10 ORRICK (PARALNINJA) SERIES

UNIVERSITY ENTREPRENEURSHIP & SPIN-OFFS IN GERMANY SET-UP / IP / FINANCING AND MUCH MORE



VC & TECH BRIEFINGS GERMANY

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About the Orrick Legal Ninja Series

About the Orrick Legal Ninja Series - OLNS

In substantially all the major world markets, we have dedicated technology lawyers who support young German technology companies on their growth trajectory through all stages. As one of the top tech law firms in the world, we are particularly committed to bringing the American and German entrepreneurship ecosystems closer together.

For this purpose, we have launched the Orrick Legal Ninja Series (OLNS) back in 2019. With this series, we will provide overviews on current legal trends and take deeper dives on certain legal topics particularly relevant for start-ups and their investors.

This series will be co-authored by a multidisciplinary team of lawyers from our national and international offices. It is our goal to tap into the rich reservoir of the venture capital, corporate venture capital and technology know-how of our international platform and make it available to the exciting German entrepreneurship and innovation scene. Why "Ninja Series?" This title might simply reflect the fact that some of us watched a little too much TV in the 1990s. But, seriously, "Ninja" has come to signify "a person who excels in a particular skill or activity." That's what the Orrick team strives for when it comes to providing tailored advice to growing tech companies and their investors. We hope that the OLNS also empowers you to be a Ninja entrepreneur.

If you'd like to discuss further, please contact us. We would love to learn about your experiences with these topics, so please share them with us. We constantly strive to evolve and grow to best serve our clients.

We hope you enjoy this tenth edition of our series.

On behalf of the Orrick Team,

Sven Greulich

Orrick — Technology Companies Group Germany

PREFACE AND TERMINOLOGY USED IN THIS GUIDE

In recent years, the importance of German universities and research institutes as (potential) entrepreneurial hotbeds has gained increasing attention. University entrepreneurship is seen as an efficient and dynamic way to transfer new business ideas in general as well as research results from such organizations into commercial use. Such "spin-offs" (we will come back to that confusing term and how we use it in this Guide in a minute) are expected to generate innovations, create new markets based on innovative technologies and business concepts, create jobs, and generally increase the competitiveness of the German economy.

This publication is dedicated to such spin-offs.

The success of such spin-offs largely depends on the founders having a driving passion that may at times resemble irrational optimism; faith in the technologies they seek to commercialise; and an eagerness to commit their own time and financial resources to develop them (some would add health, social lives and for a couple of years, vacation time). However, having dealt with countless university students and faculty teams around the world, we know that these spin-offs also face unique challenges, some of which could – with the right support systems and policies in place – be considerably less taxing.

Starting a technology company is never an easy feat but the task can be even harder for entrepreneurs who have developed intellectual property ("**IP**") with the help of a university or research institute. Why is that? In accordance with applicable law, usually the university or research institute will be the legal owner of all such IP and that IP somehow then needs to be made available to the start-up. As we will see, the transfer of the IP from the university or research institute to the start-up is far from straight forward in Germany as it is often time-consuming, complex, and costly. In a worst case scenario, the founders give up their project, attempt to circumvent the relevant IP or agree to license terms that put the future fundability of the company at risk.

While this Guide is intended to help founders by providing them with an overview of how to get a university-based spin-out off the ground (with a chance to gain some altitude rather than crashing down to earth quickly), this Guide is not intended to be a stand-alone document. Instead, this Guide augments and is augmented by other editions of our OLNS, notably the OLNS editions¹ that deal with employment law matters, the establishment of employee participation programs, US/German holding structures and early-stage financings. This Guide cannot cover all relevant topics and it only presents our humble views. Each company and each investor is different, and this Guide is not a substitute for proper legal advice on a case-by-case basis. Honestly, talk to your lawyer, it will make her happy.

^{1.} You can find all editions of the OLNS here: <u>https://www.orrick.com/en/Practices/Orrick-Legal-Ninja-Series-OLNS</u>.

To reduce complexity, let us make our lives a bit easier and agree on a few terms that we will use throughout this publication:

University: In the spirit of simplicity, we use the term "university" in this Guide to refer not only to universities, but also to universities of applied sciences as well as publicly funded research institutions such as the Helmholtz Association, the Max Planck Society, the Fraunhofer Society and the Leibniz Association.

Spin-out and Spin-off: There is another term (well in fact, there are two) that in practice is often used inconsistently, *i.e.* "spin-out" and "spin-off."

So what is a "spin-out" or a "spin-off?" In the jargon of M&A practitioners (*i.e.* those lawyers who advise on transactions and like to use their own vocabulary to conceal the fact that they have moved a long way away from actually practicing law...), a "corporate spin-off" refers to the separation of an operational sub-function from an existing overall organization.

Colloquially, the term refers to all kinds of hive-downs (understood in a non-technical sense), carve-outs and other forms of producing an independent organization. The somewhat rarer term "spin-out" is often used synonymously in that context. We will keep it simple and only use the term "**spin-off**" in this Guide for all types of start-ups born out of the environment around a university. Generally, when it comes to university entrepreneurship, we can distinguish between two groups of start-ups (with two sub-groups each). The graphic below shows these two groups and their respective sub-groups. Firstly, there is a group of startups that receive and develop IP from "their" university or that emerge from specific research activities and then a second, broader group of start-ups that do not primarily emerge from research but utilize knowledge obtained from teaching or that are simply motivated by the personal interests of their student-founders to become entrepreneurs.



Based on: "Spin-offs from public research organizations in Germany: a comprehensive analysis based on bibliometric, patent, website and company registered data", published July 2021 by Fraunhofer (ISI) and ZEW – Leibniz Center for European Economic Research

Reliable statistics about university spin-offs in the various meanings set forth above are hard to come by. While many universities have a solid overview of IP-based spin-offs, due to either their contractual relationships with them (licenses) or the fact that they hold a stake in them (be it equity-based or virtual), there is less reliable data for the other kind of spin-offs. In this Guide, we have attempted to reproduce relevant empirical numbers and square them with our own observations in the US and Europe.

This Guide seeks to provide guidance for as many forms of spin-offs as possible. However, we will return again and again to the specifics of IP-based spin-offs, especially when it comes to how a start-up can access the university's IP in an efficient manner in order to maximize such start-up's chances of success.

Chapter I presents the topic in a broader context, demonstrates the importance of start-up activities at universities, and outlines the current challenges in Germany against the background of experiences from other countries that are more successful when it comes to university entrepreneurship. Chapter II then turns to the central question of how the founding team should be composed and what founders should consider in the distribution of shares and the composition of their first cap table. Chapter III gets a bit more technical and presents important considerations for the initial set-up, in particular how founders should hold their shares, when a US holding company can be beneficial and what that nasty "GbR" is all about before the start-up gets set-up. Chapter IV is then devoted entirely to IP-based spin-offs. Here we look at how start-ups can be granted access to

the relevant IP held by a university and how to protect such start-up's later financial viability and fundability. Chapter V deals with financing issues relevant to start-ups in general and explains for which companies venture capital or financing by corporates are viable options. In the final Chapter VI, we have highlighted a number of practical challenges that many spinoffs face. Here, we set out a checklist of some key considerations after the incorporation of a start-up as well as a crash course on IP and know-how matters.

Please don't do anything stupid or kill yourself, it would make us both quite unhappy. Consult a doctor, lawyer and common sense specialist before doing anything in this book.

Tim Ferriss, Tools of Titans

I. The Lay of the Land

In this Chapter, we will take a brief look at the current situation regarding spin-offs at German universities and examine our findings against the backdrop of an international context. We will outline international developments, and briefly summarize experiences of the best start-up universities in the USA. We will then take a look at the current problems at German universities and present some of the initiatives of federal and state legislators and in particular, of universities.

One might wonder why German universities care so much about their entrepreneurial activities (or at least why this should be very high on their agenda). While in some cases a university might see direct economic benefits from license fees or an increased equity value of their start-up participations, such expectations have for many universities so far been illusive for reasons that we will briefly come back to later in this Guide. No, the main reasons are not direct economic benefits. Rather, universities should care because a reputation as an entrepreneurial hotbed sets a university apart from its competitors and has become an important part of brand building and a fervent marketing tool. Students who feel that entrepreneurial urge often expect their universities to support them early on and select their alma mater based on the strength of their alumni networks in terms of successful entrepreneurs and investors. Universities will achieve higher market recognitions because of their proficiency in generating not only pioneering research and academic excellence but also because of the successful start-ups they help to give birth to, and the social impact created by these young companies.

1. UNIVERSITY SPIN-OFFS AND THE OVERALL ECOSYSTEM - LESSONS FROM ABROAD

These days, there is widespread consensus that when it comes to successful start-ups coming out of universities or developing university-originated inventions into cutting-edge technology and products, the US universities lead the pack with only a few European universities holding their ground with a lot of catch-up required.

GATORADE - FROM FAINTING FOOTBALL PLAYERS TO A BEVERAGE EMPIRE



There are many interesting things coming out of the Sunshine State: alligators, hurricanes, odd politicians and one of the most commercially successful sport drinks of all times. We are talking about Gatorade and this case is very instructive on what IP transfers can achieve in financial returns and why clear delineations on IP rights matter. Here is the Gatorade story in a nutshell.

Back in 1965, the coaches of the University of Florida's football team were annoyed by their players passing out during practices due to heat exhaustion (how dare they). So, they turned to the egg heads (wait... and see who will laugh last) and asked them for help. A team of four researchers from the school's College of Medicine led by Dr. Robert Cade took up the challenge. Dr. Cade was working in the University's renal division under a federal grant in addition to his teaching and other medical center duties. Also, in other respects, Dr. Cade seemed to be an interesting contemporary - and on Friday afternoons he held informal alcohol mixology lessons in the lab. After a couple of months of research, the team concluded that the players were passing out because practicing football in blistering heat was causing them to burn through extraordinary levels of carbohydrates and electrolytes. The researchers came up with a liquid solution to replenish the lost carbs and electrolytes and after the initial taste experiences were described as underwhelming, Mr. Cade's wife recommended to blend the liquid with lemon juice. Who would have thought? Rumor has it that the drink was initially dubbed "Cade's Cola" or "Cade's Ade" before a genius combined the latter with the name of the University's football team (the Gators) and the name Gatorade was born. Fun fact for the legally minded (we know...): The obvious name "Gator-Aid" was rejected by its creators as it might have hinted at something that required regulatory approval. Isn't law fun?

We love origination myths. But wait, the story has an IP litigation twist. After the University had initially refused to acquire all IP rights in Gatorade and a substantial portion of the revenues that could come from it for what today would amount to approx. USD 90,000, Dr. Cade approached a canned food packaging company called Stokely-Van Camp (Stokely later sold the rights to Gatorade to Quaker's Oat which in turn was sold in 2001 to PepsiCo). This time, Dr. Cade asked for a one-time payment of USD 1 million (approx. USD 9 million in today's money) but was offered another deal instead, a small cash amount upfront and 5 cents per each gallon of Gatorade sold. Upon conclusion of licensing negotiations, the inventors formed the Gatorade Trust to manage the royalties owed to the investors. What a deal this was. Over the years, the four teachers together received well north of USD 1 billion in royalties.

As success has many fathers, the University of Florida wanted a piece of what it considered its baby. Because Gatorade was invented by teachers using school labs, grants, and students as resources, the University thought itself entitled to the resulting IP rights and sued the inventors. Lawsuit and counter-lawsuits were filed in 1970 and 1971; these suits had many intricate complexities that we can't present here. The United States government also briefly attempted to sue for a share of the profits but eventually backed off after the Gatorade inventors agreed to relinquish the rights to three patents. After the lawyers on both sides had their rightful opportunity to earn some fees, the parties settled the case and according to the settlement agreement, the University of Florida was given a 20% stake in the royalties going forward. Today, the University of Florida received a little short of USD 300 million in royalties making Gatorade one of the most successful University IP transfers of all times (We know that in the pharmaceutical space various patent families held by universities netted more than USD 1 billion for their universities but we find the Gatorade story more entertaining).

The Gatorade litigation also initiated policy reforms that eventually led to the *Bayh-Dole Act* mentioned below, a landmark piece of legislation that fueled IP transfers from US universities over the last decades.



Quick tour down memory lane: Since the 1920s, in the US, universities have been involved in patenting and licensing IP. However, following the Second World War and the corresponding increase in federal support for research conducted at universities, technology transfer to the private marketplace was limited by an ineffective system for licensing; as the federal government held the resulting patents. In the 1970s, technology transfer offices, which manage and license IP at research universities, became widespread. Universities could patent and license their research, however, under the regulations of Institutional Patent Agreements, an agreement had to be made with each federal agency that provided funding. In 1980, the Bayh-Dole Act was passed, leaving control of government-funded IP in the hands of the universities and research institutions, which contributed to vastly increasing the commercialization of technology developed with federal funding. Since Bayh-Dole, technology transfer offices have more easily been able to facilitate the transfer of economically significant innovations to commercial markets.

The results are obviously impressive. Although the returns from a thriving entrepreneurship ecosystem around a university for the overall economy are hard to quantify, the returns on government's investments in public education and universities can arguably serve at least as a directionally correct proxy. Admittedly, this source is already a bit dated (well it is from 2014 but in a time where many millennials have difficulties imagining a world before their arrival, this is a long time ago, but we are getting off track here), a study from the Information Technology & Innovation Foundation, a Washington-based think tank, analyzed 22 examples of major technology advances that stem from US-federal research support. These examples of major technology advances which were developed at universities and then licensed to the wider industry (not only start-ups) between 1996 and 2010 created USD 388 billion in GDP and 3 million jobs².

Today, US universities dominate the scene when it comes to spin-offs and successful IP transfers to young technology companies.

Every major tech hub involves one thing and that is a world-class engineering university.

Scott Galloway

"Facts are stubborn things, but statistics are pliable", said *Mark Twain* (our loyal readers will notice that the last editions of OLNS all contain quotes from Mark Twain and yes, we still believe it makes us sound smarter than we are...). Reliable statistics in start-up land are notoriously hard to come by but we think that directionally the following numbers and observations are correct.

An analysis by the *Handelsblatt* of the number of founders whose companies received an initial round of financing between January 2006 and October 2021 found that among the top 10 universities there is only one non-US university, *i.e.* the *INSEAD* came in on fourth place (762 founders and USD 23 billion in capital raised). The list is topped by *Harvard University* (1,857 founders and USD 90 billion in capital raised), followed by *Stanford University* and the *University of Pennsylvania*³.

^{2.} See Peter Singer, Federally Supported Innovations, 22 Examples of Major Technology Advances that Stem from Federal Research Support, 2014.

^{3. &}quot;US-Spitzenunis und ihr Gründer-Turbo: Warum dort so viele erfolgreiche Firmen entstehen", Handelsblatt dated. July 18, 2022.

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Visitors from all over the country and the world come to Stanford to find the secret of Stanford's entrepreneurial success. The secret, of course, is that there is no secret. It is a mindset. It is an approach. It is the Stanford culture. As many people have observed about Stanford, "it's okay to experiment – and to fail." It is also okay to be successful, widely successful.

Stanford University Guide

Let's double-click on Stanford University and zoom in on technology transfers and "real" IP-based spinoffs. According to figures from the Stanford Office of Technology Licensing, in FY2021 alone, Stanford received USD 118 million in gross royalty revenue and equity from 1,102 technologies, with royalties and equity ranging from USD 13 to USD 35.5 million. Twelve inventions received USD 1 million or more in royalties or equity, and 58 technologies generated between USD 100,000 and USD 1 million. The office evaluated 493 new technology disclosures and signed 164 new licenses. 79 of the licenses were non-exclusive, 44 were exclusive and 41 were option agreements. There were 25 new start-ups based primarily on Stanford technology that received an option or license in FY2021. Regarding equity, as of August 31, 2021, Stanford held equity in 256 companies as a result of a license agreement. During FY2021, equity from 22 companies was liquidated, generating USD 51.9 million for Stanford. Stanford normally sells securities acquired as part of the licensing process promptly after they become freely tradeable on public markets or an exit occurs. In FY2021, the office signed licenses that include equity with 23 companies. When looking at the development over the last years, one can see that the technology transfer activities steadily grew while it also becomes clear that economic results fluctuate guite a bit which shouldn't come as a surprise with licensees that are often VC-backed start-ups.







The Massachusetts Institute of Technology (MIT) plays in a similar league. According to its own assessment, every year, it receives over 700 invention disclosures, negotiates approximately 100 new option and license agreements and assists in forming 15 to 25 start-ups.

While the US universities have a big lead on their European competitors, a deeper analysis shows that even within Europe, German universities have even more catching up to do. While examining the European universities which have the most founders of unicorns (*i.e.* privately-held start-ups with a valuation of over USD 1 billion) amongst their alumni and using data from the information service Dealroom, Sifted found in its analysis "Europe's Top Unicorn Universities 2022" that amongst the top 10 European universities (again that list is topped by INSEAD), there is only one German university, i.e. the Technical University of Munich (TUM) coming in at number six. However, with the WHU Otto Beisheim School of Management and the Ludwig Maximilian University Munich Sifted identified two German universities to watch for the list of top unicorn universities going forward based on the number of their alumni-founded scale-ups that are expected to achieve unicorn status in the future. We are fully aware that the number of unicorns is not a perfect measure for a great founder university, but these statistics are at least directionally enlightening.

Within the unicorn herd, a number of start-ups born from academia are going great guns. According to data from *Dealroom*, in early 2022, there were 13 university spin-offs (within the narrower meaning of IP-based or at least research-focused) with unicorn status in Europe. This does not seem to be much compared to the almost 300 other unicorn start-ups in Europe, but before 2021 there were just 3 of them. This is not the only sign that investors are beginning to put serious capital into university spin-offs. A recent report by the investor *Parkwalk Advisors* found that UK university spin-offs snapped up a record GBP 2.5 billion of funding in 2021 and such number represents a 5x increase in what it was a decade earlier.



2. THE SITUATION IN GERMANY

Let's start with the positive news. Germany is one of the world's top locations for cutting-edge research. In the World Economic Forum's Global Competitiveness Report 2019 (WEF 2019), which compares 144 economies, Germany still ranks first in terms of innovative capacity - ahead of the United States. The report is now a few years old, and the selection and weighting of the criteria it uses can be disputed here and there, but our (self-) image of the world champion in research, which is much conjured up by German politicians, tends to be correct. So far so positive. Unfortunately, however, a top score for innovation capacity does not necessarily translate into a top position in terms of the quality and agility of the startup scene, whether in general or at universities and research institutions in particular. Alas, the picture still looks rather sobering, even if a lot has been done in recent years.

This is not a new phenomenon. The European Commission's 1995 Green Paper on Innovation already lamented the "European paradox": top performance in research coupled with weak market innovation, unfortunately especially in Germany. Just to put this timeframe into perspective: 1995 was the year in which a certain bookseller went

online from an office above a color tile store in Seattle and named itself after a river in South America.

2.1 The Research and Entrepreneurship Chasm

While there is widespread consensus that the research landscape with leading universities and research institutes (such as the Max Planck Societies, the Helmholtz Society, the Fraunhofer Institute and the Leibniz Institutes) and cutting-edge R&D departments of Germany's leading companies are a linchpin of the economic strength of Germany, the transfer from R&D into new businesses and start-ups is still lagging. In the past, the spin-off rates at publicly funded research institutions were particularly low. For example, in response to a minor parliamentary inquiry by the German liberal party FDP, the German Federal Government at the time provided that the spin-off rate was between 0.37 and 1.36 spin-offs per 1,000 scientific employees for 2019.

The spin-off situation at the German technologyfocused universities looks only somewhat better although it has in some places improved in recent years. According to the Gründungsradar 2020 of the Stifterverband für die Deutsche Wissenschaft, the universities that participated in the survey reported a total of 2,176 spin-offs in 2019. This means about 10.5 start-ups per 10,000 students at universities with start-up support. At least 984 of these start-ups are attributable to knowledge and/or technology transfer from the universities and 186 to specific IP such as patents. However, there is still a long way to go to catch up with the internationally leading universities in America and certain European countries, both in terms of breadth and at the top. According to a study by *McKinsey*, the USA is already better than Germany in terms of the number of patents per inhabitant. Approximately 1.2 times as many "worldclass patents" (i.e. patents for technologies that are considered to have particularly high innovative strength and commercialization potential) are registered in the USA rather than in Germany. However, the difference in early-stage entrepreneurial activity is even more disproportionately higher. Here, the USA achieves just under 2.3 times the German level

There is a general conviction that the start-up potential at German universities has so far been insufficiently exploited. The draft of the Federal Ministry of Economics and Climate Protection for a start-up strategy of the Federal Government from early summer 2022 states in this regard: "Germany and the European Union occupy a leading position in research, but not yet in academic spin-offs. Start-ups in Germany have been declining in the knowledge economy for years. This applies equally to knowledgeintensive services and industry, which is particularly dependent on research and development. The annual number of start-ups per 10,000 workers in the knowledge economy has declined from 6.9 to 4.2 in all German federal states over the past 20 years, and from 5.7 to 3.7 in the East German federal states. There is thus great potential for start-ups, which must be leveraged in the future." [convenience translation by the authors].

Even if it is of little consolation, the problems outlined here are not specific to Germany. The situation among our Austrian neighbors does not look much better. In the same vein as in Germany, the number of university spin-offs is generally considered to be significantly too low. The current government program 2020 -2024 therefore stipulated the introduction of key figures for academic start-ups. In Austria's research and innovation strategy, a target of 100% more academic spin-offs was set (period: 2022 - 2024). In Austria, too, there is considerable legal uncertainty, especially in the use of IP. Practitioners are calling for the introduction of universal standards within which those responsible can operate and which are also supported by the relevant ministries and the Austrian Court of Audit. Werner Wutscher, an insider of the Austrian scene, summarizes the problem, which will seem familiar to the inclined German reader, as follows: "Most Austrian universities have established entrepreneurship activities in recent years and have also introduced incubators. The transfer centers

spread across Austria also have a lot of know-how and expertise. Nevertheless, as an actor working with many universities, one has the impression that there is little collaboration. Networking actors and sharing knowledge, but above all also building an ecosystem in which the world is not reinvented by every university, would be necessary." [convenience translation by the authors].

Be that as it may, strengthening the entrepreneurial activities at the German universities deserves every bit of attention as the potential is arguably enormous. For example, a survey for Berlin found that already in 2019, 62,000 jobs and about 8.4 billion Euros in revenue could be attributed to university spin-offs⁴. In its research paper "Entrepreneurship Zeitgeist 2030" McKinsey modelled the economic impact on the German economy that doubling the number of newly founded start-ups would have and set out what needed to happen to achieve that goal. McKinsey identified the universities as one of the main levers to grow the number of start-ups and predicted that if German universities succeeded in exploiting their potential, this could help facilitate the creation of 1,350 additional start-ups annually in 2030. A worthy goal, indeed.

