member state. Grants, however, are calculated at a flat rate, even if they are issued in installments. However, certain particular, more favorable provisions apply for young, innovative technology companies[11] such as the aws programs Pre-Seed and Seedfinancing (see below).

In Austria, there are tailored public subsidies in all of the categories mentioned above.

Table 3: Direct governmental aid (federal level)

Institution	Website	Comment
Austria Wirtschaftsservice GmbH (aws)	www.aws.at	Specialized commercial bank for corporate development
Forschungsförderungsgesell-schaft (FFG)	www.ffg.at	Project-oriented sponsorship, free of charge consulting and support of international programs (such as the EU framework programs)
Österreichische Nationalbank (OENB)	www.oenb.at	The *OeNB Jubiläumsfonds* promotes illness- and patient-oriented research projects

[9] http://ec.europa.eu/competition/state_aid/studies_reports/vademecum_on_rules_09_2008_en.pdf

[10] Small and medium sized companies. According to the EU definition, a medium sized (small) company has fewer than 250 (50) employees and a turnover of less than € 50 (€ 10) Million or a balance sheet total of no more than € 43 (€ 10) Million.

[11] See EU-Publication: Official Journal C 323 of 30.12.2006: Company is small, no older than six years and has an R&E ratio of more than 15%.

Christian Doppler Forschungsgesellschaft (CDG)	www.cdg.ac.at	Represents the interface between FFG and FWF by performing application-oriented basic research, which supports the company's development of new products and services within their cooperation.

3.8.1.2.4 Aid instruments for life science entrepreneurs

Austria Wirtschaftsservice GmbH (aws) is a specialized commercial bank for governmental aid. aws is commissioned by several ministries to assign and process corporate aid. The aid instruments include grants, benefited loans, guarantees and sureties. The allocation of aid occurs in close coordination with the Forschungsförderungsgesellschaft (FFG; Austrian Research Promotion Agency) and regional aid institutions (e.g. Life Science Austria Vienna Region, AplusB centers, see table 4). aws offers aid instruments for all project phases and substantial funding in the high-tech sector. Furthermore, aws offers instruments for financing patents and the referral of license holders. For detailed information, please contact aspecialist at aws.

Table 4: Regional aid institutions for biotech founders

Province	Institution	Internet	Comment
Vienna	LISAvienna life science austria	www.lisavienna.at	Corporate aid, cluster management and international location marketing for Vienna.
Vienna	INiTS	www.inits.at	INiTS, the AplusB center Vienna, supports with additional offers such as simulating, consulting, supervising, networking and providing further education in the areas of infrastructure and startup financing.
Tyrol	CAST Center for Academic Spin-offs Tyrol	www.cast-tyrol.com	The AplusB center Tyrol CAST mobilizes and stimulates founding in the academic field and supports (seed funds) founders from the inception of an idea to the founding of a company.
Tyrol	Standortagentur Tirol	www.standort-tirol.at	The Standortagentur Tirol creates and promotes structures that further new technologies and consequently innovation in the Tyrolean economy to increase the attractiveness of the business location Tyrol.

Lower Austria	ACCENT	www.accent.at	The AplusB center Lower Austria ACCENT founders service accompanies academics with comprehensive support from the inception of an idea to the successful founding of a company in Lower Austria.
Lower Austria	NÖBEG	www.noebeg.at	NÖBEG is a common brand used by a specialized corporate bank, the NÖ Bürgschaften und Beteiligungen GmbH. By assuming liability and providing sureties (risk splitting) and/or participation (capital consolidation), companies are effectively supported during decisive financing phases.
Salzburg	AplusB Salzburg center Startup Salzburg	www.startup-salzburg.at	Startup Salzburg supports each business development phase by guiding, facilitating or providing a network. It offers seven service points as points of contact and services like innovation scounting, pitch training, coaching, feedback and roadmapping.
Styria	Steirische Wirtschaftsförderung (SFG)	www.sfg.at	Supervises and promotes Styrian companies that strive to realize innovative project in the founding phase, as well as enterprises that strive to realize investment projects in Styria.
Styria	Science Park Graz	www.sciencepark.at	The SPG team of the AplusB center Styria along with its network of experts, support academics (students, alumni and scientific staff) of all fields with professional consulting and coaching, infrastructure and financing in the early stages of a company founding.
Styria	Zentrum für Angewandte Technologie	www.unternehmerwerden.at	The Zentrum für Angewandte Technologie is a starting platform for tomorrow's successful high tech companies. They offer researchers and innovative personalities from the environment of the