It looks like more and more investors agree. For example, in late 2021, German VC *Earlybird* launched a EUR 75 million fund focusing on university spin-offs.

4. Cf. Gründungsumfrage 2020, available at: <u>http://www.tu.berlin/themen/gruenden/2020/september/gruendungsumfrage-2020/</u>.

Basic and cutting-edge research at Europe's universities remains absolutely world-class. Thousands of ground-breaking ideas are generated here every year yet we are still underexploiting this potential. Far too many technologies get stuck on their way out of universities. Especially in light of accelerating innovations in the deep tech sector, we urgently need to commercialize more of these ideas and technologies.

Hendrik Brandis, co-founder and partner at Earlybird Ventures – convenience translation by the authors

2.2 Root Cause Analysis Light

The reasons for the more widespread and in many cases more successful entrepreneurial activities at US universities are manifold and cannot be explored in detail here. At this point, we will limit ourselves to briefly outlining some of the frequently cited reasons. We will return to some of them later in the context of the German IP transfer practice, which is currently still perceived as unsatisfactory (to put it mildly).

University Education: Observers of the start-up scene in the US often emphasize the importance of the case study methodology applied at US universities. Degree programs in the US often focus not on theorybased knowledge transfer, but on "learning from the (big) case". Rather, students in the US often deal with hundreds of case studies to be worked on in small groups during their studies and - according to some observers - thus learn the ability to recognize problems relevant to practice and to solve them in an application-oriented way. There is also a culture of experimentation prevalent in US university settings, where trying multiple routes is encouraged, and generally "failure" is in guotation marks, because such setbacks are often viewed more as a learning opportunity to be put to use in the next attempt.

Universities must leave their ivory tower and commit themselves to a living founding spirit.

Thomas Hofmann, president of the TUM – convenience translation by the authors

Alumni Networks: American universities go to great lengths to build and maintain alumni networks. For good reason. Curated alumni networks are important sources of revenue and marketing tools at the same time. In turn, alumni networks are often central components of the start-up ecosystem around the university.

Better International Talent Pool: On top come the competitive advantages of US universities in the global struggle for the best talent. In many cases, such institutions have a strong entrepreneurial profile and a clear positioning, distinctive marketing strategies and oh yes – no language barrier.

Better IP Transfer: For IP-based spin-offs, the (leading) US universities have decades of experience, they have established more efficient processes and simply have a deeper know-how reservoir. In addition, the (perceived) legal barriers are considered lower in the US However, it is worth mentioning that when compared with their UK and to a lesser extent US peers, the German universities sometimes offer better economic terms for the transfer of IP. We will revisit this observation as well as the flaws of the current German approach to IP transfers.

In the past, tech transfer offices had a well-deserved bad reputation. They were known for being slow and bureaucratic, and for forcing onerous terms onto fragile young start-ups. Many times the terms they insisted on strangled the very companies they were trying to create. There was so little transparency in the industry, it was hard for founders to know what terms were fair. Fortunately, things have gotten better. There is now much more information available for founders. Tech transfer groups at the universities in major start-up hubs like Harvard, MIT and Stanford now give start-ups reasonable terms (though they still take too long to do it). At universities that have not seen many successful spinouts, it's hit-or-miss. A few universities are now using 'express license agreements', preset agreements that require little to no negotiation; hopefully this will become more common.

Jared Friedman, Y-Combinator

2.3 The Goalie's Anxiety at the Penalty Kick – Legal Risks in German IP Transfers (Real and Imagined)

Finally, let's take a look at the start-ups that need the IP of "their" universities to get off the ground (*i.e.* IP spin-offs in the narrower sense as described above). In practice, the required IP transfer is often painful for many start-ups. Even if there are, as always, notable exceptions, potential founders are currently more often than not confronted with protracted negotiations, sometimes unbalanced contractual conditions and a process that is often perceived as opaque and unnecessarily complex.

In its position paper "Gesucht: Koalition der Willigen in Politik, Forschungseinrichtungen und Hochschulen für einen IP-Transfer 3.0" (in English "Wanted: Coalition of the Willing in Politics, Research Institutions and Universities for an IP Transfer 3.0"), the German Federal Agency for Leap Innovation (*Bundesagentur für Sprunginnovationen* (SPRIND)) summarized the unsatisfactory situation at many German universities and research institutions as follows: "[...] the agency repeatedly finds that serious conflicts often arise between founders and technology transfer organizations (TTOs) in the spin-off process. In many cases this leads to the fact that start-up projects are abandoned or founders are forced to agree to conditions with high financial burdens. The current practice of TTOs is also extremely inconsistent and often characterized by the fear of doing something 'wrong' or violating regulations." [convenience translation by the authors]

We will spare ourselves historical explanations at this point (even if the concept of the so-called "professor privilege" of past days is actually quite interesting, but probably only we see it that way...). In a nutshell, today while an inventor who is employed by the university still has the positive and negative right of publication as an expression of the special constitutional position of a university inventor, beyond this, only the universities are entitled to apply for patents for the inventions themselves and exploitation rights exclusively lie with the universities. The situation is very similar in the case of software (more precisely: computer programs) that is developed by employees of (public) universities in performing their obligations or in accordance with the instructions of their employer. Such software is generally copyright protected and copyright law provides that the exclusive rights of use vest in the employer, unless the employment agreement provides otherwise (needless to say, that will practically never be the case.)

In Germany, current law requires universities and research institutions to manage their institutionally generated IP themselves. According to the legislator's conception, this approach rested on the implicit expectation that these institutions would pursue an active IP policy and exploit their IP portfolio in a way that maximized profits as far as possible. Ultimately, the resulting proceeds were to flow at least partially back into research activities. Researchers should be motivated to think about the commercialization of their research results. Even if, to our knowledge, comprehensive empirical studies are lacking in this area, it is our impression from discussions with practitioners that only a few universities in Germany are currently able to cover the costs of the technology transfer. The hoped-for proceeds, which are supposed to co-finance research and teaching operations seem still further away. Today, there is widespread agreement among experts that the current system is not producing the results hoped for when it was introduced at the turn of the millennium and is in urgent need of a fundamental overhaul if better use is to be made of the existing start-up and innovation potential going forward.

Let's have a quick look at the current issues. We promise to keep it short, so that potential founders are not put off too much. Remember, especially in an economic crisis, it's good to keep founding new companies, because that's what keeps lawyers in business. Seriously, an analysis of the current weaknesses, especially when it comes to the IP transfer from universities to start-ups, is key to catching up with the current lead of American universities going forward with an improved exchange of information, more access to market data and standardized licensing and standardized transfer models. There are indeed currently some encouraging signs of a re-energized political will to shape a new dynamic start-up culture in the German science space.

In the past, IP transfers were often limited to licensing models with a later purchase option or direct acquisition of the IP for a cash purchase price (we will discuss these models in some depth in **Chapter A.IV.**). Both approaches may represent a significant financial burden to start-ups in the founding phase, but also in the growth phase. Against this background,

a number of approaches have been developed in the recent past in order to be able to implement an IP transfer for a start-up in the most liquidity-preserving way possible. At their core, these approaches are based on the university receiving an (equity-based or virtual) stake in the start-up in return for the IP transfer. This approach is often summarized as "IP for shares." It comes in pure form (the granting of a participation in the start-up is the only consideration that the university receives for its IP transfer) and in a number of hybrid models that combine a stake in the start-up with appropriately reduced royalty payments and a purchase option at a discounted price in the future. We will go into this in more detail later in this Guide. In practice, however, these negotiations often take months and often lead to frustration on all sides. The founders complain about long response times, excessive demands by the IP transfer offices, which - at least in cases where the IP is not transferred in exchange for a stake in the start-up alone - do not take sufficient account of the liquidity restrictions of the start-ups, and often use poor template contracts with terms and conditions that are (perceived to be) too restrictive for the start-up.

In our experience, it is not because the acting persons in the technology transfer offices are not aware of the issues. On the contrary, many of them work hard and conscientiously. However, one must not ignore that the acting persons themselves, unlike a classical institutional investor (the famous "carried interest"...) have no monetary incentives and react accordingly in a risk-averse way. One of the main reasons for the current unsatisfactory situation is the fact that there is little practical guidance available to the case handlers at the technology transfer offices as to what the current legal situation really requires and when flexibility should prevail. Even though the next few paragraphs will certainly cost us a few readers, the following are the main legal issues that will have to be taken into account in a technology transfer from the university's point of view:

- state aid laws;
- budgetary requirements;
- insolvency law; and
- antitrust rules.

State Aid Laws: Universities are (regularly) public institutions and therefore obliged to comply with (European) state aid regulations. In this respect, they are subject, in particular, to the obligation not to favor certain market participants over others, *i.e.* they must not agree to a consideration for services rendered to companies (such as the transfer of rights and the granting of licenses) that are not at arm's length.

A consideration is at arm's length if a market economy participant would have accepted the same terms in the specific situation. Everything clear? Unfortunately, in practice, this presumably simple test results in issues. The determination of what constitutes "arm's length" consideration in an IP transfer is fraught with uncertainty. As far as can be seen, there are no legal standards or widely accepted best practices that can be easily implemented in the spin-off context to provide for sufficient legal certainty. In the valuation of IP, namely of patents or patent applications, it would, in particular, be urgently desirable for the legislator to provide more guidance. This applies also to the question whether state aid rules make ongoing license fees mandatory (we beg to disagree).

In the meantime, however, the transfer offices should be informed that the current legal situation also provides room for valuation considerations that are supportive of start-ups:

- To start with a common misunderstanding: The value of a patent is not determined by its acquisition/ development costs or the project funds that have flowed into the patent development, and such items therefore do not constitute the floor for the patent's valuation.
- A patent is also not valuable in itself. Rather, its value results from what can be achieved with the patent in the market (or, in the case of a defensive portfolio, what can be prevented with such a patent). However,

many patents held by universities are still a long way from commercial use. In many cases, significant further development efforts are required. The IP in its current state is then often of only secondary importance for the success of the start-up in the long term (although it might be very relevant for the initial phase).

If a university receives a ("real" or virtual) participation in start-ups, this can also help to overcome the arm's length challenges. A participation in a start-up also has the advantage of mitigating the liquidity issues that come with the traditional out-licensing models. The problem is that the licensing agreements are often designed to maximize royalties. Accordingly, such agreements often provide for milestone payments, minimum royalties and the passing on to the licensee of costs required to maintain and defend the patent. Particularly in the early stages, however, such liquidity drains can be problematic for a start-up and can call into question such start-up's ability to raise financing from new investors. In this context, the German investor Hightech-Gründerfonds has reported that, according to its own estimates, two-thirds of knowledge-based spin-offs are hardly financeable for itself and other institutional investors simply because of the contractual conditions found. This (in a best case scenario) then requires time-consuming renegotiations of the initial IP transfer agreements.

Budgetary Requirements: Universities are required by law to ensure that their activities are cost-effective. This includes the budgetary requirement not to sell assets created with public funds to third parties at less than their value. While the legal situation is more nuanced and budgetary requirements have certain other implications for the universities, to the extent relevant for our purposes the aspects discussed above under "arm's length consideration" apply *mutatis mutandis*.

Insolvency Law: A frequently cited argument against transferring full rights in favor of a mere exclusive or non-exclusive licensing agreement is the German insolvency law. While the transfer of full rights regularly results in the loss of these rights for the university in the event of the insolvency of the startup, licenses offer the advantage that they do not fall into the insolvency estate in the event of insolvency. Rather, the full right remains with the licensor and can continue to be used in the future even if the licensee becomes insolvent. **Antitrust Law:** From the perspective of antitrust law, the prohibition of cartels and the regulations on merger control must be observed in the case of spin-offs.

- Prohibition of cartels: Agreements between the university and the spin-off generally contain regulations on the use of licenses. Although such agreements may be capable of restricting competition, there are far-reaching exceptions, in particular through the Technology Transfer Block Exemption Regulation ("TTBER"). This is intended to strike a balance between technology diffusion on the one hand and ensuring effective competition on the other. In other words, it is not intended to create a one-sided interest situation like in a penalty shootout, if you believe Oliver Kahn ("The only one who can lose in a penalty shootout is the shooter."). The TTBER applies, among other things, if certain market shares are not exceeded and the companies do not agree on so-called hardcore restrictions. Otherwise, the rule is that - similar to the penalty kick - everything is permitted (think of Panenka et al.) that is not expressly prohibited (do not run out!).
- Merger control: One could write a whole book on the subject of notification obligations in merger control (PS: A new edition of OLNS is already lying on the penalty spot, so to speak, and only needs to be sunk, *i.e.* published...). However, the acquisition of a substantial part of a company is likely to be present in the fewest cases in the topics that are of interest here. First of all, the university would have to acquire 25% or more of the spin-off or otherwise gain control or a significant influence in terms of advertising (and this is regularly not the case in Germany). In addition, the turnover thresholds would have to be triggered so that the spin-off would perhaps not go to Berlin, but to Bonn.



3. THE ROAD AHEAD

The well-reported weaknesses in the current practice of IP transfers from German universities to "their" spin-offs and the general consensus that this will not be enough to catch up with the elite international start-up universities have led to a number of initiatives. In addition to legislative pushes – both on the Federal and individual state levels – some universities have taken initiative themselves.

A fundamental overhaul of current practice in the transfer of IP to knowledgebased spin-offs is needed, with a focus on maximizing spin-off success. The model must be simple, straightforward, and legally sound for all parties.

Bundesagentur für Sprunginnovationen – Positionspapier "Gesucht: Koalition der Willigen in Politik, Forschungseinrichtungen und Hochschulen für einen IP-Transfer 3.0" – convenience translation by the authors

3.1 Legislative Initiatives

Federal Level: In view of the lagging start-up numbers in the research and academic spaces, the last Federal Government had already launched an initiative to accelerate IP transfers. Here, amongst other things, the idea emerged in a workshop initiated by the Federal Ministry of Economics that start-ups should "pay" for an IP transfer with a stake in their start-ups. This approach was then taken up by the University of Karlsruhe, for example (see below). The goal of accelerating knowledge transfer is also pursued by the current German government. Among other things, it was agreed in the coalition agreement to establish a German Agency for Technology and Innovation (DATI). As of the publication of this Guide, the DATI project has, however, not moved beyond a rather vague cornerstone paper published in spring 2022.

One of the measures that made it into the final start-up strategy of the German government is that the government wants to provide more assistance and support for the transfer of IP going forward. For example, the implementation of standard solutions (e.g., IP in exchange for a virtual stake in the start-up) is to be promoted and an arbitration board (initially as a pilot project) with a deal database is to be set up for greater transparency and to avoid disputes. Beyond that, however, the measures to generally improve the start-up culture remain relatively vague. In addition to the planned strengthening of the EXIST program (which, without any discussion of the implementation problems that have not yet been addressed in practice, is succinctly stated to be functioning well), a practice-oriented exchange between universities and other stakeholders is mentioned.

In our humble opinion, however, a long overdue reform of the EXIST subsidy program should also have been part of an agenda to "ignite the founding spirit" at German universities. In particular, the current program bars founders who have already incorporated their start-ups from the EXIST program. This is counterproductive, as it may force potential founders to generate IP or, even worse, to enter into first contracts with customers outside a UG/ GmbH structure. This can create (tax) issues with the later contribution of the IP into the start-up (see also in Chapter A.III.3.), and obviously it exposes the founders to liability risks when they enter into contractual relationships without the liability shield that a GmbH or UG ("haftungsbeschränkt") offers. In practice, we also hear again and again that the application review times are still far too long and that the applicable terms and conditions for EXIST are rather reminiscent of common Web 3.0 encryption techniques in terms of comprehensibility. A detailed analysis of this criticism goes beyond the humble aspirations of this Guide, but we tend to agree: EXIST is very important, but we think it can do more.

State Level: Since in the wonderful German federalism higher education law is primarily a matter for the states, there are also efforts at some states to strengthen start-up activities in within their own borders.

In the summer of 2022, the Bavarian state parliament passed a new Bavarian Higher Education Innovation Act (*BayHIG*), which will come into force on January 1, 2023. In typical Bavarian understatement, this is described by the State Ministry for Science and Culture as "Germany's most modern higher education law for more agility, excellence and innovation." One of the key objectives of the legislative reform is to create a suitable legal innovation framework for Bavaria's high-tech agenda and to herald the beginning of a new start-up era at Bavaria's universities. Art. 2 and Art. 16 of the BayHIG now expressly declare business start-ups to be a university task. Thus, Art. 2 para. 4 p. 3 BayHIG on the role of universities states: "As open and dynamic scientific institutions, they cooperate with business, society and professional practice in accordance with their mission and engage in and promote the transfer of knowledge and technology, including business start-ups." [convenience translation]. Art. 16 BayHIG expressly permits the establishment of and participation in companies in which the university fulfills the contribution obligation by transferring IP rights. The principle of promoting start-ups is anchored in the law through universityowned incubators (Art. 17 BayHIG). These approaches are supported by regulations that give professors and university staff more opportunities to get involved in technology transfer.

3.2 University Initiatives

As already explained, a dynamic start-up scene around a university and the university's positioning as particularly start-up-friendly is an important differentiation criterion in the competition between universities. This and, not least, the hoped-for revenues from IP exploitation have also led to initiatives at the level of individual universities to promote IP-based spin-offs in particular.

Here, for example, an advance by the TU Darmstadt from the beginning of 2022 should be mentioned. The

TU Darmstadt and its start-up center HIGHEST have launched the "IP for shares" program. This provides for the comprehensive transfer of patents as well as rights of use and ownership of work results in return for a (usually virtual) participation without further cash payments in the start-up phase. This program is not only available to the TU Darmstadt's own spin-offs but also external start-ups.

Following a critical assessment of its own processes and the results so far, the Technical University of Munich (TUM) recently conceded that the previous models did not sufficiently achieve the set goals. As a reaction, the TUM then introduced a so-called "Fast Track" to accelerate spin-offs. The "Fast Track" has a contract model with fixed key terms, which should enable the execution of an IP transfer agreement within a few months. Alternatively, agreements can also be negotiated individually, which will often take longer but offers greater negotiating leeway. If the start-up willing to spin-off opts for the fast track, it concludes an agreement with TUM for the use of the IP after the creation of a business plan and the startup's incorporation. If the IP transfer occurs as part of the so-called Fast Track that the TUM launched as pilot test in early 2022, TUM receives a virtual stake of usually 7% in the first round of financing, or in certain cases as little as 5%, especially if only the transfer of copyrights is involved. However, unlike the University of Karlsruhe, TUM also usually combines this participation with a series of license payments and an IP purchase option for the start-up, and thus does not go as far as the insofar simpler approach of the University of Karlsruhe.

RWTH has a special role in the German university landscape with regard to the exploitation of IP: unlike most other universities, which have their IP managed by central exploitation companies at the level of the federal state, RWTH itself handles the evaluation and patenting of inventions and the exploitation of the IP. To this end, a separate subsidiary was founded in 2017, RWTH Innovation GmbH, which combines the topics of IP and support for university spin-offs under one roof on behalf of the university. Marius Rosenberg, Managing Director of the Excellence *Start-up Center* at RWTH describes this approach as follows: "By managing the IP in a separate subsidiary of the university, there is greater spatial, personal and professional proximity to the spin-offs, which in turn then brings advantages in the implementation of transfer contracts. Bundling the transfer with the Entrepreneurship Center's support services also offers further advantages, as there is a direct referral of inventors and thus potential future founders to the programs of the incubator as soon as the invention is reported."

RWTH's goal is to establish the exploitation of IP via its own spin-offs as one of the central tasks of the transfer and to do so under conditions that are as founder-friendly as possible. To this end, RWTH has developed an "IP toolbox", whereby the decision on how to proceed (license, purchase, participation or a combination thereof) is usually left to the startup. RWTH has so far deliberately not committed itself to a specific transfer procedure (e.g., IP for virtual shares), but weighs up the advantages and disadvantages together with the start-ups. As a result, RWTH can already show positive examples in various forms of transfer, e.g., a virtual participation was realized in the spin-off *cylib GmbH* and further participations are currently under negotiation. In the case of participation models, RWTH is aiming for participations in the single-digit percentage range as a rule. In principle, however, RWTH also remains open to pure licensing models.

For RWTH, the conversion of the transfer in its own transfer company in 2017 was a major step. The concept for implementing the transfer with participation was developed in 2021 and approved in the university's rectorate, and the first contracts were implemented in 2022. According to RWTH's own statement, some processes can of course still be improved and the speed increased, but they are on a good path.



Founder Team and Cap Table Considerations

Peter Thiel (not sure if one can still quote him these days... nevertheless what comes is true) once observed: "A start-up messed up at its foundation cannot be fixed." We might add that this applies to the general legal set-up of a start-up, its founder team compositions as well as the founders' choice of their early investors. In this and the next Chapter, we will share our experience from working with many spinoffs. While this Chapter deals with the composition of the founding team and common issues with the distribution of shares and the selection of shareholders (*i.e.* cap table pitfalls), the next Chapter then deals with the general legal set-up of the start-up and gives guidelines that should apply irrespective of who will actually end up on the cap table.

1. PROSPECTIVE INVESTORS WILL LOOK AT YOUR CAP TABLE

The capitalization table (more commonly referred to as "cap table" in venture speech) is a spreadsheet listing all of the shareholders and holders of options and any other convertible securities, along with the number of shares (separated by share classes), options and convertible securities held in the startup. To give a complete picture of the economic participations in the company, the cap table may also contain the already allocated as well as the yet allottable virtual shares under a typical German market virtual employee stock option plan. Although virtual shares or virtual options do not give their beneficiaries the right to acquire "real" shares in the company, they still play an important role when it comes to the distribution of the proceeds in an exit event (usually the sale of the company or its IPO).

The cap table reflects the founders' judgement and can be a strong signalling device (good and bad) that illustrates the business' potential for growth. When evaluating a potential new investment, many investors will first have a look at the company's cap table and here are just a few of the things they will consider:

- Cap tables can get messy with too many small investors with no clear value proposition on how such investors can contribute to the start-up's future success.
- Reputable VC investors and angels might not pay the highest valuation but having their names on the cap table can impress potential business partners and key hires. Even more importantly, they can be the missing link between having a great vision and product idea and exponential growth.

 It is also important for the founders to keep enough equity during the early phases. For later investors, it can be a real roadblock if their prospective founders do not hold enough shares in the start-up, as they need to be seen as having enough skin in the game and financial incentives to work day and night to grow the company. For the same reason, prospective investors will also want to make sure that the pool of stock options (be they equity-based or virtual) is big enough.

The amount of dilution early-stage start-ups now take (to be fair, for lots of capital) feels like malpractice on the part of investors. Founders don't understand how much it hurts them to have sold >50% of the company after their pre-pre-seed, preseed, seed, and A.



Sam Altman, Y-Combinator

Too much founder dilution in the early rounds can be an indication of trouble ahead. Working with angels or company builders that overreach and degrade the founder team de facto to employees with little equity incentive reflects badly on the founders' judgement. Investors will anticipate future financing rounds, *i.e.* further dilution of the founders' stakes. Investors will ask themselves if the founders continue to be happy with the equity split when the memory of the support they got from the early backers (or sometimes more

correctly were supposed to get) fades while the hardships of the daily life of an entrepreneur weigh heavily down on them. We then sometimes see attempts to fix what was an inequitable split of the equity of the company from the start by giving founders stock options under employee participation programs (note – in Germany, these allocations will usually be significantly less tax attractive than initial equity). These

Don't mess up your cap table. Avoid the three ugly "too's"

- too much founder dilution;
- too many shareholders; and
- too much dead equity for advisors, professors, "academic co-founders" and (other) early backers with no meaningful role going forward.

are second-best solutions to a problem that with some foresight could have been avoided.

2. FOUNDER TEAM COMPOSITION AND DECIDING UPON THE EQUITY SPLIT AMONGST FOUNDERS

2.1 Team Composition

Let's start with a downer. According to our experience, about a quarter or a third of all founder teams experience subsequent changes (of course, our figures are somewhat skewed, because who calls the lawyer when the founder team is clicking). Nevertheless, the composition of a good founder team is one of the most difficult tasks when a new company is born.

As Reid Hoffmann put it "No matter how brilliant your mind or strategy, if you're playing a solo game, you'll always lose out to a team." and we might less eloquently add another thought: What could a player like Zlatan Ibrahimovic have achieved in another national team than Sweden (no offense meant)? Anyway, studies over the past years have consistently shown that by far the most start-ups are set up by a team and the majority of the teams have two to three members. If in doubt, for many VC investors, too, a good team is more important than a good idea. A business idea always comes with risks. For (early-stage) investors, however, the greater risk lies in the founder team and its ability to work together efficiently and execute the - possibly second-rate business idea. In VC parlour this is sometimes referred to as "back the jockey, not the horse." .

Many founder teams are (too) homogeneous. Here, homogeneity comes mainly in two forms. There is a technical dimension, *e.g.*, when the team consists exclusively of technical or business experts. In complementary founding teams, on the other hand, turf wars can often be avoided from the outset. These teams tend to harmonize better, team members complement each other and can contribute different strengths.

EVERY 11 MINUTES, SOMEONE AT WHU FINDS THEIR CO-FOUNDER...



Well, it's not quite that fast... yet (and Johnny Cash might add "I got it one piece at a time, and it didn't cost me a dime"...), but it is the stated goal of the Entrepreneurship Center at WHU Otto Beisheim Sch Management to bring together founders at WHU and beyond.

A conversation with *Maximilian Eckel*, Head of the *Entrepreneurship Center* at WHU.

#1 Hi Max, in one sentence, what does the Entrepreneurship Center do?

The WHU Entrepreneurship Center ensures that WHU founders have access to the full expertise and the vast resources of our unique community.

#2 You see "matchmaking for founding teams" as one of your most important tasks. Why?

Teams make all the difference; they decide whether a conceptual solution becomes a successful start-up. That means not only bringing together people with the right attitude, but also the right mix of experience, skills and contacts. And for this, it almost always makes sense to network individuals from different ecosystems.

#3 You also gained experience at RWTH. What were your most important learnings?

For me, it was a great experience to work with people who belong to the absolute top class in their technical fields. Nevertheless, I often had the feeling that purely engineering and science-based teams often find it difficult to put aside their old roles as scientists and approach customers and investors with full vigor.

#4 There is a consensus that we need more genuine technology-based spin-offs from universities and research institutions in Germany. What can a business school do here?

Graduates of business schools only rarely have the chance to build up deep technical know-how. This usually requires both a bachelor's and a master's degree – in the best case, even a doctorate – in a technical discipline. On the other hand, students at good business schools learn very early on to understand problems of individuals and companies as business opportunities. A physicist with a doctorate can quickly learn the basics of double-entry bookkeeping – otherwise we wouldn't have so many engineers on the boards of DAX companies. But well-trained businesspeople, with their own perspective on the economic dimensions of a problem, can make valuable contributions to making the potential of a technology comprehensible and appealing to customers and investors.

Of course, it would be too short-sighted to believe that simply bringing together different areas of expertise makes for a good team. When selecting team members, attention should be paid not only to technical/professional competencies but also to a balance of character traits and social skills. Good communication and conflict resolution skills are fundamental for a well-functioning team. Here, we sometimes encounter either too much homogeneity or teams who seek to combine characters who simply can't work together.

Recent studies at the Technical University of Munich suggest that many scientists find it difficult to cope with their new role as founders, primarily because this requires a move away from "scientific perfectionism" and towards "entrepreneurial pragmatism", where even suboptimal solutions often have to suffice. This is where interdisciplinary teams can help. If interdisciplinary teams succeed in developing a common team identity, effectively organizing the exchange of information amongst team members, and developing a common vision and strategy of their start-up project, the spin-off has a better chance of not only achieving scientific/technical goals, but also get the business side of the house in order. Recognizing and addressing team psychology problems requires appropriately experienced and trained coaches at the universities' entrepreneurship centers. Our experience suggests that effective team coaching from universities, starting early in the idea generation phase, can add considerable value here.

Let's double-click on the IP-centric spin-offs. Obviously, having top-notch researchers in the founders' team is important. Many spin-offs from technical universities embark on a deep-tech strategy and these start-ups differ from those that fall more in the camps of a network, scaling or "product first" strategy. A 2021 analysis of 1,000 successful European start-ups and scale-ups by McKinsey showed that for companies that pursue a deep-tech play, attracting the best research and development talent is amongst their most relevant success factors. Interestingly, McKinsey also found a significant positive correlation between a higher share of top-tier researches and the valuation of their respective start-ups⁵. In a 2021 panel discussion on biotech university spin-offs, Julia Sunderland from Biomatics Capital Partners observed: "I think it has to be a mix. It's hard to just pull some science out and package a management team around it. You need a passionate core founding scientist that really cares deeply about the science and pushes it hard. You can do it without that but having that makes it so much easier. [...] Finding a core scientist that cares deeply and is able to be mentored by really great people, then wrapping really great people around him or her is the path to success when you've got some great science and want to build a company around it."

5. See "Winning formula: How Europe's Top Tech Start-ups get it right", available at <u>https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/winning-formula-how-europes-top-tech-start-ups-get-it-right</u>.

COMPLEMENTARY FOUNDER TEAMS OR "LET'S DISCUSS THIS SOME MORE"

A conversation with Alexander Igelmann, CEO of Lidrotec GmbH.





Lidrotec builds laser dicing systems for cutting microchips, achieving more precise and thinner cuts that result in lower waste and higher productivity for semiconductor companies.

#2 How is the founding team made up and with which core team did you start?

The core team consists of three engineers/scientists (Alexander Kanitz (Chief Innovation Officer), Jan Hoppius (CTO), Jannis Köhler (CPO) and me as the business guy.

#3 When and how did you first notice that your founding team was not yet complete?

The first spark of the idea to commercialize our technology came in the course of our three engineers'/scientists' dissertations. All of them did research on laser processing in liquids, each in a different subfield. They realized that by combining their expertise, a new laser method for cutting can be developed. It works by using liquids for cooling and rinsing. With this idea, they came to me and asked if I think that this idea has economic potential. They were convinced of the innovative potential of their idea. I put on my thinking cap and looked into the market potential. One thing we soon realized is that together we could achieve something great. I have known Alexander (Kanitz) since school days and there was a lot of trust. So, we decided that I would join the team to completement their technical skills.

#4 What was the role of your universities in Lidrotec's story?

O yes, the universities were important for Lidrotec's inception. Without the *Ruhr University Bochum* and its Chair of Laser Application Technology, our technical founders would probably not have met, and without the WHU – Otto Beisheim School of Management, I would not have had such a strong affinity for the start-up world and perhaps not this openness to make the leap. In addition, even after founding the company, we remained in close contact with the Entrepreneurship Center at WHU and also participated in the accelerator program at the RWTH university. All small but important building blocks on our way.

#5 Looking back on your journey so far, do you have any learnings to share with other Deep-Tech-teams?

Yes!

1. You definitely need business expertise in the team to cover all the non-technical areas and free up the technical founders to focus on what they can do best, the development of the technology.

2. You should build your team with different personalities. Even if this is sometimes more exhausting, because discussions need more time and a lot of time and effort go into communication, it is key. Diverse teams bring more perspectives to discussions, have simply a more complete picture and come up with better decisions.

3. Talk to customers right from the start. Finishing a product first and then get customer feedback for the first time is high risk, as customers often have specific needs and requirements that you can only learn about by talking to them. Our product has evolved a lot over the last three years because we continuously seek customer feedback.

4. Think economically. Don't do too much for free at the beginning but try to get commitments in the form of actual paid customer orders as early as possible to identify which customers you need to prioritize. Because prioritizing is what you need to do. In the end, your scarcest resource is not money, but time.

And what about the CEO? Should one of the scientific founders assume that role or better get an outsider added to the founder team. Let's hear it one more time from Julia who had this to share: "When you've got these really dynamic young scientific founders, many haven't gone through the experience of forming a company. They think they need to be deep experts and they're sort of defensive about what they don't know. Helping them understand that they don't always have to be the CEO and that there are people out there in the world with deep expertise to help them in areas that may not be their strengths is vital. Being comfortable with what you don't know is a key personality aspect that is often in conflict with some of the scientific mindset." While we generally agree with Julia's observation, we also think that it is a misconception when scientific founders believe that right from the start they need to find a CEO to run their company. For one, it's hard to find a great CEO to run an idea-stage start-up with no meaningful funding and a mediocre outside CEO in the early phases can be worse than a passionate scientific founder who seeks great mentors to grow into this role.

But even if you could draft any person in the world to run your company, it still probably wouldn't be a good idea. The best CEO for this stage is one of the people who did the original research. The people who did the original research will be far more invested in the success of the venture than any outsider. They are also far more qualified to build a company around it because their domain knowledge of the field is much more valuable than whatever general business skills an outside CEO would bring. [...] People who work in business like to make it sound hard, as if business were like quantum physics, a field that needed to be studied for years to master. The fact is, it's not even close.

Jared Friedman, Y-Combinator

2.2 Equity Split

Great, so you have a founder team with complimentary skill sets and which is hopefully emotionally stable for the rollercoaster ride ahead. But how to split equity amongst the founders?

Company shares are finite, and a reasonable, fair and – we will come back to that – sustainable distribution must be found. Especially young, inexperienced founders tend to avoid conflicts at this point and agree on an equal distribution (deploying all our spreadsheet skills that leaves a four founders team with four more or less happy 25% shareholders). We are NOT saying that this might not be an equitable distribution. However, what we are saying is that automatically resorting to an equal distribution can just delay an inevitable conflict amongst founders and that an ill-considered equal distribution can cause negative associations with potential investors.

There is no universal formula to determine the right split. We know that there are software solutions out there that claim otherwise, but we are old-fashioned and believe in the merits of a good civic discourse. That is the lawyers' Latin for: "talk it through and if needed have that heated debate now." Please, there is no right split, just something that is appropriate for a specific start-up and that hopefully provides longterm stability. However, we think that there are some general principles that can help guiding the founders. Here are a few goalposts that we find useful:

DON'T LOOK IN THE REAR-VIEW MIRROR

Become aware of the consequences of choosing your split. The distribution of shares is likely the wrong moment to primarily reward past efforts. In the grinding reality of start-up life (we realize that we really sound like old folks now, but anyway...) prior success will soon fade into the background. Rather, we think that the share split should be predominantly a future-oriented allocation that motivates future key contributors and incentivizes continued loyal service delivery. Giving equity to co-founders is not only a matter of remuneration, but foremost a matter of future motivation and appreciation. The "idea generators" of a start-up especially have to take a deep breath and recognize that an idea in itself does not make a start-up and that investors will evaluate the team's execution power ("Are they able to execute?").

The fact that the equity split should focus on anticipated future contributions has a couple of consequences for the cap table composition, in particular for IP-based spin-offs:

- Founders who will be working on the company full-time should usually get a significantly higher percentage than what the group of what is in the US often referred to as "academic co-founders", *i.e.* folks who stay behind in academia and only spend a certain portion of their professional time supporting the start-up. We agree with many VC investors that unless they provide going forward really hands-on support and value-add for a significant period of time the group of academic co-founders should not own around 10%.
- The equity split will not necessarily have any relation to the seniority within the original academic team. It's often the case that the people leaving are more junior, while the senior people / faculty remain. In that case, the founders who leave should end up with much more equity than their former boss.

ALL CO-FOUNDERS ARE EQUALLY IMPORTANT IN THE FUTURE, RIGHT?

Furthermore, you must decide whether an equal split suits your company and your corporate culture, or whether you would prefer an unequal but weighted allocation. There is a substantial group of investors and start-up colleagues that argue that an equal split will create a stronger sense of community among cofounders and thus maximize the motivational effect.

Almost all start-ups fail. The more motivated the founders, the higher the chance of success. Getting a larger piece of the equity pie is worth nothing if the lack of motivation on your founding team leads to failure.

Michael Seibel, Y-Combinator

There are good arguments for this position. An imbalanced split leads to investors getting the impression that there are fewer valuable founders on board. Michael Seibel from the Y-Combinator puts it this way: "Investors look at founder equity split as a cue on how the CEO values his/her co-founders. If you only give a co-founder 10% or 1%, others will either think they aren't very good or aren't going to be very impactful in your business. The quality of the team is often one of the top reasons why an investor will or won't invest. Why communicate to investors that you have a team that you don't highly value?"

On the other hand, one hears warnings that an even split could make an immature, unreflective and thus short-sighted impression on investors. "A quick, even split suggests that the founders don't have the business maturity to have a tough dialogue", says *Noam Wasserman* who researched a larger number of founders' equity split decisions. Business-mature founders who would really face the split question and have had an open-ended exchange about this would come to an uneven split in many cases, he argues. While an even split will avoid an initial conflict, it is often more susceptible to some founders feeling underappreciated and not rewarded for their stronger future contributions.

We don't know which side is ultimately right but if you allow us a lame sport analogy: In football (and yes, we are talking about the real football and one shouldn't call it soccer, but that is a different story), in order to win, it requires a team of highly motivated and skilled individuals who work seamlessly together in the pursuit of a great vision (score at least once more than the other team, see football isn't that complex after all) and yet successful centre forwards earn more than defenders. What makes this discussion difficult is that it is the hard-to-quantify factors that determine a founder's potential future contribution to the startup's success. These factors include, *inter alia*:

- unique technical expertise and relevant domain knowhow;
- general experience in getting a start-up off the ground and scaling its business;
- pre-existing IP;
- storytelling and sales skills arguably one of the most important and yet often underrated qualities of a good founder; and
- willingness to sacrifice as well as personal and time commitments.

But which values are particularly important for the future of your company, even indispensable? Especially for founders with different backgrounds, this question will often reveal different perspectives, as Lara Hodgson (co-founder of Nourish and NOW Corporation) knows: In particular, people from professional environments, consultants, lawyers, etc., would often stress the time/commitment factor as a primary measure of value. However, hours worked alone will not lead a start-up to success, or as Lara puts it: "As someone that comes from an entrepreneurial background, a unit of time is not worth a dollar to me, if there is no result. I'm always looking at what result - what asset - has been created from which I can derive future dollars." Ideas that have not yet been converted into protected rights or a real competitive edge may also be seen very differently.

...[T]he 'idea person' insists that the idea is 90% of the value (and 90% of the equity). In the real world, the 'idea' is a very small part of the overall equation. A startup is all about 'execution' – meaning the equity should be allocated based on the value that each partner brings to the table.

Martin Zwilling, Business Angel



Eight Thoughts on How to Allocate Equity

Here are a few general ideas on how to approach the equity split:

- **#1** An even split can be a fair outcome, it is not a law of nature.
- **#2** The equity split is about maximizing future chances of success and recognizing what founders will bring to the table going forward, not rewarding past performance.
- **#3** Having had an idea per se is not a valid argument to claim the lion's share. Neither is the "N times more" argument" (more contacts, more papers published, more months already spent on the project...).
- #4 If in doubt, full-timers should receive more.
- **#5** Someone holding less than 10% is not a "founder" be aware how outsiders will interpret such an allocation to someone who is supposed to be "core". First hour employees should usually get ESOP or VSOP allocations instead of real shares.

And for university IP-spin-offs in particular:

- **#6** "Founders" remaining in academia rather than making the leap should in general not receive more than 5 to 10% unless they really, really contribute value in the future.
- **#7** Seniority status and academic credentials do not necessarily imply higher equity stakes.
- **#8** When you end up with your professor and the university/transfer office holding more than 25% of your company before you have created an employee stock option pool and raised a single dollar in funding, then maybe do something else.

3. YOU CAN NEVER HAVE TOO MANY FRIENDS, BUT MAYBE TOO MANY SHAREHOLDERS

"Messing up the cap table" summarizes a phenomenon we sometimes see in early-stage companies. In an effort to get their company off the ground, founders simply take whatever money through the door, resulting in numerous investors, who are often not particularly experienced, investing small amounts in the company in exchange for shares right away (in case of a direct investment) or at a later stage (in case of a convertible loan investment). Such investors are sometimes referred to as "dead equity" as they only bring in some money but otherwise don't add value.

Having too many small shareholders on the cap table can create problems down the road. Unlike in the US, under German law, even the smallest shareholder cannot be reduced entirely to the economic interests vested in their shares (*i.e.* the right to receive dividends or participate in an exit). Rather, each shareholder has certain unalienable participation rights, including the right to be invited to a shareholders' meeting, attend the meeting and (unless the company has issued non-voting shares, which is not very common in Germany) vote their shares and challenge resolutions adopted in a shareholders' meeting. In addition, every shareholder in a GmbH has a statutory right to inspect the company's books and request information on the ongoing business (subject to certain limitations). Professional VC investors may also be reluctant to work with these often rather unsophisticated investors because they fear that they will not appreciate the business decisions and changes to the company's setup and/or financing agreements when the company progresses on its growth trajectory or runs into problems. For example, in a subsequent financing round, it might become harder to enter into new financing documentation. If the existing minority shareholders do not agree to enter into the new documentation, this can impact the new financing round and sometimes make it necessary to maintain the "legacy" documentation with only a subset of the shareholders and the new investor entering into a new agreement.

- · Pool the Minority Shareholders. If the investment amount is sufficient to justify the additional setup and administration costs, it might make sense to pool the small investors in a separate investment company (InvestCo). For example, the founders could set up a separate InvestCo in the legal form of a limited liability partnership under German law, i.e. a GmbH & Co. KG, in which they control the general partner and/or a managing limited partner. All of the small investors would become limited partners of InvestCo and invest only in InvestCo, which in turn would become a shareholder in the start-up and provide the investors' funds to the company. This way, the small investors can be kept out of the cap table of the company, and given their limited influence on InvestCo, there is little risk that they might "highjack" InvestCo and use InvestCo's rights as a shareholder in the company for obstructive purposes. As a less complex alternative, the small investors can enter into a pooling agreement with a designated investor (or founder) acting as a pool leader. While the small investors would still become direct shareholders of the company, they would be required to pool their voting and other shareholder rights. By giving a sufficiently broad power of attorney to the pool leader and agreeing on a pre-voting poling procedure, the company can ensure that these minority shareholders will "speak with one voice". A middle way to reduce complexity in the cap table that lies between InvestCo and a mere contractual pooling with a power-of attorney is the transfer of the shares of the small investors to a trustee.
- *Give Convertible Loans, not Shares.* In the early phases of a company, it can make sense to have small investors first grant convertible loans to the company rather than subscribing for shares in the company right away. This way, the potential negative consequences of having multiple shareholders can be somewhat delayed up until a more sophisticated institutional investor comes on board and helps to instil some discipline into the cap table. Although there are always exceptions to the rule, we tend to recommend that for investment sums of less than EUR 500,000 (better still EUR 1,000,000) to resort to a convertible loan financing rather than a fully-fledged equity round documentation, as the transaction costs will otherwise just grow out of proportion⁶.

6. Our Guide OLNS#2 - Convertible Loans for Tech Companies can be downloaded here: <u>https://media.orrick.com/Media%20Library/public/files/insights/</u>olns-02-convertible-loans.pdf.

We would like to refer you to **OLNS#9**⁷ where we elaborated on tips and guidance for the early phases . However, given their importance, in the following Chapters we want to briefly present a few of the most relevant issues and zoom in on aspects that might become particularly relevant for tech-heavy university spin-offs.

1. FOUNDER HOLDING STRUCTURES - FOUNDER HOLDINGS RECOMMENDED

Founders, or other people investing in the company, such as business angels, can hold their shares in the company either directly (one-tier structure) or through a wholly owned subsidiary (two-tier structure).[®] While holding one's participation through such a personal holding entity (we will use hereinafter for ease of reference the term **"Founder HoldCo"**) makes the transaction documentation a little more complex and incurs some costs

for setting up and maintaining a separate legal entity, it is usually advisable and should be implemented right from the start, as changing from a one-tier to a two-tier structure at a later point in time can have negative tax consequences and channels scarce liquidity into the greedy lawyers' and notaries' pockets. The main reasons and benefits for holding one's shares in the start-up through a Founder HoldCo are tax-driven and in addition it preserves future options such as a flip in a US holding structure. We spare you the (boring) details (that's what tax lawyers are for – some people become tax lawyers, some of them even of their own choosing...) but

As a rule of thumb, each founder should hold her shares in the start-up through her own founder holding entity.

suffice it to say that if you are a German resident and taxable founder of start-up seeking VC investments and/or looking for an exit at some point, a Founder HoldCo should almost always be your preferred option.

^{7.} Our Guide OLNS#9 - Venture Capital Deals in Germany can be downloaded here: <u>https://www.orrick.com/de-DE/Insights/2021/10/Orrick-Legal-Ninja-Series-OLNS-9-Venture-Capital-Deals-in-Germany</u>.

^{8.} In Germany, a Founder HoldCo is often organized as a UG (*haftungsbeschränkt*) rather than as a GmbH in order to save some setup costs (while the UG (*haftungsbeschränkt*) is somewhat less flexible than the GmbH, it has no real minimum capital requirements compared to EUR 25,000 minimum capital for the GmbH and has somewhat lower incorporation costs.