Upper Austria	tech2b	www.tech2b.at	Montanuniversität a high tech environment as a base for their step into the world of businesspeople tech2b, the AplusB center Upper Austria, is a high tech incubator, which has specialized on the early stages financing of research-based highly innovative founding efforts.
Carinthia	Build!	www.build.or.at	The main tasks of the AplusB center Carinthia Build! are the promotion and stimulation of innovative business ideas and company establishments from the academic field.

3.8.1.3 Crowdfunding

Crowdfunding is a way of raising finance by asking a large number of people each for a small amount of money. Until recently, financing a business, project or venture involved asking a few people for large sums of money. Crowdfunding switches this idea around, using the internet to talk to thousands – if not millions – of potential funders. Typically, those seeking funds will set up a profile of their project on a website such as those run by our members. They can then use social media, alongside traditional networks of friends, family and work acquaintances, to mobiles the crowd and raise money. There are three different types of crowdfunding: donation, debt and equity.

Reward crowdfunding/crowd donation describes the phenomenon that donors have a social or personal motivation for putting their money in and expect nothing back, except perhaps to feel good about helping the project. Rewards can be offered (often called reward crowdfunding), such as acknowledgements on an album cover, tickets to an event, regular news updates, free gifts and so on. Returns are considered intangible.

In **crowd lending/peer-to-peer (p2p) lending**, investors receive their money back with interest. This tool allows for the lending of money while bypassing traditional banks. Returns are financial, but investors also have the benefit of having contributed to the success of an idea they believe in. In the case of microfinance, where very small sums of money are leant to the very poor, most often in developing countries, no interest is paid on the loan and the lender is rewarded by doing social good.

In **crowd investing**, people invest in an opportunity in exchange for equity. Money is exchanged for shares, or a small stake in the business, project or venture. As with other types of shares, apart from community shares, if it is successful, the value goes up. If not, the value goes down.

Table 5: Crowdsourcing platforms in the region

Highly relevant for projects in life science

Institution	Website	Comment
Companisto	www.companisto.com	The crowdlending and crowdinvesting platform Companisto offers start-ups an equity-based financing and high-growth companies a venture loan. They expanded their portfolio by the categories biotech and medtech. Projects get pre-selected according to the mutual matching between idea and Companisto as a platform.
Seedmatch	www.seedmatch.de	Similar to Companisto, the German-speaking platform Seedmatch added biotech and medtech to their portfolio. The platform offers options for start-ups and young high-growth companies to get funding through crowdinvesting.
Syndicate Room	www.syndicateroom.com	The UK equity crowdfunding platform Syndicate Room is one of the leading catalysts for European life science projects. Start-ups and early-stage companies may apply.
Wiseed	www.wiseed.com/en	Alongside with Syndicate Room, Wiseed is a well-known French crowdinvesting platform supporting life science projects amongst others.
aescuvest	www.aescuvest.de	aescuvest is German-speaking and the first European crowdinvesting platform supporting ideas and projects in the field of medtech and health.
Capital Cell	www.capitalcell.net	The platform Capital Cell specialized in equity crowdfunding for European biotech projects, which have already founded or are in the process of founding a company. The selection of projects is advised by a community of scientists and investors.
Dodo	www.dodofunding.com	The international biotechnology funding platform dodo connects people, businesses and institutions to life science projects through reward-based crowdfunding.
investiere	www.investiere.ch	The Swiss crowdinvesting platform focuses mainly on high-tech, medtech and ICT companies with their headquarter in Europe.