2. US/GERMAN TWO-TIER HOLDING STRUCTURES AS AN ALTERNATIVE

Before we continue, raise your hand and swear not to forget that holding shares in a start-up through a Founder HoldCo is in most cases a good idea. Done, great, let's move on. There is one further structuring consideration we want to share with you in this context. While a Founder HoldCo makes sense for many founders, the following paragraphs are for a subsegment of start-ups for which a cross-border US/ German holding structure might be better suited than a purely domestic German structure.

According to our experience, this is can be a relevant consideration for university spin-offs as in particular early-stage financing for ventures with a high technology risk might still be more readily available in the US. In the most recent past, we worked with several university spin-offs to get into a US set-up as this was required either by a US accelerator or the company's early US backers.

As one of the world's leading tech law firms with significant presence in both the US and Germany (took us more than fifty pages but here comes the bragging), we are frequently asked by (prospective) founders and investors of German start-ups whether they should set up their German technology company in a US German holding structure. In such a crossborder two-tier holding structure, the founders and investors indirectly hold their equity in the German start-up (usually in the form of a GmbH or UG (haftungsbeschränkt) and hereinafter referred to as **"OpCo"**) through a new US holding company (hereinafter "US HoldCo", yes, we know law firms are places where creativity goes to die). This structure comes with a variety of benefits, most notably an arguably better access to early-stage financing opportunities in the richer US funding ecosystem. Other advantages include improved exit opportunities as well as the opportunity to offer suitable talent a "Silicon Valley style" equity-based employee participation program. However, moving a German start-up into such a US holding company structure is a major corporate undertaking that comes with a variety of potential drawbacks and requires close cooperation

of founders and their investors as well as advice from legal, accounting and tax experts with experience on both sides of the pond. Nevertheless, we think that it makes sense for German start-ups to consider a US/ German two-tier structure early on in their lifecycle, as the mechanics only grow more complex later in their life when more parties on the start-up's cap table with potentially diverging interests need to be coordinated. In addition, a flip in later stages of the start-up's financing lifecycle might become prohibitively expensive from a tax perspective.

2.1 Advantages of a US Holding

There are various potential benefits for a German company that adopts a US holding structure. Not only do US companies still have better access to US investors, but the new structure might also have a positive impact on its valuation and exit opportunities. It might also grant the start-up access to a richer talent pool, not only in the tech hotbeds in the United States but also in other international hubs.

• Access to Investors: A central motive for a US holding structure is that in many cases the start-up will receive improved access to the significantly more liquid US venture capital markets. Despite the enormous progress that the European start-up and funding ecosystems have made over the last couple of years, the US investor base still has a significantly greater number of potential investors, a more vibrant and developed venture capital scene, and a stronger disposition to invest, especially in riskier ventures than German or even European investors. Also due to deeper sectoral diversification, US investors may sometimes offer better know-how, contacts and guidance for first time founders and early-stage companies. Tech giants with massive exits, such as Facebook, Google, Instagram and countless others, have also created a rich secondary ecosystem of people who have scaled emerging companies before, be it on the technical or operational side. This reservoir of knowledge isn't as readily available in other parts of the world and raising money in the Bay Area can be a great way to tap into this knowledge and ecosystem. For obvious reasons, US investors will often feel most comfortable with the corporate mechanics available in a US entity – e.g., they understand and are comfortable with the way in which the rights of preferred stock can

be structured under Delaware law while the nuts and bolts of our awesome German corporate law system remain alien to them (not to speak of the notarization requirements for many corporate transactions and financings involving a GmbH). However, founders should think carefully about their chances of raising money in the US and how much having a US holding company will actually improve their chances of raising money. At the risk of sounding a bit too pessimistic (a common trait among our profession...), founders should have thought about the following aspects before they venture into a US holding structure. For later stage companies (late Series A or Series B and beyond), we noted that over the last couple of years many US VC funds have become much more comfortable with investing in a GmbH (that is, of course, if they invest in companies outside the US at all). In addition, we see an increasing appetite of US investors for earlier financing rounds in German companies, and many of them already came in on the ground floor, *i.e.* in Series A financings without requesting the start-ups flip to the US structure. Furthermore, for many early-stage companies, the best chances of getting funded are found more on a local level. Thus, US early-stage investors will often take a pass despite a US holding company being established unless a founder is prepared to move there and pursue a US business plan. In other words, a US holding company often is a necessary - but not sufficient - condition for US investors to lead a Seed or Series A financing.

- Valuation and Exit Options: We don't want to comment on the merits of these claims, but the reality is that many (primarily US-based) VC investors believe that a US entity will offer more advantageous opportunities for an "exit", either through an acquisition or an IPO. The main reasons for this argument are: (i) start-ups with a US - this usually means a Silicon Valley - story can often fetch higher valuations; (ii) chances are that many of the potential acquirers will be US-based private equity investors or corporations; and (iii) the US has some of the world's premier stock markets that, compared to other internationally recognized stock exchanges, seem particularly suited for IPOs of young technology companies.
- Access to Talent Pool and Employee Incentive
 Programs: Finally, tapping into the rich talent pool of
 Silicon Valley and other US tech hubs is easier for a
 US legal entity as it can offer standard, market-tested,
 equity-based employee participation plans with stock
 options. One potential disadvantage that German
 tech companies face when competing for talent in
 the US tech hubs is that often they cannot offer their
 prospective hires equity compensation. While under
 certain circumstances shares in a Delaware corporation

can provide US taxpayers with tax advantages, such tax advantages are not available for US taxpayers under typical German market employee participation programs (particularly if they are phantom equity or "virtual" programs, which is still the standard approach in Germany).

2.2 Disadvantages of a US Holding

On the – be careful, lawyer humor ahead – flipside, the founders also have to assess the disadvantages and potential drawbacks of a US holding structure. The main issues are:

- Additional Complexity: Let's get philosophical for a moment. "Complexity is the enemy of execution." Sounds sophisticated, right? Yes, we know, that quote is not ours but stems from Anthony "Tony" Robbins, bestselling author and successful coach, and it is also taken out of context here; however, it is catchy and summarizes one of the most relevant drawbacks. The unknown US legal system and the two corporate and tax layers will simply add complexity to your business structure. Complexity can be like a giant anchor threatening the only two real advantages many startups have: speed and focus.
- Tax Considerations: Most notably, when establishing a two-tier structure, the founders need to be aware of various tax pitfalls. For example, professional advice needs to be obtained in order to ensure that the US HoldCo does not become a "dual resident" from a tax perspective. A flip will add greater tax complexity in another regard as well since OpCo as a subsidiary of US HoldCo is a so-called "controlled foreign corporation" (CFC) and needs to be included in the US tax return of US HoldCo, although, due to the German-US double taxation treaty, income of OpCo will still be taxed in Germany. In addition, extensive reporting and accounting obligations apply with respect to OpCo now being a CFC.
- Transaction Costs: A further concern are the out-ofpocket costs of setting up a two-tier structure. These costs might run into the tens of thousands, although flip transactions are more costly than simply setting up a two-tier US/German structure from scratch. One thing German start-ups should also be aware of is that their legal costs after a move to the US will be higher (though we would usually counsel our clients to think of legal costs more as an investment into avoiding higher costs down the road, but we may be biased here...).

3. A(N) (EXTERNAL) LEGACY GBR - OR WHY LAWYERS ARE FOUNDERS' BEST FRIENDS (NOT)...

The following Chapter may cost us a third of our readership and once again the tax lawyers are to blame. However, the topic addressed below can be very relevant for founding teams, especially if the founding team (perhaps in changing composition even) has been pursuing the project for some time and has already created IP, registered a trademark/ domain or concluded the first contracts with customers before the start-up itself was incorporated.

Let's take the following example: Three founders – being tax-resident in Germany – have joined forces to develop an idea and later launch a start-up. Before they found a GmbH, they develop IP together for a while (in particular, they already program software).

Of course, these founders do not think about German corporate law, why should they? They want to make a difference in the world, and here law usually gets in the way. However, our three founders have - maybe unknowingly – founded a civil law partnership ("GbR"). "Oh, how exciting, I wonder what a GbR is," you might be thinking now. Well, you probably don't, or at least only with considerably less enthusiasm, but let's continue anyway. A GbR in the meaning of sec. 705 German Civil Code (Bürgerliches Gesetzbuch) is a partnership. It requires the existence of a partnership agreement - this can be tacitly concluded - a common purpose (which does not have to include the pursuit of profits) as well as funding obligations of the partners. This threshold is usually quickly reached in the case of start-up projects.

A so-called external GbR is one in which the GbR appears to the outside world and enters into legal transactions. The external GbR can be the bearer of rights and obligations, *i.e.* hold assets and assume liabilities. In the case of start-up projects, the external GbR will often own the IP created by the founders in this phase according to the (hypothetical) will of the GbR partners. The unpleasant thing about such a GbR is that its partners are each individually and unlimitedly liable to the GbR's creditors for the GbR's liabilities. Now the founders want to institutionalize their startup and incorporate a GmbH. The three founders have read this Guide and want to hold the shares in the limited liability company each through her own Founder HoldCo. As part of the formation of the GmbH, the IP developed to date and any other assets of the GbR are to end up in the GmbH, since the startup must be able to use these assets and investors will want to make sure that all the IP "belonging" to the start-up is actually held by the start-up. But how do we get the IP and the assets of the GbR into the GmbH? This is not trivial from a tax law perspective, and the founders should seek expert advice here in any case.

In this Guide, we will limit ourselves to a few basic explanations which, moreover, refer only to German law. If a situation with foreign implications exists or is planned, an expert with knowledge of the relevant foreign law should also be consulted.

As one option, the founders could simply transfer their respective GbR partnership interest to the startup GmbH. This is referred to as a partnership interest transfer by way of (simple or extended) accretion. A GbR always needs at least two partners. If, as in this case, all partnership interests in the GbR are combined in one hand (the GmbH), the last remaining GbR partner (in this case the GmbH) automatically acquires all assets and liabilities of the GbR and the GbR ceases to exist. This is called "accretion" in legalese. In the case of a "simple" accretion, the transfer of the GbR partnership interests takes place without consideration; in the case of an "extended" accretion, the transferring GbR partners receive a stake in the acquirer in return for the transfer of the partnership interest in the GbR.

In our example, the accretion can be implemented as follows: In a first step, the founders each transfer their GbR partnership interests to their Founder HoldCo. The GbR then initially continues to exist, only now with the three Founder HoldCos as partners and no longer the founders themselves. In a second step, the Founder HoldCos then transfer their GbR partnership
interests they have just acquired to the start-up and the accretion described above takes place, as all GbR partnership interests are now in one hand (the GmbH). The GbR ceases to exist, and all its assets and liabilities are automatically assumed by the GmbH.

For the interested reader (seriously? We should then really have a talk about your interests.): These contributions can be made by way of hidden or open contribution. For tax considerations, an open contribution against granting of shares in the Founder HoldCo in step one and then in the startup in step two is often advisable. If the GbR is a co-entrepreneurship (Mitunternehmerschaft) and consequently not only active in asset management (Vermögensverwaltung), an immediate taxation of the hidden reserves in the GbR and an according tax liability of the founders or the Founder HoldCos may be prevented in case of an open contribution by applying for a no-gain-no-loss treatment (within the meaning of sec. 20 para. 2 sent. 2 German Reorganization Tax Act). The shares in the start-up granted to the Founder HoldCos in return are then, however, subject to a 7-year tax lock-up period. If the shares are sold within this 7-year period, the hidden reserves contributed at that relevant point in time in the past (the value of which should therefore also be documented) are subsequently taxed, with the tax burden being reduced by one seventh at the end of each year completed during the lock-up. If the GbR is an asset-managing partnership (i.e. not a co-entrepreneurship), the transfer from the founders to the Founder HoldCos within the framework of an open contribution is often also advisable from a tax perspective, but may lead to the taxation of hidden reserves in certain cases. Thus, this should be examined in detail in the relevant case at hand. In the case of the second transfer from the Founder HoldCos to the start-up, the above explanations re coentrepreneurships apply, as a GbR whose partners are all corporations (here, the Founder HoldCos) always qualifies as a co-entrepreneurship.

In addition, the GbR partnership interests can also be contributed in accordance with the general transfer provisions and not by way of extended accrual. This has the advantage that there is no seven-year lock-up period and one saves a certain amount of administrative efforts and further costs (such as annual reporting requirements by the tax advisor, notarization of a capital increase for the required share grants at the level of the Founder HoldCos and the start-up).

Then, however, in the case of a co-entrepreneurship in every case and in the case of asset-managing partnerships in some cases, the hidden reserves are disclosed, so that in practice this is often only possible and sensible if these hidden reserves are low (which in turn the contributing founders have to demonstrate).

Both in the case of an open contribution and in the case of a hidden contribution, the founders should therefore have the fair market value of the GbR determined by an appraiser. Otherwise, at least the expenses incurred to date, in particular the costs of creating the GbR's assets, should be documented (e.g., by creating a ZIP file with the current code and HASH-Value created just before the creation of the GmbH and documenting any costs incurred so far).

We have warned you, and in reality, the whole thing is actually a bit more complex. But still, founders should check whether they have to assume an (external) GbR and whether this GbR holds relevant assets that need to end up in the start-up.

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This Chapter is dedicated to the "real" IP spin-offs, *i.e.* start-ups that need to get access to certain IP held by universities. In a nutshell, there are two options, acquiring the IP right in full or "only" being granted a license to use the IP, be it an exclusive or non-exclusive one.

1. THE CHALLENGE

To license or to assign? This question is asked quite frequently by start-up founders. The difference between licensing and assigning property to the spinoff lies in who owns the property after it has been "contributed" to the spin-off. If a university licenses IP to a company, such university retains the legal ownership of the IP. In the event of an assignment, however, the legal ownership of the IP is transferred to the start-up and the university loses its ownership rights to the IP.

If the IP is material to the business of the start-up, potential investors (and, once the time for an exit has finally arrived, any acquirers of the start-up) will typically want the company to own all of its key technologies free and clear. Thus, founders should generally either seek an acquisition right from the start or a future acquisition option (purchase right) in conjunction with a license. To avoid future competition, wherever achievable, a license should be exclusive for the relevant business fields of the start-up.

Interestingly, while in Germany universities can assign IP to a start-up (either right from the outset or when a purchase option in a license agreement is exercised later on), on an international stage, universities will often only grant at the maximum an exclusive license to a start-up to use the IP but not assign the IP. While some jurisdictions bar universities from assigning IP, other universities have made a deliberate decision to a "license only" model to ensure that they receive a continued stream of royalties and that the respective IP can be recovered and recycled if things go south (in particular if the start-up goes out of business). Put simply, there are three ways to transfer IP:

- #1 The start-up can buy the relevant IP right away for a one-time cash consideration, but it will often lack the liquidity for such an acquisition.
- #2 Therefore, the standard to date is a license agreement, which provides for an exclusive or nonexclusive license to use the IP and can (should) be coupled with a future purchase option for the start-up.
- #3 As we will see, the licensing model has certain weaknesses when it comes to its practical implementation. In particular, the negotiation of adequate licensing terms and the liquidity drains due to royalties etc. can pose real problems for a start-up and in some cases they can make the licensing model infeasible from a cost perspective. As a result of the weaknesses of the licensing model, the new "IP for shares" approach has recently gained some traction. This approach entails the university being granted a real or virtual stake in the start-up, either as consideration for the transfer of the full IP right (same outcome as option #1) or as (part of the economic) consideration for the license and, as the case may be, purchase right (option #2).

In the following sections, we will first introduce you to the options "IP purchase" and "IP licensing" and present some of the most relevant topics related to the same. We will then take a closer look at models where universities are granted stakes in start-ups as an arguably faster and simpler approach. Irrespective of the option ultimately chosen by the founders, the following general principles apply:

- Address the topic of the IP transfer early on and approach the university as soon as possible. Identifying the relevant IP and negotiating the legal and economic conditions will always take more time than you might think at the beginning (and no, we are actually not pessimists...except for those amongst our authors who are unfortunately supporters of the HSV football team - but anyway, it really usually takes months). Time pressure in negotiations is usually always to the detriment of the one who is depending on an agreement.
- Founders should not negotiate any of these options without having professional legal advisors by their side (and where helpful, they should also solicit feedback from prospective investors). Many academics are not expert commercial negotiators for complex IP provisions and negotiating with experienced representatives right from the start avoids or at least minimizes the need for any revisiting of terms at a later date.

2. ACQUIRING THE IP RIGHTS IN FULL

Regarding the effort required to draft the contract, a transfer of the full IP ownership against the payment of a fixed purchase price is the simplest solution. From a legal point of view, the key is to define the IP to be transferred precisely and comprehensively, specifying the handover of associated documentation and setting out cooperation obligations (e.g., the transfer of source code together with documentation and assistance with recording the change of ownership in patent or other registers) and agreeing on warranties. Remember that science at the university will likely march on even when initial IP rights are acquired in full, and including provisions directed to any later-developed IP should also be considered.

The great practical difficulty lies in determining the purchase price. As already explained, according to the current legal situation, a university is obliged to agree only on a consideration that is "market". However, the manner in which the consideration is determined for a technology for which there is usually no equivalent on the market and whose economic success (despite all the enthusiasm and hard work for the cause) is not guaranteed is not set in stone. In the negotiations, the parties are psychologically coming from completely different directions: While the university's negotiators are worried that they might be selling a possible "blockbuster technology" far below its value (incidentally, this concern could be mitigated by an IP-for-shares model with equity upside instead of cash payments), the start-up only has limited financial resources at its disposal for its "bet on the future". Every Euro that is put into the IP acquisition is inevitably missing for other necessary investments (e.g., for further product development), which are at least as important for the success of the start-up (and thus indirectly also for the market value of the technology).

Of course, you can always find a mutually acceptable purchase price. "IP-for-shares" models can also be very practical solutions to take into account the interests of both parties and ensure that a university has an appropriate share in the market opportunities and risks of the technology. Nonetheless, an IP transfer cannot be implemented "overnight" (see also the explanations above in **Chapter A.I.2.3.**).

PATENTS KEEP INCURRING COSTS

If the IP to be transferred consists of patents or patent applications, you should remember that the prosecution of patent applications, the expansion of the portfolio and the maintenance of patents all give rise to recurring costs. Depending on the number and status of the applications and the complexity of the technology, such costs can reach a magnitude of several tens of thousands of Euros in the first one to two years after the patent purchase. You should keep an eye on these costs when deciding to buy patents, submit patent applications and negotiate the purchase price. If there is initially only a license with a future purchase option for the relevant IP, then the question arises as to whether any license fees paid will be fully or partially offset against the purchase price. Provision should be made for this. From our point of view, crediting makes sense in principle, because a further outflow of liquidity can also lead to problems for a start-up during its growth phase. On the other hand, a university may then ask for a higher purchase price. Ultimately, you will have to look at each individual case in order to decide which solution makes sense for a particular start-up.

3. LICENSING MODELS AND CUSTOMARY TERMS

In practice, there are different models pursuant to which IP can be licensed.

The first point to examine is whether the IP is licensed exclusively or non-exclusively. If a license is granted exclusively, only the licensee (spin-off) will be entitled to use the licensed IP within the scope of the license granted. The licensor (university or its transfer office) will not be entitled to use the IP itself, nor will it be entitled to grant third parties licenses of the IP. With the non-exclusive license, the licensee will still be entitled to use the IP within the scope of the license. However, in contrast to an exclusive license, the licensor will generally retain the unrestricted right to use the IP or to license it to third parties. There are also mixed forms between the two categories. For example, the exclusivity can be limited to certain countries, products, or business areas.

In practice, we sometimes come across license agreements which are designed to be exclusive licenses, but the exclusivity is lost if a minimum amount of license fees have not been paid within a relatively short period of time (usually around two to three years) or if specific milestones have not been met. While such a provision may make sense for licenses granted to established companies with stable cash flows, only one thing is certain in the start-up world: There will inevitably be bumps in the road of any proposed schedule and you should work on that basis when drafting the contract.

As a rough rule of thumb, a (comprehensive) exclusive license makes more sense for spin-offs than a nonexclusive license because it provides a spin-off with legal exclusivity and pretty comprehensive economic ownership of the IP. These are significant wins from an investor's point of view. However, we deliberately say as a "rough rule of thumb" because exclusive licenses are usually more expensive than non-exclusive licenses. This "surcharge" does not always make sense from a cost-benefit point of view, for example if a spin-off already has its own IP rights that could keep potential competitors at bay even if a university was to grant licenses to those competitors as well. However, from the perspective of a spin-off, it is still advisable in such cases to at least secure the possibility of switching to an exclusive license, e.g., in return for a one-off payment or an increase in license fees, or to oblige the university to agree to offer a spin-off an exclusive license before further licenses are granted to third parties.

The second point to examine relates to the economic conditions, namely – as outlined above – whether the university only receives royalties or also shares in a spin-off, either instead of or in combination with royalties.

Before we delve into more detail on the topic of "IP for shares" in **Chapter A.IV.4.**, we will give you an overview of some basic topics that play a central role in any type of IP license and IP license negotiations, regardless of the specific license model, which should carefully be considered.

3.1 What is Covered by the License and what can the Licensee do with the License?

The licensed IP right(s) should be described as clearly as possible, usually in a separate annex to the agreement. In the case of patents and comparable registration rights (see **Chapter A.VI.2.**), this is usually done by stating the application or registration number or, in the case of software, ideally by stating the relevant repositories. If patent applications are the subject of the license, it may still be possible to expand the "patent family" through parallel applications in other countries or to "branch off" further property rights. In such cases, the agreement should stipulate whether such (future) rights will also be covered by the license.

The scope of a license relates to three different aspects:

- the licensed territory;
- the term (duration) of the license; and
- the substantive content of the license, *i.e.* what the licensee is entitled to do under the license.

The licensed territory can be worldwide or restricted to certain countries. The exact definition of the licensed territory is important for at least two reasons. On the one hand, it determines the countries in which a spin-off is entitled to use the licensed IP. Using the IP outside of those countries would be unauthorized and thus an IP infringement. On the other hand, the licensed territory correlates with the provisions in respect of license fees. As a rule, only acts of use within the licensed territory will be subject to a license fee (because only to this extent does the university "give" a spin-off something for which it can demand something in return). This also implies that the licensed territory should generally not be broader than the territorial scope of the licensed IP rights. For example, if only a German patent is licensed, it makes little sense to specify the territory of the European Union as the licensed territory. However, from the perspective of a spin-off the licensed territory should generally be as broad as possible.

The term (duration) of the license can be determined by the parties as they wish. A spin-off will usually be interested in a license that is "perpetual" to the greatest extent possible and will persist for as long as the licensed IP rights exist.