Lion Rocket	www.lionrocket.com	Lion Rocket, one of the three Rockets-family members, has specialized on lending-based crowdfunding supporting small to medium sized companies.
My pharma company	www.mypharmacompany.com/en	My pharma company exclusively focuses on innovative health care products, which are close to their market launch and supports them by crowdinvesting possibilities. Additionally, they offer expertise and close collaboration to their projects' teams.
wellfundr	www.wellfundr.com/en	All kind of projects related to the health sector may get funded through the platform wellfundr, offering donation-based and reward-based crowdfunding as well as equity investment or loan possibilities.

General

Institution	Website	Comment
Startnext	www.startnext.at www.startnext.com/pages/sciencestarter	Startnext is the biggest reward-based and donation-based crowdfunding platform for creative and sustainable ideas in the German-speaking countries. Sciencestarter specifically supports projects in the field of science, research or scientific communication.
Kickstarter	www.kickstarter.com	The international platform is one of the most-known reward-based and donation-based crowdfunding opportunities. It is open to almost all kind of ideas and has supported to realize more than 118,000 projects.
Conda	www.conda.at	Conda follows the approach of crowdinvesting, namely to connect entrepreneurs and investors in order to finance innovative projects. Ideas are thoroughly chosen by experts together with an Advisory Board.
Es geht! Crowdfunding der BAWAG P.S.K.	www.crowdfunding.at	The Austrian reward-based crowdfunding initiative Es geht! promotes projects, which create a positive value for Austria and its citizens.
Green Rocket	www.greenrocket.com	Green Rocket is the first crowdinvesting platform focusing on sustainable organization in the fields of energy, environment, mobility and health. Besides established organization, also start-ups and first-stage companies may ask for funding.

Respekt.net	www.respekt.net	Respekt.net is an Austrian reward-based and donation-based crowdfunding platform aiming at the creation of a better society by supporting non-profit projects.
Seedrs	www.seedrs.com	Seedrs enables equity crowdfunding opportunities in the high potential new start-ups across Europe.
We make it	www.wemakeit.com	We make it is a reward-based and donation-based crowdfunding website, which supports individuals, collectives or organisations to fund a project or get a pre-sale for a specific product.
1000x1000	www.1000x1000.at	The Austrian crowdfunding platform 1000x1000 offers high potential start-ups and small to medium sized companies the possibility to realize their innovative ideas.

3.8.2 Financing planning

The first question of financing is how much capital you will need in total to successfully found and operate the company, including the development of marketable products or services. The financial requirements can be estimated based on a financial plan and based on your assumptions concerning the inception of the company. The second question is how much capital must be available at a given time to keep your company operable. This is a decisive factor in financial planning.

3.8.2.1 Accounting basics

Financial planning in your business plan involves less work than you expect. Essentially it involves three spread-sheets: The **income statement (US) resp. profit and loss statement (UK)** (success calculation, overview of expenses and revenue, profit and loss, statement of income), a **balance sheet** (overview of assets and liabilities) as well as a **cash-flow calculation** (=liquidity analysis, statement of cash flows). The bases of the above are calculations, such as quantity structures, forecasted revenue, and human resource expenses to make the three spreadsheets conceivable. Planning should be performed on a monthly basis for the first year and for the second and third year on a quarterly one. The forth and fifth year are planned on an annual basis.

Note that the structure of financial statements varies between countries. Each country has also specific regulations on how to set up the financial statements.

3.8.2.2 Income statement/Profit and loss statement

The profit and loss account presents the total income and expenditure of the business in tabular form. Income and expenditure are grouped and summarized by category, with the expenditure finally deducted from the income to arrive at the business result for the period, the profit or loss, both before and after taxation (principally, corporation tax). The business's sales turnover consists of the income from goods and services sold, but does not include receipts from financing. The main categories are:

- **Revenues/Turnover:** Total income from trading activities (sales of goods and services).
- **Cost of goods sold (COGS):** Materials and similar expenditures.
- **General and administrative expenses:** Personnel expenditure, i.e. wages and salaries, non-wage labor costs, legal and professional fees, utilities, insurance, office rents, office supplies etc.
- **Interest:** Interest payable on borrowings is also a business expense. Borrowings mean loans, credit and similar sources of finance on which one pays interest. Venture capital and other forms of investor participation constitute equity on which no interest is payable.
- **R&D expenses**
- **Depreciation:** The acquisition cost of capital investments like equipment used over extended periods of time is not expensed all at once in the year of acquisition; instead, it is spread over the expected useful life of the asset. So, in the case of a piece of equipment acquired for €100,000, which one plans to use for five years the annual expense is €20,000 per annum for five years. This is called depreciation. It should not be forgotten that funding of €100,000 needs to be available in the year of acquisition. Depreciation is one of the principle reasons for the difference between the theoretical profit (sales, less depreciation and other costs) and the actual funds available (operating receipts less payments and acquisition costs of fixed assets). This is why we need a cash flow statement, showing the liquid funds available.
- **Miscellaneous costs:** All expenses not directly related to the principal activities of the business.

Examples of income statements and detailed explanations can be found on www.investopedia.com.

3.8.2.3 Balance Sheet

The balance sheet shows the assets of the business and the corresponding liabilities and equity, which are the sources of the funding of the assets, i.e. the capital. Therefore, the following "basic accounting equation" must hold true:

Assets = Liabilities + (Shareholders or Owners) Equity

The business **assets** show how the capital is employed, and consist essentially of **fixed assets** and **current assets**.

- **Fixed assets** mean those assets which the business intends to retain in the long term. These consist of the tangible assets (buildings and equipment, etc.) required for operations, intangible assets (patents, etc.) and long-term financial assets, which include investments in other businesses and long-term portfolio investments (bonds and shares, etc.).

- **Current assets** are those assets, which the business holds on a short-term basis. They include inventories (raw materials, work in progress and finished goods), cash, bank balances and other liquid funds and amounts receivable from clients (accounts receivables) which at least in principle are collectible on a short-term basis.

Equity and liabilities show where the capital which finances the assets comes from. It comprises the owners' equity and the long-term and short-term liabilities, as follows:

- **Equity** means the capital introduced by founders, original owners and by other shareholders (venture capitalists, etc.). This is capital transferred to the company for an indefinite period. Retained profits are treated as part of equity.

- **Reserves** are also counted as belonging to equity. They normally represent undistributed profits, which are carried here in order to keep them separate from the capital with which a company was formed or the capital subsequently introduced by owners. There are also other types of reserves.

- **Provisions** are set up by a company for specific expected future expenditure or identifiable risks. Technically, provisions are counted as liabilities. One example would be a provision for litigation, to cover the legal costs of a possible patent infringement

action, another the statutory provision for severance payments. Provisions are charged against operating income and anticipate future expenditure.

- **Current liabilities** are all liabilities payable within one year. They include unpaid invoices (accounts payable) and business loans and also current account overdrafts. Current liabilities constitute borrowings on which interest is usually payable.

- **Long-term liabilities** include mortgage loans, other long-term loans and credits. Interest is payable on these.

Examples of balance sheets and detailed explanations can be found on www.investopedia.com.

3.8.2.4 Statement of cash flow and liquidity

The cash flow statement is related to the profit and loss account and is designed to eliminate all non-cash transactions (transactions not causing a flow of funds). It can be defined as follows:

Cash flow is the excess of receipts over payments resulting from the business activities of the company.

Theoretically, an entrepreneur could contribute a building worth € 1,000,000 to a company and depreciate it over the years (i.e. expenditure), but does no business (no sales). This would result in an annual accounting loss although no funds would have flown (not that such a business would be legally possible). Similarly, a business could create a provision for legal costs, which would reduce the profit (provisions are anticipated expenditure see under balance sheet). But no money would be paid out, although there would be a payment planned for the future. Again, no funds have flown. The purchase of a tangible asset provides another kind of example: the business pays money out, but only a fraction of what is spent is treated as an expense (remember, fixed assets are depreciated over several years). In this case, the cash outflow is higher than the amount shown as an expense. Because of these timing differences, it is essential for a business to plan its cash flow.

Receipts and payments, income and expenses

In financial management, we distinguish between receipts and payments, and income and expenditure.