The precise definition of the substantive content of the license is of particular importance as it determines for which purposes a licensee may use the licensed IP. In most cases, the permitted acts should correspond to the scope of protection of the licensed IP, *i.e.* any and all use of the licensed IP should be permitted. Even where it would be possible to carve-out particular types of use, this would often not be reasonable for either party. An example: A patent protects a new type of battery cell. A spin-off is planning to develop the technology into a final product and is primarily thinking of passenger cars. While it would be possible in theory to limit the license to the manufacture and sale of battery cells for passenger cars, this may be quite a risky decision for a spin-off. This is because, at the time at which the license would be granted, it would be very tricky to ascertain with any certainty whether the passenger car market would actually be or remain the only or most lucrative market for such type of battery cell. From the point of view of a later strategic investor, the market for commercial vehicles, rail transport or other areas of application may be of equal or even greater interest. Conversely, it would be very difficult for a university to find licensees interested in licensing the patent if the potentially lucrative car market is not available for licensing.

3.2 License Fees - Types and Amounts

By far the most common type of license fee in spin-off scenarios is the revenue-based royalty, i.e. a model pursuant to which the university would continuously receive its certain percentage of a spin-off's net sales with products using the licensed IP (licensed products). In principle, there are also other concepts (e.g., per-unit royalties where a university will receive fixed currency amounts for each licensed product sold, or one-off or milestone payments). As a rule of thumb, however, these are not very suitable for spinoffs: A per-unit royalty often cannot be meaningfully defined because the market price for the relevant products is still uncertain. One-time and milestone payments often present a spin-off with the same liquidity problems as purchase price payments for the IP transmission, especially if they are not linked to financing decisions. We will therefore focus on revenue-based royalty models in this Guide.

In the case of revenue-based royalties, there are essentially two parameters that influence each other: the royalty base and the royalty rate.

- Figuratively speaking, the royalty base refers to the cake from which a university is allowed to cut its share. This is usually the net sales from licensed products that are manufactured or sold in the licensed territory.
- The royalty rate determines the size of the share that a university is entitled to as a percentage of net sales (*i.e.* the royalty base).

Now we finally come to the question that you have been burning to ask for at least fifty pages: What is the right royalty rate or at least a standard range? Our Guide is akin to a good television series, keep the tension high and never have a final resolution. Seriously, there is no such thing as "one" right royalty rate, nor is there a universal range for university IP licenses. At least nobody knows them because up until now no sufficient data has been collected; the establishment of a corresponding database is on the agenda of the federal government (see above). Ultimately, it just depends. On what, you may ask? Well, in particular, on the field of technology, on the market conditions, the importance of the IP for the respective product (essential patent or gradual improvement), the IP status (granted patent(s) or early application(s), legal validity risks), the effort still required for turning the technology into a marketable product, and, yes, also on the bargaining position of the parties. The definition of the royalty base is also of considerable importance to the definition of the royalty rate. As a rule of thumb, the broader the royalty base, the lower the royalty rate. This relates less to the absolute sales amount than to which sales count toward the royalty base. That sounds terribly abstract at first, but it becomes quickly understandable with a simple example:

Let's take the case of the patent-protected battery cell again and consider two scenarios. In the first variant, the business model of the spin-off consists of producing battery cells and selling them to automobile manufacturers at a price of, say, EUR 10,000 per unit. We assume that the patent-protected technology plays a significant role in the fact that the battery cells can be sold at that price and that, therefore, a license rate of 3% of the net sales with the battery cells (translating to EUR 300 per battery cell) is appropriate. In the second variant, the business model of the spinoff is not to sell batteries for EUR 10,000 each. Instead, the spin-off sells complete electric cars with built-in battery cells for EUR 100,000 per vehicle. If the price of the vehicle is used as the royalty base, applying the same royalty rate as before, the university would receive ten times the money than in the first variant. However, that would not seem justified, because the tenfold increase in the royalty base is not based on an "extra" IP contribution from the university, but on an "extra" contribution by the spin-off. In the second variant, the license rate would therefore have to be reduced in view of the broader royalty base in order to reach an appropriate result.

Finally, in practice, for similar reasons, one sometimes finds staggered royalty rates, *i.e.* a gradual reduction of the royalty rate with increasing sales. One of the reasons given for this is that, at some point, the increase in sales is increasingly due to special sales efforts and corresponding investments by the licensee and no longer to the same relative extent due to the technological contribution of the university IP. In addition, software licenses often have a time limit or at least royalty rates that decrease over time, because the licensed software usually changes over time and larger and larger parts of the originally licensed code are changed or replaced by the licensee's own code. In rare cases, the parties may agree on an absolute upper limit (cap), while provisions whereby royalty payments exceeding a certain amount can be credited against a later purchase price for the IP (if a purchase option has been agreed) are more common.

3.3 Other Relevant Terms

License agreements also contain further economic and other terms. Such terms heavily depend on the individual case at hand and the type of licensed IP. For this reason, the following overview can only briefly outline a few of the typical contractual provisions.

Reporting and Payment: If the parties have agreed on a revenue-based license or another type of license dependent on the sale of licensed products, the license agreement should also contain provisions on the reporting and payment modalities. This includes information on when and in what form the licensee has to report on its royalty-bearing sales and make the corresponding payments. The following provisions and steps are common:

- Reporting and reporting intervals: In most cases, the parties agree on an annual written report from the licensee about its royalty-bearing activities in the respective previous years, insofar as this is necessary to calculate the license fee to be paid. In the case of a revenue-based license, the net-sales are reported (usually in an aggregated form), and in the case of per-unit licenses, the report will set out the units sold. Sometimes, the parties agree that this information should be broken down by customer or country. With regard to customers, for reasons of trade secret protection, it is generally recommendable for the licensee to insist on anonymization or pseudonymization (i.e. the customers are not identified by their real names, but generic designations such as "Customer A", "Customer B", etc.). It often makes sense for the parties to agree on a standard reporting format or template in advance. Furthermore, from the licensee's perspective, it is generally practical and recommended to align the reporting periods with its financial year (in the case of spin-offs usually calendar years).
- Invoicing and payment: After receiving the royalty report, the licensor should (have to) issue an invoice for the license fees to be paid on the basis of the report within a certain period of time. Typically, agreed payment deadlines are between 30 to 60 days from receipt of the invoice. This should be stipulated as

precisely as possible in the agreement because the due date of the payment depends on it, *i.e.* questions such as when a payment is (still) "on time" or when a payment is delayed, which may cause the licensee to be liable for default interest or may even hand the licensor the right to terminate the license agreement.

Bookkeeping and Audits: In order to ensure the accuracy and verifiability of the royalty reporting, the licensee is usually obliged to maintain complete and separate books for the relevant transactions and to keep the corresponding documents. The licensor also has the right to have these books viewed and checked by an accountant or auditor. However, this right should be restricted to the extent that the business operations of the licensee are not disturbed (e.g., by limiting to one inspection per year after written advance notice and only during normal business hours) and the legitimate interests of the licensee in protecting secrets are preserved (keywords: confidentiality obligation, separate accounting). The costs for the audit are usually borne by the licensor, unless the audit reveals a significant accounting error on the part of the licensee (usual magnitude of \geq 3%). Then the licensee has to bear the costs.

NEGOTIATING

When negotiating the reporting and payment terms, you should keep an eye on cashflow implications. This is important, in particular, if royalty obligations are already triggered when the licensed products are being dispatched or invoiced (as opposed to when payment from the customer is received), if your business is (foreseeable) strongly seasonal, and/or if you will be supplying customers who request long payment terms (large companies, in particular, often insist on payment terms (large companies, in particular, often insist on payment to the university are too short in comparison. Do not hesitate to address the issue openly when negotiating with the university. Of course, the university has a (legitimate) interest in timely payment of license fees. On the other hand, the university cannot be interested in getting the start-up into foreseeable payment difficulties with "eyes wide shut".

VAT and Withholding Tax: It should always be checked whether the granting of the license leads to the accrual of VAT. The license agreement should in any case entail a VAT provision. In cross-border cases, the issue of VAT may be of even more importance for the start-up as the reverse charge mechanism may apply, meaning that the start-up would be liable to pay any VAT to the competent tax office. In crossborder cases, it should also be checked whether a withholding tax arises from the granting of the license. If so, the license agreement should entail a respective withholding tax provision.

Patent Costs: Patents and patent applications cost money, sometimes a lot of money. On the one hand, there are the one-off costs for having qualified patent attorneys prepare the application(s) (nationally and internationally), the various fees charged by the patent offices and other "ancillary costs" (e.g., for translations). Depending on the size of the portfolio and the scope of the applications, these costs can amount to tens of thousands of Euros or more in the first few years. On the other hand, so-called annual fees have to be paid for each individual patent in each country in order to maintain patent protection. For example, the annual fee for a German patent is up to EUR 100 until the 5th year following the filing date of the application, then gradually increases to around EUR 400 until the tenth year and then to around EUR 2,000 in the twentieth year. That doesn't sound like

much at first. However, if you take into account that effective patent protection requires filings in many countries, total annual fees may quickly amount to several thousand Euros per year. This begs the questions of who should bear these costs and who should have control over the applications?

In practice, universities typically try to pass on the patent costs to the spin-off. In the case of exclusive licenses, especially in the standard contracts of US universities, one often sees provisions whereby the licensee must bear the running costs and, if necessary, also the costs for any possible expansion of the licensed portfolio through parallel applications in other countries. In principle, this doesn't appear unreasonable, because these costs are effectively production and maintenance costs, which would be passed on to the "customer" via the price or rent also in a different economic context. In the case of patent licenses, the economic equivalent to the price or rent is the license fee. Therefore, it would seem logical to include the (foreseeable) patent costs in the calculation of the license fees. These costs would increase the license fees. In turn, the base license fees would need to be relatively lower if the patent costs are to be borne directly by the licensee in addition to the license fees.

The discussion about how patent costs are passed on from the university to the spin-off may ultimately be a "zero-sum game". However, it is of practical importance because there can often be a period of two years or more between the accrual of, in particular, the high one-off costs for expanding the patent portfolio and the spin-off's first turnover that will trigger the license fee. If the patent costs are only amortized through the license fee, the university is in a way making an upfront investment. That is the reason why many universities insist on the spin-off bearing the costs directly. From the point of view of effective start-up funding, however, this approach can become problematic because the start-up is deprived of liquidity in the important early phase. This liquidity could otherwise be used for product development and preparing the market entry, purposes which in the long run should benefit both sides.

Risk-benefit considerations also tend to speak against the spin-off directly bearing the patent cost: If, in the worst case, the spin-off fails, the university will still retain the patents and patent applications financed by the spin-off, which can then be exploited otherwise. In contrast, the spin-off, its founders and investors would have no comparable benefit in exchange for the costs incurred.

Lawyers that we are, we could certainly ponder a few more pages about further arguments, counterarguments and contractual stipulations. However, the fun factor for you would probably be very limited. We therefore leave it at three central take-aways (these shouldn't take longer than a good espresso):

- Be aware of the patent cost issue, get an overview of the foreseeable costs applicable to your case and keep an eye on the topic when it comes to planning your liquidity needs. The transfer office at your university should be able to help you with an initial estimate of the expected costs. In our experience, there is a great willingness to help and, in any case, asking will not hurt anyone.
- Make patent costs part of the commercial negotiations with the university early on. Keep an eye on the interrelation with other provisions. In particular, as mentioned above, the level of the license fee and the bearing of the patent costs are (or should be) influencing each other. If necessary, compromises can also be achieved in that you basically assume the patent costs, but only have to pay after the next round of financing or in installments over a certain period of time.
- If you have to bear the patent costs, you should also have control over their accrual as well as over the strategic direction that patent prosecution takes on a global scale. This applies, in particular, in situations where the inventions or patent applications you have licensed are at such an early stage that parallel and related applications in other countries are still possible and possibly advisable. Whether, when and how such further applications are filed should then be your decision.

Defense and Enforcement of the Licensed IP:

Patents, patent applications and other IP rights are not unassailable, but can be attacked by third parties, for example through invalidity actions. In those cases, usually the licensor, *i.e.* the university, is responsible for the defense (in US license agreements we frequently see cost splits, though). In practice, however, the license agreements usually foresee that the licensor is not compelled to assume the defense or can cease an initially mounted defense in its own discretion at a later stage. However, the license agreement should then provide that the university must give the spin-off the opportunity to defend the licensed IP in its own name and support the spin-off to a reasonable extent. As a rule, the costs will be borne by the party conducting the defense.

In practice, when enforcing the licensed IP against third parties, the parties regularly agree on a such a concept. However, it often makes more sense to grant the spin-off the "right of first enforcement". This is because the spin-off is closer to the market and will generally be better placed to determine and assess the factual or technical issues that will be relevant for the infringement action.

4. GRANTING OF A PARTICIPATION IN THE START-UP

4.1 A (Presumably) Simple Idea

In the preceding pages we have already touched upon the (supposed) dilemma in the transfer of IP to the start-up several times. On the one hand, there is the university, which is pushing for milestone payments and ongoing license fees for economic reasons or because it believes it is obligated to do so under state aid or budgetary regulations. On the other hand, there is the start-up and its potential investors, who would rather invest every euro of liquidity in the growth of the company and see their equity value go up. On the investors' or founders' side, the feeling may then arise that the university, which after all wants to promote IP transfer and support start-ups, is simply not in the same boat. Save for certain exceptions, founders and investors don't usually see any money before an exit, but the university does. In addition, these negotiations take a very long time because every commercial point in the license agreement is fought over.

When implementing disruptive IP, generally nothing is clear and certainly not the success. Therefore, such IP initially has a value of 0 euros! Only with the founding team, seed financing, hard work, several pivots, further financing rounds, ultimately hopefully product-market-fit and also a good portion of luck comes success. Success is thus exclusively (!) only given through then possible distributions or an exit.

Dr. Andreas Olmes, High-Tech Gründerfonds – convenience translation by the authors

Julie Sunderland from Biomatic Capital Partners captures the frustration that many investors feel as follows: "The focus of the negotiations therefore becomes royalties and milestones payments which, although in a few cases can actually generate a ton of revenues in most cases have very little value which is way into the future. [...] Nonetheless, if the leading tech universities had actually taken equity in the companies that were spun out of their ecosystems, think about how much money they would have to reinvest in the innovation ecosystem. Instead, they argue over these less-relevant royalty terms that take a year and a half to finalize and aren't going to deliver them anything substantial." While these observations were made with regard to licenses in the biotech space, a sector that has some particularity when it comes to power law outcomes while the vast majority of start-ups in this field don't get very far, her observations are right and broadly applicable nevertheless.

We have already mentioned that "IP for shares" can mitigate the problems outlined above and offer a solution that is both incentive-compliant for the university and the start-up and takes into account the special needs of the start-up. The share in the start-up has a value and this allows corresponding leeway in the payments otherwise envisaged (whether for licenses or as a purchase price). If the start-up is successful, the university benefits from the increase in value of its participation at a time when founders or investors can also realize the value of their shares. Interests are aligned to see the equity value of the start-up being maximized.

4.2 Only one Participation and if so, Real or Better Virtual?

The question arises as to whether, from a legal point of view, such a participation can merely support a license/cash purchase price or even replace it. In the latter case, the university or research institution would only receive a (real or virtual) stake in the start-up, but no one-off or ongoing license income. While it would be desirable for the legislator to provide us with an answer to this question, in our view it is quite justifiable for the university to be exclusively granted a share in the start-up in return for a transfer of the full right or a license. The SPRIND proposal outlined below also provides for the same. Some universities have followed that approach. However, it doesn't take a crystal ball to predict that at least for the next couple of years universities will frequently stick to their request for (hopefully, then at least only minimal) ongoing license fees.

The participation of the university can be real or only virtual. In the case of a real participation, the university (usually its transfer office) actually acquires shares in the start-up. In the case of a virtual participation, a real participation is only economically replicated (this is sometimes also referred to as a synthetic participation). In this case, the university receives a claim against the start-up for payment of a sum of money in the event of an exit (possibly also in the case of dividend payments). The amount of the payment claim can, for example, be based on the amount that the founders would receive in the event of an exit, so, for example, for each virtual share that the university holds, it would receive a gross payment equal to the amount that a founder would receive for one of her ordinary shares. At a high level, the situation is similar to that of a typical virtual employee stock ownership plan (VSOP), which has been implemented by numerous German start-ups (although, as a rule, no so-called "strike price" is set for the university's virtual shareholding).

Whether there is real or virtual participation is a matter of negotiation. Both approaches have advantages and disadvantages.

The real participation is usually more attractive for the university from a tax point of view but results in more administrative work for all sides. The granting of the participation requires a notarial deed and the university must then usually also become a party to the financing agreements in all future financing rounds. However, especially in the case of startups, financing rounds are often carried out in very tight time frames and the fewer stakeholders who are required to approve the financing documents, the more seamless the financing round. A virtual investment, on the other hand, is only set up once, and does not require the involvement of a notary nor active portfolio management on the part of the university; in particular, the university does not have to worry about shareholders' meetings and exercising voting rights.

It should be noted that regardless of whether a virtual or real participation is granted, the parties should critically examine whether VAT accrues. For start-ups, this applies all the more in cross-border situations, as this may lead to the application of the reverse charge mechanism, meaning that VAT would have to be paid to the tax office by the start-up. Additionally, in crossborder cases, it must be checked whether withholding tax on the remuneration of the license is incurred.

4.3 How much shall it be?

Let's move on to the loaded question. How much is appropriate for the university? This question arises in the case of both real and virtual participations. At this point, at the latest, some of you will roll your eyes (assuming that they have remained open at all up until this point). Here, too, there are no universal answers. Both internationally and nationally, participation numbers diverge quite a bit, although one can already recognize developing market norms.

International Experience: Let's start with some experiences from the Anglo-Saxon ecosystems.

Interestingly, in the UK, there is an ongoing debate as to whether universities take equity stakes which are too large in their spin-offs (spoiler - many of them do). According to research published by the *Royal Academy of Engineering* and the data provider *Beauhurst*, for university spin-offs where university entities own less than 50% of the company, the mean stake taken in the year of spinning-out is 22%. However, there are still some that take around and in some instances over 50% (interestingly there is a wide discrepancy and some institutions such as Cambridge and the University College of London demand much less equity – a medium of 8% and 9% respectively according to the report published by the Royal Academy of Engineering, while in the past, Oxford, for example, regularly required a 50% shareholding for genuine spin-offs). Many UK focused VCs complain that small equity stakes for spin-off founders present a serious problem when looking for outside funding. VCs want to make sure that founders are properly incentivized to build companies in the long-term throughout multiple increasingly large financing rounds which will dilute their stakes even further. The criticism by the VCs is that by giving away even 10% to 25% of equity to universities from the beginning means that when one adds the stock option pool that will also be required to find the right employees, founders will rapidly be diluted even in the early stages of funding. Here, founders can guickly find themselves as minority shareholders in their own companies.

In the US, we see smaller stakes being issued to universities, often in the single digits, sometimes around 10%, rarely more (at least not at the leading spin-off universities). For example, according to our sources the MIT takes usually around 5%; Stanford falls in the same category but can also take up to 10% max.

In Germany, we often see shareholdings more in the vicinity of what one would expect at US universities. Comprehensive empirical surveys are difficult, however, because virtual shareholdings, unlike real shareholdings, are not published in the commercial register or in other freely accessible sources. Real shareholdings can be found with some effort in the commercial register, but of course each individual case is different, and it is not easy to confirm whether they relate to a "typical" IP spin-off or whether there were special circumstances for a higher or unusually low shareholding. It is also not possible to see the assets that a university contributed to the spin-off or, in particular, the relevance of the IP to the spin-off or whether the university received only a share in the spin-off or license fees on top.

Notwithstanding the above, we went out and researched the holdings of a few universities and research institutions in some of their portfolio companies in the commercial register (no, we really don't have hobbies). The following graph/image shows the initial shareholding of the university or research institution, *i.e.* before dilution by any subsequent share issuances.

University Research Organization	Companies	Initial (non-dilut- ed) Partici- pation	Year Founded	Investors (Selection) and Exits
Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.	Ampeers Energy GmbH	12,5	2019	Bundesimmobiliengesellschaft, Deutsche Bundesstiftung Umwelt, Fraunhofer Venture, Fraunhofer-Gesellschaft, Jost Logistics
Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.	Enerthing GmbH	11,6	2015	Energie 360, Fraunhofer-Gesellschaft, NRW. Bank
Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.	E-VITA GmbH	25	2021	Ceravis AG, Fraunhofer-Gesellschaft
Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.	Sunbloom Proteins GmbH	25	2017	Ehrmann, Fraunhofer Venture, Fraunhofer-Ge- sellschaft, Zentis
Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.	Threedy GmbH	20	2020	btov Partners, Fraunhofer Venture, High-Tech Gründerfonds
Friedrich-Alexander-Universität Erlan- gen-Nürnberg	CrystAl-N GmbH	10	2010	Bayern Kapital, Friedrich-Alexander-Universität Erlangen-Nürnberg, High-Tech Gründerfonds, Linn High Therm
Helmholtz-Gemeinschaft Deutscher Forschungszentren, bzw. Ascension GmbH	Dermagnostix GmbH	5	2021	Ascenion, Bayerische Patentallianz, European Research Council, Helmholtz, Medical Valley Award
Helmholtz-Gemeinschaft Deutscher Forschungszentren, bzw. Ascension GmbH	HepaRegenix GmbH	10,1	2016	Ascenion, Boehringer Ingelheim Venture Fund, Coparion, High-Tech Gründerfonds, Novo Holdings
Helmholtz-Gemeinschaft Deutscher Forschungszentren, bzw. Ascension GmbH	WBC Drug Delivery Technologies GmbH	7,5	2019	[acquired by Klaria Pharma Holding]
Karlsruher Institut für Technologie (KIT)	300MICRONS GmbH	10	2015	[Founder Buy-out in 2021]
Karlsruher Institut für Technologie (KIT)	Amcure GmbH	24,9	2012	BioM Biotech Cluster Development, Bunde- sministerium für Bildung und Forschung, Karlsruher Institut für Technologie, KfW Gruppe, LBBW Venture Capital, MBG Mittelständische Beteiligungsgesellschaft Baden-Württemberg, S-Kap Unternehmensbeteiligungs GmbH & Co. KG
Karlsruher Institut für Technologie (KIT)	Aquarray GmbH	15	2018	EIT Health
Karlsruher Institut für Technologie (KIT)	INERATEC GmbH	10	2016	EIC Accelerator, ENGIE New Ventures, EXIST Startup Germany, Extantia Capital Management, FO Holding, High-Tech Gründerfonds, Horizon 2020 SME Instrument, Karlsruher Institut für Technologie, MPC Münchmeyer Petersen & Co., Planet A, Safran Group
Karlsruher Institut für Technologie (KIT)	MARA Solutions GmbH	5	2021	EXIST (Bundesministerium für Wirtschaft und Klimaschutz), Next Commerce Accelerator
Karlsruher Institut für Technologie (KIT)	Memetis GmbH	10	2017	Atomleap High-Tech Accelerator, EXIST (Bun- deministerium für Wirtschaft und Klimaschutz), Fluid-O-Tech International, High-Tech Gründer- fonds, Horizon 2020 SME Instrument, Karlsruher Institut für Technologie
Max-Planck-Gesellschaft zur Förderung der Wissenschaften e. V.	Modag GmbH	3,6	2013	Massa Investment AG, Max-Planck-Innovation, Michael J. Fox Foundation, Parkinson's UK Venture Capital
Max-Planck-Gesellschaft zur Förderung der Wissenschaften e. V.	Aircloak GmbH	10	2014	Cisco Entrepreneurs in Residence, CNB Capital, Elephant & Castle Capital, Max Planck Innova- tion, Speedinvest
Max-Planck-Gesellschaft zur Förderung der Wissenschaften e. V.	TACALYX GmbH	15	2019	Boehringer Ingelheim Venture Fund, Coparion, Creathor Venture, High-Tech Gründerfonds, Kurma Partners, Max-Planck-Gesellschaft
Max-Planck-Gesellschaft zur Förderung der Wissenschaften e. V.	Targenomix GmbH	10	2013	n.a.

Rheinisch-Westfälische Technische Hochschule Aachen	crop.zone GmbH	3,5	2019	Demeter Partners, GSI (Germany), MADAUS Capital Partners, Nufarm
Rheinisch-Westfälische Technische Hochschule Aachen	engidesk GmbH	10	2013	n.a.
Rheinisch-Westfälische Technische Hochschule Aachen	PicoLAS	8	2005	High-Tech Gründerfonds
Rheinisch-Westfälische Technische Hochschule Aachen	QITHERA GmbH	2	2012	BIO Clustermanagement NRW
Rheinisch-Westfälische Technische Hochschule Aachen	Westrath GmbH	5	2021	n.a.
Technische Universität Dresden	denovoMATRIX GmbH	10	2018	EXIST (Bundesministerium für Wirtschaft und Klimaschutz), High-Tech Gründerfonds, Horizon 2020 SME Instrument, Technologiegründer- fonds Sachsen
Technische Universität Dresden	DyNAbind GmbH	10	2017	High-Tech Gründerfonds, Technologiegründer- fonds Sachsen, TUDAG
Technische Universität Dresden	Heliatek GmbH	5	2006	Aqton, BASF Venture Capital, BNP Paribas, CEE Group, CFH Management, Dubai Fu- ture Accelerators, eCAPITAL entrepreneurial Partners, ENGIE New Ventures, Europäischer Fonds für regionale Entwicklung (Brandenburg), Europäischer Sozialfonds, Future Energy Ven- tures, GP Bullhound, Gründerfonds Münster- land, High-Tech Gründerfonds, Innogy, Robert Bosch, RWE, SIB Innovations- und Beteiligu- ngsgesellschaft, Sino-German High Tech Fund, Technische Universität Chemnitz, Technolo- giegründerfonds Sachsen, The Innovation and Technology Commission, TUDAG, Wellington Partners
Technische Universität Dresden	Infrasolid GmbH	10	2017	[acquired by Innovative Sensor Technology]
Technische Universität Dresden	MDTB Cell Manu- facturing GmbH	10	2020	n.a.
Technische Universität Dresden	SENORICS GmbH	10	2017	CFH Management, EIT Food, Fidura Private Equity Fonds, futureSAX, Rockstart, Technol- ogiegründerfonds Sachsen, TUDAG, Ventura Investment (Germany), ZEISS Ventures
Technische Universität Dresden	Sixonia Tech GmbH	10	2017	n.a.
Technische Universität München (TUM)	AMSilk	40	2008	[acquired by Givaudan]
Technische Universität München (TUM)	everskill GmbH	10	2016	Energie 360 (Zurich), TechFounders, The Initia- tive for Industrial Innovator, Unternehmertum Venture Capital Partners
Technische Universität München (TUM)	Isar Aerospace Technologies GmbH	6	2018	Airbus Ventures, Ann-Kristin Achleitner, Apeiron Investment Group, CoastCap Group, David Giger, Earlybird Venture Capital, Emin Altan, ESA BIC Switzerland, Europäische Kommission, Growth Box Ventures, HV Capital, Joram Voelk- lein, Lakestar, Lombard Odier Darier Hentsch, Molten Ventures, Paul Achleitner, Porsche Automobil Holding, Unternehmertum Venture Capital Partners, Vito Ventures, VSquared Ven- tures, Xpreneurs
Technische Universität München (TUM)	Loyality Prime GmbH	19,9	2019	Bayerische Beteiligungsgesellschaft. Unterneh- merTUM Venture Capital Partners
Technische Universität München (TUM)	STABL Energy GmbH	5	2019	BonVenture, cumulus ventures, Kienbaum FJK Consultants Pte Ltd, Unternehmertum Venture Capital Partners
Universität Freiburg	Resuscitec GmbH	9,9	2011	Bundesministerium für Bildung und Forschung, Horizon 2020 SME Instrument, Universität Freiburg Endowment, Zukunftsfonds Heilbronn

Obviously, any IP transfer terms will need to be sympathetic to the circumstances of the special situation of a young start-up, due to the importance of cash to the spin-off in its early years. That much, everyone can agree upon. However, we believe that this also applies when it comes to a university's stake in a spin-off. Let us repeat this, equity is a very finite source and in order to have a good shot for gold, one cannot ignore the incentive structures of start-up land. Giving away 25% to 50% of a company's equity to a university before creating an option pool for a start-up's employees and having raised any money from investors already makes the founders minority investors of "their" own company right from the start or soon thereafter. If one adds to the calculation that many start-ups will need to undergo a couple of financing rounds and that a dilution of give or take 20% in each financing round is not unusual, one guickly realizes that this is not ideal for founders' motivation, and that this will be an issue for any farsighted potential investor.

While situations will differ and universities and their researchers and staff will need to consider any negotiated outcome to be fair as well, we have some sympathy for the model promulgated by SPRIND and consider that it can become useful as a goal post (though one can debate some aspects of it). That being said, the SPRIND model foresees a virtual shareholding of between 1% and 10% in the spin-off. The highest participation shall be granted for the transfer of patents that give the start-up a unique position in the market and thus make a very high contribution to the value of the start-up. On the other hand, a medium participation of regularly 2% to 5% is to be granted if the patent makes a key contribution to the value of the company but does not offer a unique selling proposition in the market. Only a relatively small share of 0.5% to 2% is to be granted for patents that give a correspondingly lower competitive advantage. SPRIND has proposed a new standard model which does not provide for licenses, but for the transfer of all relevant IP rights to the startup in return for a virtual shareholding. Thus, in case of a mere license, one might need to adjust the numbers a bit downwards.

These days, we observe developments towards participations that are usually in the range between 5% and 10%.

At TUM, it is our understanding that the IP transfer office regularly receives virtual participation of approximately 7%. RWTH also recently moved to a model where the university seeks generally a participation of not more than 10%. High-Tech Gründerfonds reports that, with a few exceptions, it only invests in start-ups that have not contributed more than 10% to the university.

Beware of these Clauses: Although we haven't often encountered such provisions in Germany, there are two wrinkles to the university's participation that we would propose founders to carefully consider.

Some Key Considerations for a Start-up Appropriate Licensing Arrangements

#1 The start-up receives an exclusive license for its business field (or a simple license in the case of less relevant technology). In this manner, the university retains the full IP rights in the event of the start-up's insolvency and can continue to use them. If the IP is not used within a sufficiently long period of time, the exclusivity lapses.

#2 Wherever possible, the university receives no ongoing royalties and no one-time payments or milestone payments; if the university has real liquidity restrictions, provision can be made to cover the patent costs.

#3 Depending on the value of the IP (level of market readiness, importance for the start-up, uniqueness, sustainable competitive advantage, *etc.*), the university receives a (preferably virtual) share of between 2% and 10% in the start-up. However, this participation should then also participate in the dilution in all financing rounds, just like the participation of the founders.

#4 The start-up receives a purchase option, at least in the event of an imminent exit. Where possible, there should be a relatively low or capped purchase price in the interest of the start-up and the shareholders as a whole, since the university is primarily "remunerated" through its participation in the start-up (no double-dip). In our practice we have for example come across agreements that provided for a participation of the university in the spin-off and then set the purchase price for the call-option to the amount of the historic IP development costs (such purchase price can then be reduced by the license fees received by the university (or at least a part thereof)).

- Sometimes a university requires an antidilution clause where its equity percentage doesn't dilute until the start-up has raised a certain investment sum. This provision basically means that any dilution resulting from angel investments *etc.* up until that threshold is only economically borne by the founders. This provision can set a bad example for other early backers and aggravate the incentive issues discussed above.
- A arguably even worse variation of an anti-dilution play is a provision that doesn't give the university a certain (virtual or equity-based) percentage in the initial cap table but the right to a certain percentage of proceeds from an exit event instead. Be really cautious with such a provision as the university's position can't be diluted. Imagine you were an early backer of Facebook and you were entitled to receive 2% of any exit proceeds in any event. If you should ever find yourself confronted with such a request from a university, then do something else or at least set the percentage really low (<1%) and/or cap the maximum proceeds amount.

1. INTRODUCTION

Founders should also realize that they will need to get the start-up off the ground and commit full-time to the endeavor before it makes sense to approach VC investors in earnest. VC firms will often be reluctant to fund them with the prospects of transitioning them out of their roles at the university into a funded startup company after the founders feel safe enough to make the leap. This phase is too early for VCs and they usually want to see more commitment and personal risk on the part of the founders, *e.g.*, see them work for at least 6-12 months full-time on the project. In the meantime, the founders will then have to resort to either their own savings, public grants or smaller angel tickets. Launching a scaling start-up requires a lot of money. In particular, many deep-tech university spin-offs tend to work in the fields of artificial intelligence, hardware, biotech or healthtech. Companies pursuing a deeptech play require more extensive funding long before they become winners. As such, they need investors that have a similar long-term vision and willingness to fund the long development phase.

In this humble Guide, we cannot present the entire spectrum of private and public funding sources. Instead, we would like to focus on financing by VC investors and corporates and provide some practical assistance here.



2. THE (VC) FUNDING PROCESS

2.1 From Pre-Seed to Post-IPO

"Begin with the end in mind" is what personal development legend Stephen R. Covey advised his readers in his classic "7 Habits of Highly Effective People". For many founders, this might mean smiling into the cameras after they rung the bell on the day of their company's IPO or a sale to a multinational corporate for a sum that would make their former classmates blush. Such a successful exit was preceded by years of rapid and of course exponential growth and this growth was fueled by VCs and growth investors through a couple of increasingly larger financing rounds at higher valuation points. However, before VCs get on the roller coaster, the start-up has often survived the early years thanks to business angels, *i.e.* usually the real risk takers amongst the investor class, who have supported the initial humble beginnings of the start-up.

While there are certainly admirable exceptions of founders who have made it without ever taking investors' money, the majority of successful start-ups have engaged in many efforts to raise capital through

rounds of external funding. These financing rounds used to be labelled with the letters of the alphabet starting with the Series A, followed by Series B and Series C and so on. Over time business angels became more professional and some VCs started to invest smaller tickets in earlier stages of the company's life cycle. This is when the Seed Round was born. When a new tree is planted and given enough dedication, water (read more funding and hopefully revenues) and light (read growth and ideally, much of it), it will turn into a mighty money tree. These days, in many ways, Seed Rounds have become guite sizeable and ever creative founders have come up with a new name for their first fund raising, the Pre-Seed Round. In this way, they have saved the label of the Seed Round for the next hopefully more sizable financing round. At the risk of grossly oversimplifying the nuances and variety of "the real start-up life" (might be a good title for a reality show, come to think of it...), a company's funding life cycle can be summarized as follows:

	STAGE/ROUND INVESTORS	SIZE	USE OF PROCEEDS
BOOT- STRAPPING	Own resources, sometimes friends and family (great, every family gathering will be an investor meeting, yeah, we all have that very special uncle)	Usually, a couple of tens of thousands (depends a bit on your family and network of friends and whether you come straight out of university)	Tinkering and playing around with the foggy idea that someday is supposed to be a viable product or service
PRE-SEED	Business angels, occasionally micro VCs, incubators and accelerator programs	Couple of hundred thousand	Getting the company off the ground with a focus on the technological proof of concept and evaluating the potential future market (occasionally, paying your lawyers for the first time)
SEED	See investors of the Series Pre-Seed plus increasingly (early stage) VCs	Often between EUR 500,000 and EUR 2,000,000	More of what has been done in the Pre-Seed phase. At this point, there is often an MVP and a first trial launch with test customers
SERIES A	VCs, CVCs and occasionally super angels	Often between EUR 5,000,000 and EUR 10,000,000	Grow user/customer base, drive first sales and revenue growth, potentially enter into new markets and scale the team with additional key hires that can grow a start-up beyond the development phase
SERIES B AND BEYOND	(later stage) VCs, and given the lower perceived additional investors such as CVCs, early stage private equity investors, sovereign wealth funds etc.	Often around EUR 15,000,000 to EUR 40,000,000 and sometimes much more for the Series B and depending on the company's success, these days Series C and beyond can be nine-digit EUR amounts	Growth, growth and growth

Let us repeat this: the above is a strong simplification and the path for each start-up will be more or less unique, as is the timeline for funding. In the media you will usually read about the lucky few who will bypass some of the rounds or raise much more capital much quicker (particularly those start-ups with blockbuster ideas that at such point in time are seen by the investors as truly revolutionary or those attached to serial entrepreneurs with successful exits under their belts).



2.2 Prototypical Process

The following is a simplified overview of the different stages of a typical funding process.

• Investor Deck/Teaser: Obviously, if you have won an investor, this greatly helps with the funding process. So, the first step is to identify what kind of investor would be best suited for your business idea. In addition to funding, founders should, especially in the early stages of their start-up, look really carefully for the famous "smart" money, *i.e.* understand what additional benefits an investor can bring to the table, be it access to networks of top hires, future investors or business partners, mentoring or special technical expertise or domain know-how. Founders will also need to understand the time commitment that they can realistically expect from their prospective investor and what impact that will have on the likelihood that the investor will actually deliver on its promises to add value beyond its liquidity injection. In order to get the discussions rolling, having the key highlights of your start-up neatly presented in a polished short teaser document (backed up by a longer and more detailed pitch deck) is key. Keep in mind that few investors are likely to have the founders' specialist knowledge (and

frankly they get bored easily). You should portray a solution that fills a need, better, cheaper or faster than the competition – and you should demonstrate how you will make it happen.

PITCHING - TOP 4 DOS AND DON'TS

Gerrit McGowan as former and *Maximilian Eckel* as current head of the WHU Entrepreneurship Center worked with dozens of university start-ups and here are their key dos and don'ts when it comes to pitching:



Do #1 Tell a Story: You have to catch your audience emotionally. Only this way you can ensure that they will perceive your vision and take part in it. Have a common thread throughout your pitch. Where did you start? What was the problem that you wanted to solve? Why did you want to solve it? What motivated you to do it and who will benefit from your product or service? Where are you now? Introduce your team and focus on people – early-stage-investments are still mainly made in people. How far has your motivation taken you? Where do you want to go? These are the questions you should try to answer in a coherent story.

Do #2 Keep it Simple: Simple is easy and easy is good. We all know our lectures from the university days that consisted of complicated presentations and overly packed slide shows, and we know that we did not want to pay any attention at all. Especially not if there were a few lectures a day on various topics. Therefore, keep your pitch brief and precise and narrow down the content to the essential. Your idea must be easily understandable and easy to remember. Visual assistance (ideally a prototype of your idea) and the avoidance of technical terms will surely help. In the tech space, follow the "tech for dummies" narrative style.

Do #3 Know Thy Audience: In advance, you must have a clear understanding as to who might be the right investor for you and your idea. Pitching to the wrong audience is at best a training session to hone your presentation skills. Once you know, who you want to win over as an investor, inform yourself about them and by all means come prepared. Find out what is most important to your investor, so that your pitch is tailored perfectly, and you can have an engaging and convincing discussion about your idea. Why does your idea matter to this specific investor?

Do #4 Know Thyself: Know yourself, your values and your goals. This is the only way for you to leave a lasting impression on the investor. Emphasize your strengths. Tell them why you, of all people, are the right ones to solve this problem in this marketplace. Which investor fits you best and under what conditions are you willing to let them invest? Be honest to yourself on the question why you need the investment. Think beyond capital, what else should the investor bring to the table to support you on your growth path.

Don't #1 Be Shy: You have a great idea. Present it to the investors with confidence. False modesty or shyness will make you look insecure. You, as the founders, are the people most convinced by your idea. Share this vision with the investors: This is the way that will get them to hop on board. Don't be afraid to ask for money. Investors know that the execution of good ideas needs money. Calculate your capital needs and ask directly for the necessary amount. Haggling afterwards will make you look unprofessional. If you don't have an answer to a question, remain confident and honest. Investors know that only few founders have entrepreneurial experience. Being aware of your know-how and skill gaps and an openness to listen and seeking advice shows a certain maturity.

Don't #2 Be Arrogant: Now to the other extreme: don't be arrogant. Be respectful instead. After all, you want to raise money from your counterpart. Even if you are (rightly) convinced of your idea, stay humble. You want investors to trust you and to commence and conclude negotiations with a positive feeling. Therefore, it is important that your investors feel that they are being treated fairly. You should be trustworthy and accountable – the best founder teams know that they own all the problems of the young start-ups and that the buck stops with them. Be open, sympathetic, optimistic and try to stay relaxed (even if it is easier said than done). Avoid excessive name-dropping and exaggerations (please don't be the "Google/Facebook/Amazon/Uber [insert another random tech giant] for XYZ"). This will not impress investors. It is also more annoying not to be able to deliver on the promises made.

Don't #3 Waste Time: Your Investors' time is valuable. Keep your pitch short and limit the content to what investors are really interested in. Unnecessary side facts only distract from the actual issue and also cause investors' attention to drop. Use the (probably short) attention span of the investors to present the most important facts and get to the point quickly. Nobody wants to listen to a pitch where they only find out at the end what it is actually about and why it might be of interest to them.

Don't #4 Be Salesy: There is a fine line between a storyteller (helpful in start-up land) and coming across as a salesperson (generally not good, even in sales). Of course, you want investors to invest in your idea. But always keep in mind that you believe in yourself and your idea and that other investors will be interested in you.

Do not try to give the impression that you are ready for an investment at any price and on any terms.

This will look desperate, and the investors will get the uncomfortable feeling - despite maybe a fair deal - to pay too high a price.

• **Preliminary Due Diligence:** After a first contact has been established, and there is a certain level of interest from an investor, a preliminary review of the start-up usually takes place. The potential investor will seek to understand if there is a real opportunity which justifies its investment. The focus here is not so much on whether the founders can actually pull off their idea but more on how big it could be, *i.e.* an initial market and technology assessment. The founders' track record, domain expertise, team set-up and execution muscle are examined only thereafter. At this stage, the parties will also have a preliminary discussion on numbers, notably the potential investment amount and a valuation range for the company.

At times some investors like to co-invest with a number of co-investors as a syndicate and one will be chosen to act as the lead investor to handle most of the negotiations and the leg work on the documentation. Such consortiums are usually formed at some point in the second half of the preliminary due diligence phase, although in some cases, co-investors will only be approached or come onboard once the term sheet has been signed with the lead investor.

- Term Sheet: Assuming a satisfactory outcome of the preliminary due diligence, the potential investor will usually put forward a draft term sheet to sketch out the main elements of the investment (economic parameters) and the future relationship amongst the company's shareholders (thus regulations on corporate governance). Although the term sheet is not legally binding, it sets the course for the entire round and the parties will be expected to stick to its terms. Details of the term sheet and the control and economic terms requested by VC investors are discussed in detail in our Guide OLNS#9.
- Confirmatory Due Diligence: Once a term sheet has been completed, the investor will engage in a second, confirmatory due diligence. While the lawyers will work on the lengthy transaction paperwork (turning a 3+ pages term sheet into an 80+ pages agreement is an art that should command more respect), the investor and its advisors will have a closer look at the economic, legal, tax-related and financial situation of the company. Depending on the company's business model, the investor will also carry out a deep dive into the start-up's technology. We have summarized the typical legal topics an investor will want to review in our Guide OLNS#9.

• Signing: Finally, the big day has arrived, the documentation gets signed, and money is flowing into the company's account. Well, not so fast. While our US and UK colleagues will just circulate a set of signature pages for digital signature and then have the company's counsel prepare a completed suite of documents, in Germany the investment documentation will usually need to be notarized, *i.e.* read out aloud in front of a notary (yes, all of it). Keep in mind that powers-of-attorneys for investors subscribing for newly issued shares require notarization and if they are notarized outside of Germany, an apostille or in some countries a legalization (and don't forget certificates of representation and certificates of good standing, as the case may be), and you will understand that in particular with incoming foreign investors, the logistics for signing can take quite some time.

Also, in Germany (unlike in the USA and the UK), the signing will usually not coincide with the closing, *i.e.* when the investor pays the (entire) investment amount for its newly issued shares. The reason for this staged signing and closing process is that in Germany new shares can't be created out of thin air but will first need to be created via a capital increase which in turn needs to be registered with the start-up's commercial register and that process can sometimes take up to several weeks.

• **Closing:** "Closing" refers to the moment when the company actually receives the full investment amount; or to be more precise: In Germany, closing is often defined as the point in time when the capital increase that creates the new shares is registered with the company's commercial register and the investor acquires its shares which in turn obligates the investor to pay the (bulk of its) investment amount within a reasonably short period of time of usually between five to ten business days.

3. WHEN BETTER NOT TO GO AFTER VC MONEY

Time is crucial for start-ups and getting turned down by investors is mentally exhausting. Hence, it makes sense for founders to take an honest look before reaching out to VC investors. The reality is that most start-ups do not receive VC funding and yet might still develop into great companies. Some start-ups get turned down by a certain subset of VC investors but might find their luck with other VC investors while others are – when seen in the light of day – not really suitable for institutional VC money at all.

Here are just a few of the reasons why approaching certain VC investors can be a waste of time:

- Wrong Geography: Perhaps the prospective investor doesn't invest in your region at all, or only in very rare exceptional cases.
- Wrong Sector: Even though many funds claim to be agnostic, they do in fact, have preferred sectors and sectors in which they historically do not invest in at all or, in some cases, they are not allowed to invest in certain sectors under their fund regulations (common examples are CO2-intensive industries or GMO business models).
- Too Early or too Small: Some investors have launched such large funds that early-stage investments no longer make sense for them because they require a certain minimum ticket size.
- **Potential Portfolio Conflicts:** Many VC investors will also be careful not to invest in start-ups if they have already invested in an actual or at least potential competitor.