Receipts and payments are exclusively monetary inflows and outflows, i.e. cash and banking transactions. Transactions not resulting in a flow of funds are ignored. So, for example, purchases and sales on credit are not taken into account, nor are depreciation, or the amounts added to or released from provisions, or accruals. On

the other hand, the full cash amounts of capital acquisitions are included.

Income and expenditure are the amounts shown in the income statement. They include all the items that relate to the period in question, whether they are reflected in cash flow or not, i.e. depreciation, non-cash additions to or releases of provisions, accruals and movements on reserves.

The **cash flow** statement thus shows whether a business has a financing requirement or expected surplus liquidity. When a business starts up, its cash flow is negative, i.e. the outflow of funds is higher than the inflow, so that money (capital) has to be injected. The highest deficit balance of cash is the maximum amount for which the business has to find financing.

Cash flow can be calculated directly from receipts and payments, or indirectly, from the profit and loss account and the balance sheet. With experience, the task can be simplified:

EBIT

- Tax (calculated on EBIT)

+ depreciation and amortization

+/- variation in working capital

- capital expenditure

= free cash flow

A *negative cash flow* shows that the company needs funds and may have liquidity problems. A positive cash flow shows spare liquidity, which can be used for investment.

You will meet many different variations of cash flow and liquidity forecast in practice but planning software and appropriate expert help can help make things easier.

3.8.2.5 Software for financial planning

Austria Wirtschaftsservice GmbH has developed a software for financial planning in cooperation with the “Gründerservice der Wirtschaftskammer Österreich” (WKÖ) (*Founders' Service of the Austrian Economic Chambers*). The product is called „Plan4You Easy“ and is downloadable at www.gruenderservice.net/businessplan.

3.8.3 Using ratios to assess a business

After the early start-up phases, providers of capital will naturally want to know the return on the capital they have invested in your business. Lenders (banks) need to know how well your business is doing. And you need to decide whether it can operate profitably and whether you would need additional financial sources. Businesses often make use of ratios for these purposes. Here we introduce some in order to give you a chance to familiarize yourself with the vocabulary. Ratios can and should be used as a regular part of the budgeting and control process. The ratios below represent only the most commonly used.

Profitability ratios:

- **Break-even:** Your business plan is not complete without a serious break-even analysis as this tool tells you how much you need to sell in order to cover your costs. The break-even point is reached once total cost and total revenue are equal. As of this point, your business will be profitable.

- **Return on Equity:** This important ratio shows the return on the shareholders' equity. The profit for the financial year is related to the equity capital employed. This indicator can thus be seen as the "rate of interest" earned on shareholders' investment. The return on equity should always be higher than the return on long-term securities in the capital market.

$$\text{ROE} = \frac{\text{Net Income after tax}}{\text{Shareholder equity}} = \frac{\text{Net Income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total Assets}} \times \frac{\text{Total Assets}}{\text{Average Stockholder Equity}}$$

- **Return on total assets:** This ratio shows us the return on the total funds invested. Here, the interest on long-term debt is added back to the profit (the profit could be called the "cost" of equity capital, just as interest is the cost of long-term debt). The ROA for established “old economy” companies is often about 10%.

$$\text{ROA} = \frac{(\text{Net Income} + \text{Interest expense} - \text{Interest tax savings})}{\text{Average total assets}}$$

Liquidity ratios:

- **Current Ratio**: This ratio measures whether or not a firm has enough resources to pay its debt over the next 12 months. It compares a firm's current assets to its current liabilities. Generally, this ratio should be above 150%.

$$\text{Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

- **Working Capital**

  Working capital= Current Assets – Short term liabilities

  Even though working capital isn't a key company figure in the traditional sense, it is often used to describe liquidity.

- **Cash burn rate**: the rate at which a company is losing money (negative cash flow), thus, how fast a company will use up its shareholder capital.

Leverage ratios:

- **Equity ratio**: This tells you the proportion of equity capital to total capital.

$$ER = \frac{\text{Equity} \times 100}{\text{Capital employed}}$$

This ratio should be at least 20%, because equity can be used to cover losses. You should have enough equity to cover at least three years' losses. For biotech companies, the equity ratio is usually very high (100%).