These investor-specific reasons can usually be identified with a little due diligence on the part of the founders, allowing them to compile a long and short list of investors with a higher probability of success. Some technologies and business models are simply not interesting for purely financially oriented venture capital investors. The reasons behind this include but are not limited to:

- Due to their fund structure (customarily a ten-year term for a VC fund plus the option to extend the term twice by one year each, *i.e.* 10+1+1), institutional VC investors need to operate within a rather constrained investment horizon (often five to six years) which might, for example, be a bad fit for a hardware tech start-up that needs to validate not only a business model but also the technology itself.
- Other business models simply don't promise an exponential growth and massive scalability in a sufficiently large market which attract VC investors. Bear in mind, basic VC fund economics assume a power law logic: Some investments will fold and have to be written off completely; the majority will survive but won't move the needle. Rather, it will take a few outliers to "return the fund." In other words, venture capital is a game of home runs, not averages. Failed investments don't matter (that much), but every investment needs to have the potential to be a home run. Benedict Evans, former partner at the US VC A16Z observes: "The best VC funds don't just have more failures and more big wins - they have bigger big wins." Against this background, it's clear that certain start-ups are simply not suitable targets for VC funds but will have to look elsewhere for funding from investors not restricted by such fund portfolio logics.

4. CORPORATE INVESTORS - A SPECIAL BREED

4.1 What is CVC and what is its Importance for University Spin-offs

It should have become clear by now that founders should carefully think about their cap table and their investors. In this context, we would like to briefly put the spotlight on a special kind of investor, the corporate venture capital investor. This group of investors have some potentially material advantages but also bring with them a bag of challenges.

Digitalization and the use of disruptive technologies are rapidly reshaping value chains – and at times even entire industries. The world's business leaders strive to stay ahead of these developments and prepare their companies for an increasingly dynamic and unpredictable future. One of the tools from the innovation toolbox that many corporations apply is Corporate Venturing and in particular its subcategory Corporate Venture Capital (**"CVC"**).

Corporate Venturing is a catch-all phrase for a wide variety of forms of equity-based investment by corporate investors into young technology companies, as well as other forms of non-equitybased cooperation between established players and start-ups (e.g., industrial partnerships). Corporate Venture Capital is a sub-category of Corporate Venturing – it's a similarly broad term describing equity and mezzanine investments made by a corporation or its investment entity into a start-up. Beyond this basic definition, the range of models and systems deployed by corporate investors is very diverse. This makes it crucial to understand the intricacies of CVC and its various manifestations and the role it can play. We cannot go into detail in this Guide⁹, but we would like to briefly summarize (from the start-up's perspective) the main advantages and potential disadvantages of having one or more CVC investors on the cap table. Founders need to weigh up the pros and cons carefully as CVC investors (unless they are pure-play financially motivated and have implemented incentive schemes similar to their institutional VC peers) have motivations and incentives that somewhat differ from the entirely financially driven VCs and business angels.

But first, let's look at the root of many failed CVC initiatives and their investments. While CVC does have elements of venture capital, it's also different. Private venture capital (VC) is a singular pursuit. VC funds assess and invest in high-growth potential businesses by deploying funds raised from external investors, known as limited partners (LPs). The sole objective of such a fund is financial return for its investors. On the other hand, CVC differs in a number of ways. Corporate Venturing, and CVC in particular, are usually measured on both strategic and financial metrics. At the risk of oversimplification, there are two main objectives to CVC:

- "Learning" developing the strategic capabilities of the parent corporation as well as gaining access to new markets and technology.
- "Earning" seeking sources of financial return. With respect to "Earning" as one of the objectives of CVC, there is an overlap of goals with VC funds. The distinction criterium is therefore "Learning" and for determining the appropriate structure of a CVC the importance of the "Learning" aspect should be put in context with the "Earning" aspect.

So, CVC investors should not be painted with the same brush.

 If you are interested in our (actually still pretty optimistic) take on CVC and how corporates and start-ups should approach their relationship, please refer to our Guide OLNS#4 - Corporate Venture Capital, which can be downloaded here:

https://media.orrick.com/Media%20Library/public/files/insights/olns-04-corporate-venture-capital.pdf.

4.2 Potential Advantages from the Spin-off's Perspective

Classical VC investors claim to invest "smart money" by combining their financial investment with advice, know-how and access to networks. In today's funding environment, for numerous start-ups, receiving financing is often not their most relevant obstacle on the growth trajectory. Their biggest challenge is to scale the business fast. Here, CVC investors frequently claim that they bring "smart and strategic money" to the table by offering services designed to help the portfolio company create and/or capture value. In this respect, potential benefits for the start-up resulting from a CVC investment may include the following¹⁰:

- financial support and a long(er)-term perspective compared to VC investors;
- domain expertise and strategic and tactical advice, especially in the start-up's industry and business;
- · operating support;
- access to the corporate investor's assets, particularly R&D capabilities;
- access to the corporate investor's sales and distribution network and support of the start-up's internationalization strategy;
- overcoming the "liability of newness", credibility transfer and validation in the eyes of the public; and
- providing a potential exit path.

10 THINGS A START-UP SHOULD ASK A POTENTIAL CVC INVESTOR



#1: What is the mission of your CVC program – financial revenue or strategic impact? Which priority trumps the other?

#2: When would you consider an investment in my company a "success" and why?

#3: What do you bring to the table besides the money?

#4: How is your company going to deliver the value you promise and what is your track record for delivering such nonfinancial benefits? Can we discuss with some of your portfolio companies their experiences?

#5: Are you willing to announce your investment to the public?

#6: Would you insist on taking a board seat and do you expect any preferential treatment in future financing rounds and/or M&A transactions?

#7: Who is making the investment decisions in your organization and who decides on follow-on financings? What is your track record on participating in follow-on financings?

#8: How is your CVC unit organized – as an integrated business unit or as a separate legal entity?

#9: Who are the people in your CVC unit, what is their expertise in scaling a business and what interfaces do they have with other business units?

#10: What does the financial and non-financial incentive and reward structure for the investment team look like?

10. For a detailed discussion, please see our Guide OLNS#4 - Corporate Venture Capital, which can be downloaded here: https://media.orrick.com/Media%20Library/public/files/insights/olns-04-corpo ate-venture-capital.pdf.

4.3 Potential Disadvantages from the Spin-off's Perspective

Here are some of the potential risks that start-ups should consider before taking CVC money:

- mismatched goals and misaligned incentives;
- slow decision processes and corporate bureaucracy;
- negative signaling (especially for VCs); and
- diminished exit prospects.

Specifically, if the CVC unit has been given a primarily strategic mandate, this can result in a slippery slope easily leading to misalignment. If the strategic mandate is interpreted by the CVC unit in extracting strategic value from the start-up, this could lead to a corporation-centric mindset, and "what can the startup do for us and our business units" could become the guiding principle. However, the other stakeholders, notably founders and existing investors, might beg to differ as they fear that too much focus on the strategic value for the investor might at best distract founders and at worst harm the value of their shareholdings. In addition, there can be plenty of intra-investor misalignments. Delivering on the promise to leverage the corporate assets and providing more than money is often easier said than done. On paper, this looks like a great complimentary partnership, but it often fails in the execution phase. While in theory, the promises to provide the start-ups with access to the corporation's sales channels and to make introductions to the customer base seem to be low-hanging fruits and should make for a compelling sales pitch for the CVC investment team, the employees that could deliver on this promise within the parent organization might well lack the incentives to do so. These employees often have their own accountability package, priorities, and agenda. Here, it is crucial for the corporate parent organization to implement incentive schemes and create the - yes, we know these are big words - the right culture, for the relevant corporate employees to leverage the corporate assets in favor of the start-ups.



In this last Chapter, we would like to provide you with some practical tips for the period immediately after the incorporation of the start-up and familiarize the founders with common IP challenges of young technology companies.

1. CHECK LIST FOR THE POST-INCORPORATION PHASE

A GmbH or UG (*haftungsbeschränkt*) (hereinafter simply the "company") comes into existence by its entry (arranged by the notary) into the commercial register. This completes the incorporation of the company itself, but not yet the founding process as a whole. A newly incorporated company may have to be registered with various authorities and pay contributions. The omission of such registrations is partially subject to fines. In the following chapter, we will provide you with an overview of typical to-dos after the incorporation of a company.

Registration in the Transparency Register: A

company must notify the German transparency register (*Transparenzregister*) of its beneficial owners (*"wirtschaftlich Berechtigte"*). In principle, a "beneficial owner" is any natural person who directly or indirectly holds more than 25% of the share capital or voting rights of the company or exercises control over it in a comparable manner (e.g., through veto rights). In the case of a single-tier or multi-tier holding structure, no mere calculation of the indirect percentage is applied, but actual control must be exercisable by the relevant holding entity over the shareholder of the company (who holds more than 25% of the share capital or voting rights of the company or exercises control over the company in a comparable manner). If a company does not have such a beneficial owner or if such a beneficial owner cannot be identified, the so-called "fictitious beneficial owners", for example the managing directors, must generally be notified to the transparency register.

The beneficial owners must be reported by the company's management (*i.e.* not by the beneficial owners themselves) to <u>www.transparenzregister.de</u> and the register must, in all regards, be kept up to date. The following details of each beneficial owner should generally be included in the register: First and last name, date of birth, place of residence, nature and extent of economic interest and all nationalities.

Please note that (i) these notifications must be made both for the start-up and, for example, the holding entities of the founders and (ii) the obligation is subject to fines (transitional periods expire in 2023 and before then also only apply in certain circumstances). **Business Registration:** The company must register its Business (as defined below) (if any) with its relevant trade office (*Gewerbeamt*) (where the company has its statutory seat). In some places, this can be done online. The registration fees range between EUR 10 and EUR 60. If the company's seat is relocated, the Business must be deregistered at the place of its old seat and re-registered at the place of its new seat. Changes to the business object of the company or the opening, relocation and discontinuation of branches and branch offices must also be notified to the company's trade office.

If the company is the start-up, it will generally operate a "Business" ("Gewerbe") in the legal sense. If, on the other hand, the company is a mere holding entity of a founder whose activity consists exclusively of holding shares in the start-up, this is generally not to be regarded as a Business; but for tax purposes, the same registration obligation to the municipality applies nonetheless.

If the company operates in a particularly regulated industry, any required qualifications (e.g., master craftsman's certificate) or licenses (e.g., in the case of financial services, energy supply or passenger transportation) must be submitted with the business registration. If it is unclear whether the company falls under such an industry, legal advice should be sought.

In addition, all business operators are obliged to be members of the Chamber of Industry and Commerce (*Industrie- und Handelskammer*, "IHK"; or –usually not relevant for start-ups – the Chamber of Crafts (*Handwerkskammer*)) at the place of their seat. Usually, the trade office registers the company while processing its business registration. The IHK charges membership fees that range between EUR 150 and EUR 300 per year for a company.

Registration with the Tax Authority: A company must fill in the so-called "tax registration questionnaire" (*Fragebogen zur steuerlichen Erfassung*) and send it to the tax authority responsible for the place of its registered office. Only then will the company receive, e.g., its tax number, which it will need to write invoices and employ employees (for the latter, see also the explanations below). In order for this to happen as quickly as possible, the questionnaire should be filled out immediately after the company is incorporated and sent to the relevant tax authority. It is advisable to discuss this complex registration requirement with the company's tax advisor as a whole in a timely manner, as they can usually provide support and verify or provide certain detailed information.

Registration with the Federal Employment Agency:

In order to employ salaried employees (including paid interns, marginal employees, trainees, etc.), the company needs a company number (*Betriebsnummer*) issued by the Federal Employment Agency. The company will use this number to identify itself to social and health insurers. The company number is issued free of charge by the Federal Employment Agency and can be applied for online at <u>https://web.</u> <u>arbeitsagentur.de/bno-prod/ui/#/start</u>.

Registration with the Employers' Liability Insurance

Association: The employers' liability insurance associations are the statutory accident insurance institutions for companies and their employees. As soon as a company employs a person (who is eligible for accident insurance), it is obliged to join the employers' liability insurance association responsible for the company's sector and to pay contributions. If you are unsure which employers' liability insurance association is appropriate for your company, the German Statutory Accident Insurance (Deutsche Gesetzliche Unfallversicherung) can provide information via its telephone hotline: +49 800 60 50 404. Contributions are always due at the beginning of the year. The amount of contributions depends on the costs incurred by the insurer in the previous year, the wages of the insured persons employed by the company and their risk classes.

If necessary, Taking Out Insurances: It may make sense for both the company and the founders to take out certain insurances. This is generally not mandatory. For the company, these include business liability, business contents, property, legal protection and (if the business model has relevant risks and the company already participates significantly in business transactions) cyber risk insurance. For the founders, D&O insurance (Directors and Officers Liability Insurance) is recommended – at least once the very early phase of the start-up has passed and the company is participating significantly in business transactions. In addition, the founders should consider occupational disability insurance as well as private unemployment, pension, and health insurance, although they can also continue to pay into the statutory insurance on a voluntary basis. Here, advice from an independent insurance broker is recommended. In the case of fast-growing start-ups, the insurance coverage should be reviewed regularly

(once a year if the company is growing fast) and adjusted as necessary.

Adaptation of External Communication: A company is obliged to include on all of its communication channels (e.g., business letters, emails, website, social media profiles) its company name (*Firma*) (*i.e.* its company name including the legal form as it appears in the commercial register), its registered office, its registration court, as well as its registration number and the full names of all its managing directors. If the company has a VAT identification number, this must also be stated.

2. IP - THE BASICS

2.1 A Very Broad Term

After we have talked about IP again and again over pages and pages, it is high time to take a closer look at what "IP" or "intellectual property" actually is and what types of IP can become relevant in certain contexts.

A man invents a thing which could revolutionize the arts, produce mountains of money, and bless the earth, and who will bother with it or show any interest in it?—and so you are just as poor as you were before. But you invent some worthless thing to amuse yourself with, and would throw it away if let alone, and all of a sudden the whole world makes a snatch for it and out crops a fortune.

Mark Twain, The American Claimant (1892)

Before we get to this, we should first clarify a few basic terms to avoid common misunderstandings.

Let's start at the beginning. "Intellectual property" (IP) is a generic term for intellectual creations or inventions that enjoy similar protection as physical property under special laws, provided that certain conditions are met. Similar protection means, above all, that the "owner" can decide whether and under which conditions a third party may use his "IP", he can prohibit unauthorized persons from using it and claim damages in the event of an infringement.

Two main categories fall under the generic term of IP:

- "Industrial Property Rights" these include in particular trademarks and patents; and
- copyright and related rights. All classic forms of art, such as language and visual works or photographs, fall under copyright law. However, copyright protection can also exist for software and databases.

Thus, IP is a very broad term for distinct types of rights that may or may not be relevant in various situations. The "trick" is to know which types of IP rights can be relevant in particular situations and how to deal best with them. We will take a closer look at this point in the next few sections.

Before doing so, however, we would like to address a question that we are very often asked in workshops and consultation situations: "But what about know-how?". The question is absolutely justified because, when it comes to technology, research and development, who does not instantly think of knowhow?

However, know-how is not an IP right and in fact, not even a legal term. There is no property right specifically covering know-how. The term knowhow is merely a buzzword that commonly denotes "confidential technical information". This can also be information that is or can be protected by IP rights (e.g., patentable inventions or copyrightable source code) but does not have to be. In other words: Even if information is secret and valuable - think of the recipe of an American soft drink manufacturer - it does not make it IP that "belongs" exclusively to someone. Such information is only protectable as IP if it falls under one of the types of IP described above and meets the respective protection requirements. Spoiler: That is not the case with the Coca Cola recipe, so therefore it is (supposedly) kept behind thick vault doors at the World of Coca Cola Museum in Atlanta.

Of course, the fact that know-how is not protected as IP does not mean that it has no value (quite the opposite). However, above all, the value depends on the fact that the knowledge is secret and not generally known to the public. And it is precisely at this point that the topic becomes interesting for us, namely with respect to the question: "How do I protect my knowhow from disclosure and what do I do if someone "steals" my know-how? We will come back to that.

2.2 IP Rights - An Overview

In the following sections, we will provide you with a brief overview of basic IP rights. However, we would like to emphasize one important concept first:

In principle, IP rights are national rights, *i.e.* they are regulated by the national laws of the individual countries and may be granted by an individual country with effect for its sovereign territory. This is especially the case with so-called registered rights, *i.e.* IP rights that are officially granted by a governmental agency or similar authority and entered into a register. These are, in particular, registered trademarks and patents. This is referred to by lawyers as the principle of territoriality. In practice, this means, for example, that you have to apply for a separate patent for each country in which you want an invention to be patented. In other words: A patent for country A protects the patented invention only in country A and nowhere else. There are exceptions to some types of IP rights (e.g., there is a so-called EU trademark that covers the territory of the whole EU), but the principle remains.

The following description is based on the legal situation in Germany. In principle, however, the IP rights presented exist worldwide and the basic concepts are very similar – at least in the "western world" and the large, industrialized nations. As always, the devil is in the detail. However, if you are at a point where you are concerned about patent protection in Japan or trademark rights in the US, you have come already a long way and should seek advice anyway. **Copyrights:** Copyright protects works of literature, science and art. These include, in particular, works of speech, works of visual art, works of music, photographic works, cinematographic works, and representations of a scientific or technical nature. Outside of the artistic field, copyright is important today primarily because computer programs are considered linguistic works and can thus enjoy copyright protection (we know that many coder's eyes are now welling up with tears to be on a level of protection with the great poets and thinkers). For example, the program code of an application and, possibly, even the layout and visual appearance of the user interface associated with a program can be eligible for copyright protection. The idea for a particular application, however, is not protectible. Databases can also be protected by copyright as socalled collective works.

The prerequisite for copyright protection is that the corresponding work must have a certain level of originality, *i.e.* a degree of individuality that makes it an author's own intellectual creation as opposed to simple everyday products. This is not the case, for example, in the case of simple instructions for use or (even if we are reluctant to admit it) simple legal documents drafted by lawyers, if they essentially consist of a repetition of general legal formulation patterns.

A special feature of German copyright law that is important in practice is the fact that copyright – unlike all other IP rights listed here – is not transferable as such. Rather, "the copyright" always remains with the author of the work. However, it is possible to transfer the rights of use and exploitation of the copyrighted work exclusively and permanently to a third party, so that, by using the right contractual clauses, from an economic standpoint, the same result can ultimately be achieved as if the copyright was transferred.

Copyright is obtained automatically by way of creating a work. An application or entry in a register is neither required nor possible (in Germany). Copyright expires 70 years after the death of the author. **Trademarks:** Trademarks protect signs that identify a company's goods and services. In practice, these are primarily words (word marks), images (figurative marks) or a combination of both (word-figurative marks). Three-dimensional marks (example: the golden easter bunny from Lindt), color marks (example: magenta from *Deutsche Telekom*) or sound marks (example: jingle from Deutsche Telekom) are also possible in principle but (very) rare in practice.

To be protected as a trademark, the desired sign must be distinctive. It must therefore be suitable for distinguishing certain goods and services of a company from corresponding goods and services of other companies. This is not the case, for example, if the sign is descriptive of the goods and services that are to be branded with the mark or if "everyday terms" are involved. Thus, e.g., the term "Al Solutions" for Albased software and services would not be eligible for trademark protection.

Under certain conditions, trademark protection can arise from the mere use of the sign. Trademark protection through registration and entry in the trademark register is economically more relevant and also more advisable. In this case, the application and registration take place for a specific sign in relation to certain types of goods and services. Before granting the trademark, the trademark office checks that there are no formal obstacles to the application (e.g., lack of distinctiveness or violation of "morality"). However, the trademark office does not check whether there are identical or confusingly similar earlier marks that would conflict with a registration of the mark. This is only checked if the proprietor of such an earlier mark files an opposition within a certain time period or requests its cancellation.

Once created, the trademark protection can be extended again and again and can therefore – at least theoretically – exist forever. **Designs:** Designs protect two- and three-dimensional appearances of industrial and handicraft objects, in short product designs.

To be eligible for design protection, the product design must be new and have so-called individual character. A product design is "new" if no identical design has been disclosed before the filing date. A product design has "individual character" if it gives the so-called "informed user" an overall impression that differs from the overall impression of the (product) designs disclosed before the filing date. However, product features, the designs of which are dictated solely by a technical function they are intended to serve, are excluded from design protection in any case.

For example, the classic Vespa design, various versions of the Porsche 911 or the shape of the classic Coca Cola bottle are protected by designs.

Design protection arises through application and registration of the design in a design register. During the application procedure, only the formal requirements for design protection are examined, but not the novelty and individual character of the relevant design. The maximum duration of protection is 25 years from the date of application.

Patents and Utility Models: Patents protect technical inventions, *i.e.* new and inventive (non-obvious) developments in the field of technology, provided that they concern products (machines, chemical substances or mixtures of substances, *etc.*), processes (manufacturing and working processes) or uses of products (*e.g.*, use of drug A to treat disease B).

Patent protection is created exclusively by application and entry into the patent register. Before a patent is granted, the patent office examines whether the requirements for patenting – in particular novelty and the inventive requirements – have been met and it also conducts its own searches. This examination means that it can take several years from the filing of a patent application to the granting of a patent application. At the German Patent and Trademark Office (DPMA), the procedure from application to grant takes an average of about two and a half to three years. The maximum term of protection of a patent is 20 years from the filing date. Closely related to patents are the so-called utility models, which are sometimes also referred to as "petty patents". They also protect technical inventions, albeit to a lesser extent. For example, utility models cannot be granted for biotechnological inventions and processes in general. In addition, the maximum term of protection for a utility model is only ten years from the date of registration. Also, in contrast to a patent application, patent offices do not examine utility model applications with respect to their substantive requirements (especially novelty and inventive requirements). For this reason, on the one hand, the registration process is significantly shorter (and less expensive). On the other hand, the granted utility model lacks the "seal of approval" of an official examination. For this reason, among other things, utility models are much less common in practice than patents and the number of applications has been falling for several years.

Nevertheless, a utility model application (which may even be pursued parallel to a patent application or "branched off" from a patent application) can be very useful in some cases – for example, to quickly obtain a formally granted IP right that can be asserted against competitors long before any patent application procedure would be completed.

Topographies: Three-dimensional structures of microelectronic semiconductor products (semiconductor topographies) can be protected as so-called topographies. The prerequisite is that the semiconductor topography has "individual character". This is the case if it is not merely produced by copying another topography and is not commonplace. If the topography consists of an arrangement of everyday parts, it is protected only to the extent that the arrangement as a whole has individual character. The three-dimensional structure of the topography is protected, but not the technical teaching expressed therein or its function.