- **Coverage ratios A and B**: These ratios show the extent to which your fixed assets are covered by equity or by long-term debt. If fixed assets are covered by debt which is only short-term, your assets may be at risk when the loans fall due. Ideally, the ratios should be over 100%.

$$\text{Coverage ratio A} = \frac{\text{Equity} \times 100}{\text{Fixed assets}}$$

$$\text{Coverage ratio B} = \frac{(\text{Equity} + \text{long-term debt}) \times 100}{\text{Fixed assets}}$$

- **Financial leverage**: Financial leverage is generally understood to mean the use of outside capital to finance a company. Basically, the use of debt capital leads to a higher risk for the company, because interest payments represent higher fixed costs and the debt repayment is independent of the economic success of the enterprise. Nonetheless, the acquisition of debt capital under certain circumstances can raise the profitability of the equity. If the interest rate on the debt capital is lower than that of the equity, the rate of return on the equity can be raised through the use of credit. Credit costs less than the typically required profitability of the assets, resulting in a **positive leverage** effect. In the opposite case, loans should be repaid as quickly as

possible, since there is a **negative leverage effect,** meaning that there is a loss on every Euro borrowed.

Finance Checklist	✓
What are the underlying assumptions of your financing plan?	
What are your financing requirements up to the break-even point?	
What liquid funds are needed in which periods?	
Where will the capital come from?	
What return on equity can you offer investors on a long-term basis?	
How will investors be able to realize their profits?	
In case of loans, what is the payback period?	

Practical advice for financing

- Diagrams can help you, your partners and your investors to understand the situation
- You do not need do the calculations for your financial plan yourself: specialized programs (e.g. Plan4You Easy) can be helpful
- Whatever happens, make sure you discuss your assumptions and calculations with experts

3.9 *Opportunities and Risks*

There is no such thing as business without risk and this is particularly true of rapidly growing new businesses. As an entrepreneur, you share the risks with the investors who are financing your project. Recognizing risks openly and objectively creates confidence both for the investors, and also for you. If you fail to acknowledge the risks, potential investors will be forced to conclude that you take a too optimistic a view of the business. Similar to explaining the risks you should also outline the additional opportunities of your product or service concept.

3.9.1 Risk assessment and sensitivity analysis

There are risks inherent to the business itself and risks arising in the environment in which the business operates. What if your most important colleague drops out, or your largest customer goes bankrupt?

Risk evaluation involves looking into the future. Risks are relative and should be evaluated in terms of your chosen assumptions. Risks can be explored using scenarios which model possible futures based on varying assumptions. Your business plan should contain no more than three scenarios, which are typically:

- The **base case scenario,** i.e. the one that you are honestly convinced is the most likely one
- The **best case scenario,** i.e. the expected opportunities and the most favorable circumstances
- The **worst case scenario,** i.e. the acknowledged risks and the least favorable circumstances

Spreadsheet programs like Excel can compute scenarios from a single spreadsheet. Such software simplifies your calculations enormously. You can also use pivot tables (Excel) for interactive modeling.

These scenarios lead to valuable insights into how your business may develop and what its financing requirements may be and the insights in their turn give the entrepreneurs and potential investors a clearer picture of the future of the business. In addition, the worst case scenario contributes more specific information about the stability and overall riskiness of the business. You should definitely have contingency plans for dealing with worst case outcomes.

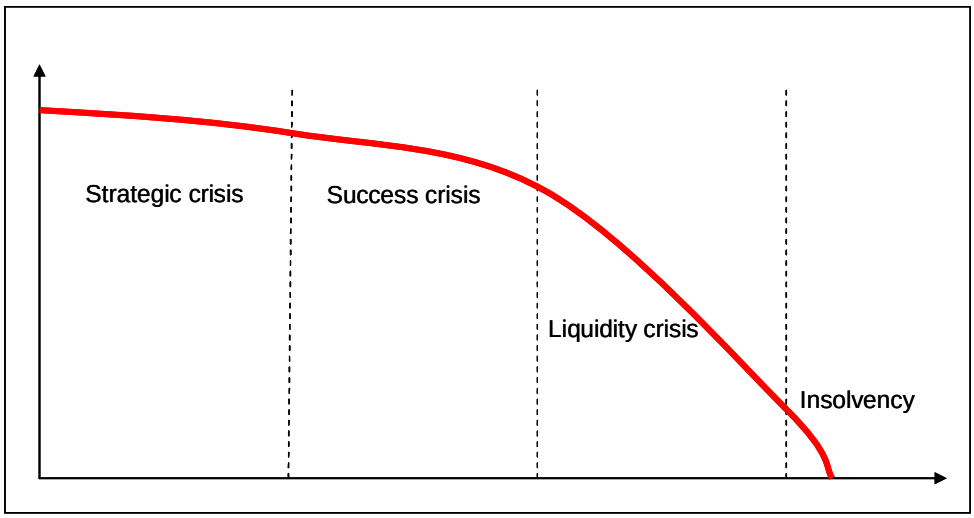
3.9.2 Typical crisis situations of companies

Crises threaten the life of a business. Leaving aside unpredictable events (like natural disasters), most business crises follow a typical pattern.

Crises have their origins long before the effects are reflected in bank accounts or order books. A liquidity crisis, which may touch off a slide into bankruptcy, is only the last in a long series of developments. Potential crises must hence be spotted early and nipped in the bud.

You must be alert for signs of impending crisis.

Figure 7: Typical crisis progression of companies over time



3.9.2.1 Strategic crisis

All such crises are characterized by diminishing business success: products become obsolete, problems gradually become more difficult to solve and the company's knowledge base shrinks. Discontented employees and low morale are often precursors of a strategic crisis. When investment in research is cut and product development falls off, there are major dangers ahead.

3.9.2.2 Success crisis

Symptoms of this type of crisis are rising stocks combined with falling order books, increasing numbers of cancelled orders and complaints, falling profits and cash flows and rising discounts. Debt financing grows and the return on total assets falls.

The solution lies in taking a close look at the product range: all too often, the products are outdated or no longer meet customer requirements. New products may need to be developed and the business strategy revised as a result of the analysis. Whatever measures are taken, the effects will only be felt in the long-term.

Improved communications (PR, not advertising), and precise market segmentation can help you to identify weaknesses. You should not hesitate to employ external experts as soon as the *tell-tale* signs appear.

3.9.2.3 Liquidity crisis

A liquidity crisis results from financial imbalance: the business is unable to meet its obligations or can only do so with delays. Crises of this kind are easily recognized from outside. Decreasing

revenues and product quality, shrinking order books and customer base are soon followed by general liquidity problems and debt rescheduling. And the last stage is financial collapse.

At this stage, the only answer is a major injection of cash.

This may prevent financial collapse only if at the same time smart, but painful restructuration programs are implemented. Better to tackle the crisis in its earlier stages.

3.9.3 Presenting opportunities and risks

In your business plan, you should provide a brief description of the scenarios modeled in your sensitivity analysis: What are the events, turnover and price levels and what are the constants embodied in the scenario? The base case scenario must be described in detail in the business plan and for the other scenarios it will be sufficient to summarize the results of the analysis in terms of the three most important indicators:

- How much capital is needed to finance the business?
- Time to break even: when will the cash flow become positive?
- Internal rate of return: how high is the return on investment?

You should also refer in your business plan to additional opportunities that may arise in connection with your business idea. For example, legal or political changes may open up new markets, or progress in a given technology could indirectly give your products a boost. You should however only mention possibilities based on reasonable assumptions.

Opportunities and Risks Checklist	✓
What risk can you see that could threaten the success of your business?	
What are the quantitative effects of these risks (scenarios)?	
How do you intend to tackle these risks?	
How do you plan to minimize their negative effect?	
How will your business survive in the worst-case scenario?	

How do you monitor the success factors for your business?	
How will you recognize strategic crises in good times and prevent them from happening?	
What additional opportunities could emerge from your business idea?	

4 List of Figures & Tables

Index