The prerequisite for topography protection is the registration of the topography with the competent authority; in Germany, this is the DPMA. Within the scope of the application procedure, only the formal requirements for topography protection are examined, but not the individual character of the topography. Protection begins either on the date of the first non-confidential commercial exploitation of the topography, if it is filed with the DPMA within two years of such exploitation, or – if no such exploitation has taken place – on the date of filing. The maximum term of protection is ten years from the beginning of the protection.

Plant Variety Rights: Plant variety rights protect plant varieties. The prerequisite for plant variety protection is, in particular, that the variety is distinct (*i.e.* differentiable from any known variety on the basis of at least one characteristic), homogeneous, stable and new.

Plant variety protection is obtained by filing and registering the variety with the competent authority; in Germany, this is the *Bundessortenamt*. Plant variety protection lasts at most until the end of the twenty-fifth calendar year following the grant, and for some plant species also until the end of the thirtieth calendar year.

2.3 Who Owns the IP?

All IP initially originates in the person of its creator and belongs to him alone – the rights to an invention and to a corresponding patent thus initially belong to the inventor, the copyright to a computer program to the programmer, and so on.

The creator is always what lawyers calls a "natural person", *i.e.* a human being. Companies and artificial intelligence cannot be inventors or creators. Whether this must and should always remain this way is, of course, an exciting question, but it is beyond the scope of this Guide.

The principle that all IP rights initially always belong to their creator generally applies regardless of whether the person in question was acting on behalf of a third party or was paid for the invention or other service. If IP is to belong to anyone other than its creator, a transfer act is practically always required.

For practical purposes, this means one thing, and that's really (really – dear millennials, now apply daily attention span of thirty seconds please) important: As soon as your start-up commissions anyone with work that could lead to the creation of IP, you should agree from the outset that all IP rights created as part of the contract belong solely to the start-up. This should always be done in writing so that the transfer of rights and thus your ownership position is clearly documented and can be, for example, proven to investors.

This applies not only to the contracting with third parties – e.g., external software developers, interns or cooperation partners – but also to the work of founders and external managing directors. There is some relief only in the case of employment relationships. The German legislator has provided for an (almost) automatic transfer of rights to the employer for most IP rights created by an employee within the scope of his employment or for those created predominantly with the employer's resources. However, the employee is eligible for a claim to appropriate compensation or, under certain circumstances, to retain certain rights.

As a result, employment contracts should also contain express provisions on the handling and transfer of IP rights This applies not only to the contracting with third parties - e.g., external software developers, interns or cooperation partners - but also to the work of founders and external managing directors. There is some relief only in the case of employment relationships. The German legislator has provided for an (almost) automatic transfer of rights to the employer for most IP rights created by an employee within the scope of his employment or for those created predominantly with the employer's resources. However, the employee is eligible for a claim to appropriate compensation or, under certain circumstances, to retain certain rights. As a result, employment contracts should also contain express provisions on the handling and transfer of IP rights.

In this context, a word of warning: A simple sentence like "All IP rights shall belong to start-up X." is better than nothing but it is usually not sufficient to ensure a transfer of all relevant IP rights nor to rule out disputes, ambiguities and problems with financing. Spending the money for lawyer-checked standard clauses for your start-up therefore proves to be a very sensible investment. And we really say this without self-interest, because ironing out mistakes in IP transfers is much more profitable for us than drafting good standard clauses that make us superfluous in the long run.

2.4 How Do I Protect my IP?

The short lawyer answer to the question of how best to protect your IP is "Diligently, comprehensively, and as quickly as possible!". But seriously, the answer is more complex than you might think and would provide enough material for a Ninja of its own (and who knows...). Besides, the "right" answer always depends very much on the individual case. Therefore, we would like to confine ourselves to some basic Dos & Don'ts in this Guide.

When I see the word "patent-pending" in the description of a startup, I stop reading. [...] It's fine to apply for a patent on your technology, but founders who believe that the possession of a patent is the key to their startup's value are usually mistaken.

Paul Graham

Trade Secret Protection – Highest Priority From Day 1

In the introduction to this Guide, we explained to you at great lengths that know-how and trade secrets protection are not IP and not IP rights, and now we start the section "How do I protect my IP" with this of all things? Correct, because a good protection of trade secrets is the easiest and cheapest way to protect your business idea from "imitators", and also the basis for the vast majority of other protection possibilities.

First, your business idea as such is usually not IP. The only thing that protects you at the beginning of the start-up journey from others copying your business idea and beating you to the market is the fact that only you know this idea. The same applies in principle to your technology. Let's take software programmed by you, for example. If a third party manages to get hold of the source code and uses it for its own purposes, this may be a copyright infringement, but your startup is still at massive risk. On the one hand, you would have to be able to prove the copyright infringement, and on the other hand, you would have to enforce your rights in court. All of this costs time and money both of which you will be keen to preserve. In addition, patents for technical inventions are only granted if the invention is not yet publicly known at the time of the patent application. A careless disclosure of the invention can therefore cut off availability of patent protection right from the outset.

If this is not enough motivation for you to carefully protect your trade secrets, then you should consider the following, especially in the spin-off context: If the technology originates from your work for the university and still belongs to the university, you are generally obligated to maintain secrecy due to your employment contract with the university and a violation can have painful legal consequences.

The most important Dos and Don'ts on the subject of trade secrets protection can be found in the corresponding section below (see **Chapter A.VI.2.4**).

Inventory Assessment – What do I Have, What do I Need and by When?

Right at the start of your spin-off planning, you should conduct an IP inventory and needs analysis: What technology do you need for your product, what IP rights do you have and who owns these rights?

The type of relevant technology is the first important factor. This is because the type of technology particularly determines which IP rights may exist in relation to the technology at all or which can be granted in relation to the same and to what extent such rights may have to be acquired or licensed from third parties (e.g., the university). If you need to acquire IP rights from third parties such as the university, you should define priorities in the next step: Which technology or IP rights are so fundamental that you absolutely depend on them, and which, if any, are more "nice-to-haves". Are there possible workarounds (e.g., reprogramming relevant functions without relying on the code to which the university has the rights) and what would be the time and costs involved? Which rights do you need "immediately" to start the (further) development of your product or to be attractive to investors and which rights do you need only at a later point in time, when you might be better equipped financially? In this context, it may also be worthwhile to at least roughly determine the expected time and costs for the development of the technology to a marketable product.

Even if you ultimately come to the conclusion that you need all rights necessarily and immediately, your analysis will in any case provide you with arguments and facts that will help you in the commercial negotiations with the university and investors.

The analysis of your inventory or needs described here should not remain a one-time exercise but should be repeated or updated at least in connection with the key milestones in your product development.

Patent Protection - Costs / Benefits / Timing

If you own potentially patentable technology, sooner or later you will ask yourself whether, when and where patents should be filed. In an ideal world, the answer would be clear: Of course, you should file patents, and preferably immediately and in all economically relevant markets.

In reality, however, the issue of patent protection is always a question of money. According to various estimates, the initial total cost of an international patent portfolio protecting a single invention in all major markets can amount to around EUR 100,000. In addition, there will be the ongoing costs for the annual fees charged by the patent offices to maintain patent protection.

More than in relation to any other property right, patents therefore raise the question of the costsbenefit-ratio and the right timing. Of course, these issues cannot be resolved in the abstract, as the appropriate answer will depend on the individual case. However, the following questions will give you an overview of some of the most important factors:

- How important is the invention for market success? Does it concern the product as such, an (essential) component or only a technical detail?
- Is patent protection the only way to prevent "copies" by competitors, or can this goal also be achieved through consistent protection of secrets? In this context, it often depends on whether the invention or the special "technical feature" relates more to the manufacturing process or the product as such. A manufacturing process that you only use in your company can possibly be kept secret from competitors in the long term. If, on the other hand, the invention consists of the product as such or its composition, trade secrets protection reaches its limits at the latest when the product is launched on the market and can be analyzed by competitors.
- What is the likelihood that a third party will independently make the same or a similar invention and compete with you or even apply for patents on that invention which could then block you?
- In which countries does a patent application make sense? In many cases, it will be sufficient if patent protection exists only in a few core markets. In defining these, the following questions will help (1) What are your most important sales markets in the medium to long term? (2) Which markets are so important in terms of potential competitors that a competing product development would be economically unattractive since they would be blocked by your patents there?
 (3) In which countries do your likely competitors have production and major sales locations? (4) In which countries can patent rights actually be enforced effectively and efficiently in practice?

Trademarks - Early Checks Save Money

Trademark protection is less critical for technologybased startups, especially in the early stages, than the protection of the technical IP on which a business idea is based. Nevertheless, you should not put the topic on the back burner but become active at the latest when you are about to appear on the market – e.g., with your own website, advertising, etc. Nothing is more annoying and unnecessary than investing time and money in a brand name, marketing materials, logos and domains, only to discover that the name and/or logo infringe upon registered trademarks of third parties. In the best case, this "only" results in additional costs for re-branding. In the worst case, a costly warning letter flutters into your house claiming damage compensation for trademark infringements. Therefore, we recommend that you only decide on a brand name or logo after you have made sure that (1) no third party trademark rights are in conflict and (2) your desired brand name can be protected as a registered trademark. The time and cost for such an examination is usually very manageable and much of it you can do yourself with a little time and research. Of course, you should then immediately file your own trademark application to secure your rights to the desired name and/or logo. The costs for a "basic protection" are usually between a few hundred and a few thousand euros.

DON'T FORGET THE DOMAIN

Once you have decided on a trademark, you should also secure the corresponding domain or check whether a suitable domain is available. This is because even a registered trademark does not automatically give you the right to a corresponding domain, and a discrepancy between trademark and domain is obviously suboptimal from a marketing point of view.

Freedom to Operate – Keeping an Eye on the Competition

Depending on the nature of your planned product, it is advisable to research possible IP risks from potential future competitors at a very early stage. This involves determining whether third parties already have IP rights in your technology area (primarily patents) with which they could prevent or at least hinder your product. The buzzword for this is Freedom to Operate (FTO) or FTO analysis.

As a first step, a simple Internet search can help to determine whether third parties are already on the market with a similar product or are conducting research in the relevant technology area. If this is the case, the next step may be to search public patent registers for patents and patent applications of the competitor in question.

If risks become apparent, it is easiest to take countermeasures in this early phase, for example by modifying the product idea and developing workarounds. As the project progresses, experience shows that this will become increasingly difficult. For this reason, you should keep a constant eye on the topic of FTO, especially if you are working in a "patentheavy" technology area.

2.5 Know-how & Trade Secret Protection

Trade secret protection is absolutely central for every start-up. We have already explained why in the previous sections, but we will summarize the three most important points once again (true to the mantra that you should internalize for trade secret protection as a whole: When in doubt, it's better to do too much than too little!):

- Effective trade secret protection is the easiest and cheapest way to protect your business idea and your IP from imitators and competitors, especially at the beginning.
- Many ideas, concepts and rather practical "knowhow" are not IP at all in the legal sense and can only be protected from imitators and competitors through confidentiality.
- Effective trade secret protection is often an implicit prerequisite for later "real" IP protection. This is because technical property rights (patents, utility models) in particular require that the invention to be protected is "new" at the time of the IP application, *i.e.* not publicly known or accessible to the public *i.e.* secret.

So what is effective know-how protection? The short answer: the application of appropriate practical and legal confidentiality safeguards. This may sound trite, but it is indeed largely a matter of applying common sense.
Taking Stock

The first step should be to take stock: What are your trade secrets and how relevant are they? It is advisable to create different categories, depending on how sensitive and critical the information is. In practice, many companies use three-way categorization according to the following pattern:

- Category I The Crown Jewels. This is information on whose secrecy your business success depends and which, as a rule, should only be known internally and possibly even to a very limited group of people only. Depending on the subject matter of the business, this could be, for example, key recipes (think of the Coca-Cola recipe) or essential inventions for which patents have not yet been filed.
- Category II Strategically Important Information. In particular, this is information whose disclosure would cause your company to lose a competitive advantage or would hand a competitive advantage to competitors. This could be, for example, cost calculations, manufacturing know-how or strategy papers.
- Category III This is internal company information that should not be disclosed to third parties, but whose inadvertent disclosure would not be a significant disadvantage for your company. This could be, for example, the names of individual customers or sales figures from longer periods in the past. Internal company-related correspondence that does not fall under categories I and II in terms of content should also be classified here in case of doubt.

Of course, this stock-taking should not be a onetime exercise, but should be repeated and updated regularly. New information that is created or obtained by the company should be assigned to one of the categories by default and handled accordingly.

TAKING STOCK

When taking stock, do not only focus on yourself and your own information, but also include information that you have received from third parties (e.g., under a confidentiality agreement that you should strictly follow). In case of doubt, you should treat such information (at least) as your own category II information.

Practical Confidentiality Measures

Practical protective measures include all measures that prevent third parties from gaining unauthorized access to secret information or from disclosing secret information without authorization or "inadvertently". The general principle is this: The more sensitive the information, the stricter should be the measures for its protection. Category I information should generally be better and more carefully protected than Category III information.

When selecting and implementing the measures, the common sense mentioned at the beginning should save you from most mistakes and make many advisors superfluous. Nevertheless, we will give a few examples, true to our know-how protection mantra ("Better too much..."):

- Do not disclose sensitive information to the public by talking about it audibly in restaurants or on crowded trains. Avoid taking secret documents into public places and displaying them for others to see. The sad classic is confidential documents spread out on the train. The "digital" counterpart to this is the presentation on the laptop in a crowded train without privacy film. Anyone who has ever commuted in first class on the ICE between Düsseldorf and Stuttgart during rush hour will know what we are talking about...
- Secure your business premises and documents against unauthorized access.
- Protect your IT with appropriate security measures (firewalls, passwords, etc.). Limit the access rights of employees to what is necessary. As a rule, a working student or intern, for example, often will not need to have access to category I and II information, let alone to all of it all the time.
- Prevent or regulate the use of private IT equipment (laptops, storage media, *etc.*). Secret information should not be allowed to be transferred onto employees' private devices.
- Document which employees have access to which information and obtain physical or digital copies. This is especially important if an employee leaves your company and you need to verify that he or she has returned all critical documents and storage media.
- Train your employees on the subject of secrecy and data security and communicate clearly what is permitted and what is not. However, experience shows that even the best instructions are of little help if compliance is not monitored or regularly checked.

Finally, part of a good confidential information protection concept is also protection against unintentional infringement of third-party trade secrets. If you deliberately obtain confidential information from third parties (e.g., from cooperation partners), you should ensure that this third-party information is always recognizable as such and, for example, stored in separate folders and marked accordingly in the file name. Protection against unnoticed "infection" with third-party trade secrets is at least as important, especially when onboarding new employees. Classic examples to avoid are customer lists, software code or other confidential material that the new employee has taken with him from his previous job and continues to use at your company. You should prevent this as far as possible through appropriate instructions and guidelines during onboarding and, if necessary, technical security precautions. You should immediately put a stop to any violations that are identified and then seek legal advice to minimize your own liability risk and prevent damage to the company.

Non-Disclosure Agreements

If you want to share confidential information with third parties (e.g., with investors, cooperation partners or potential customers), you should first enter into a non-disclosure agreement with the other party.

Non-disclosure agreements are sometimes also referred to in German practice as "Verschwiegenheitsverpflichtungen" or "Vertraulichkeitsvereinbarungen". Internationally, the English term "non-disclosure agreement" or the abbreviation "NDA" has become established and we will also speak of "**NDA(s)**" here for the sake of simplicity.

A wide variety of samples and templates for NDAs are circulating on the Internet and in relevant forums. The quality of some of them varies considerably. As it is often the case in life, the principle that there is no perfect template for all cases also applies to NDAs. We therefore recommend that you spend some money and ask your friendly neighborhood lawyer for suitable, lawyer-approved templates. The transfer center of your university may also be able to help you.

In addition, we will give you a brief overview of the most important regulations and levers of a typical NDA below:

- **Definition of the "purpose".** Right at the beginning of the NDA, the purpose for which the NDA is to be concluded and information is to be exchanged should be defined. Apart from a general classification, this definition helps in the following to limit the use of the exchanged information to exactly this purpose.
- Definition of "confidential information". In practice, very abstract definitions of what confidential information is or can be are frequently found, often in combination with long lists of similarly abstract examples. In principle, this is not objectionable. Ideally, however, you should also specify as specifically as possible the information and documents that are to be covered by the agreement in any case. For example, "...technical drawings (especially of prototype XY) and company presentations (especially the presentation with the title AB)...".
- **Restriction of disclosure and use.** One of the essential goals of an NDA is to prohibit the recipient of the confidential information from disclosing the information to third parties. But that's not all. It is at least as important to limit the use of the confidential information to the common purpose. Because otherwise the recipient would be free in his own use of the information, as long as he only does not pass it on.
- **Exclusion of "reverse engineering"**. Since a change in the law in 2019, so-called reverse engineering is generally allowed. Reverse engineering means the decryption of trade secrets from products themselves, especially through deconstruction (yes, sometimes Anglicisms do have their raison d'être). Whenever you exchange prototypes or other "rebuildable" items, you should therefore explicitly exclude reverse engineering by the recipient.

- Contractual penalty for breach (?). In many online "guides" for NDAs, it is recommended to include a provision according to which a fixed contractual penalty is to be paid for each breach of the NDA, without having to prove exact damages. The reason given for the recommendation is that it is often very difficult for a start-up to prove damages in practice. Only the contractual penalty therefore makes the NDA a "sharp sword". In fact, the agreement of a contractual penalty can be quite helpful. In practice, however, it is practically never possible for a start-up to enforce this. As a rule, the negotiating position is simply not strong enough. In addition, most NDAs are reciprocal in practice. Even a contractual penalty provision would then at best be enforceable in a reciprocal form – i.e. also to the detriment of the start-up. Finally, an NDA without a contractual penalty provision is by no means worthless or unenforceable, but a must-have in any case. Term. The term of the NDA should at least correspond
- *Jerm.* The term of the NDA should at least correspond to the duration of the planned talks plus a generous buffer. In practice, a term of between one and three years is often encountered. In addition to the term, however, the NDA should also stipulate that the obligations arising from the NDA will continue for a certain period beyond its actual term. Typically, these are periods of between two and five years. Further statutory confidentiality obligations, for example under the Trade Secrets Act (see below), remain unaffected by this, which should also be made clear.
- **Return obligations upon termination.** When the NDA is terminated, confidential information should not remain with the other party. Therefore, the NDA should stipulate that confidential information must either be returned or permanently deleted and that the recipient of the confidential information must confirm the complete return and deletion in writing. Generally acceptable and customary are exceptions for the fulfillment of legal retention obligations and for automated data backups until their regular deletion.

The Trade Secrets Act

The Trade Secrets Act protects confidential information as so-called "trade secrets" from unauthorized acquisition, use and disclosure under special conditions. Only information that cumulatively meets four requirements is considered a trade secret under the Act:

1. Classified information. The information must not be generally known or readily available, either as a whole or in the precise arrangement and composition of its components, to persons in the circles that usually handle this type of information. In our defense, we did not come up with this wording; it is in the law. The

practical peculiarity is that this definition also covers, for example, collections of information as "secret information", where the individual components of information are generally known or readily accessible, but not the specific collection and compilation as such.

- **2.** *Economic Value.* The information must have an economic value precisely because it is secret.
- 3. Appropriate Confidentiality Measures. The information must be subject to secrecy measures that are reasonable under the circumstances by its rightful owner. You read correctly: Even the most secret and commercially valuable information of your start-up is not considered a trade secret and does not enjoy protection under the Trade Secrets Act if you do not protect it with appropriate measures. That is why we have deliberately started the section on secrecy protection with the practical and legal protective measures, because these are a prerequisite for you to be able to "enjoy" the legal protection of secrets. The interesting question is, of course, what "appropriate" protective measures are under the circumstances. The legislator has deliberately left this to be clarified in each individual case. The importance of the information (i.e. its "category" as described above) and the size and capability of its owner must be taken into account. For example, a company like Microsoft will be expected to provide more elaborate protection of its IT infrastructure than a start-up. If you approach the topic of secrecy protection with care and common sense, and follow the tips above, you should generally be in a good position.
- **4. Legitimate Interest in Secrecy.** The authorized holder of the secret information must have a legitimate interest in keeping it secret. As a rule, this will be the case if the information does not relate to criminal acts or "unlawful" information.

If information is a trade secret in this sense, the Trade Secrets Act offers the authorized holder various defenses and sanctions against unauthorized acquisition, use and disclosure. These consist primarily of injunctive relief, claims for information and claims for damages, which can be asserted against the infringer. Claims also exist against third parties who obtain the trade secret from the infringer if they knew or should have known of the infringement.

Finally, the intentional infringement of trade secrets is even a criminal offense punishable by up to three years imprisonment or a fine.



The leading German legal data base JUVE nominated us for Private Equity and Venture Capital Law Firm of the Year in Germany 2021 and 2019, and named our partner Sven Greulich one of the top VC lawyers in Germany (2022/2023)



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Deal Flow 3.0 with our analysis of the 2022 deal terms will come out in early 2023 and be available at orrick.com.

1 DEAL TERM REVIEW 2021 VENTURE FINANCINGS

This section looks at the specific deal terms across venture financings, including rights, preferences and protections for companies, founders and investors.

Information Rights



All deals include information Rights on an annual basis. In addition, the majority of deals also feature information Rights on a quarterly
and monthly basis.

Board Rights



10

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Previous issues in this series



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OLNS #6 - Leading Tech Companies Through a Downturn May 2020

Steering a young technology company through a downtum market is a challenging task but if done effectively, the start-up can be well positioned to benefit once the markets come back. While UN.PSF focused on raising venture financing during a downturn, in this guide, we want to give a comprehensive overview of the legal aspects of some of the most relevant operational matters that founders may now need to deal with, including monitoring obligations and corresponding liabilities of both managing directors and the advisory board, workforce cost reduction measures, IP/ IT and data privacy challenges in a remote working environment, effective contract management and loan restructurin.

OLNS #7 — Flip it Right: Two-Tier US Holding Structures for

Operating a German technology company in a two-tier structure with a US holding company can have great advantages, most notably with respect to fundraising in early rounds and increased exit options and valuations. However, getting into a two-tier structure (be it through a"flip" or a set-up from scratch) requires careful planning and execution. This guide shows you what to consider and how to navigate legal and tax pitfalls.

German Start-ups

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OLNS #2 — Convertible Loans for Tech Companies August 2019

Due to their flexibility and reduced complexity compared to fully-fledged equity financings, convertible loans are an important part of a start-up's financing tool box. In a nutshell: a convertible loan is generally not meant to be repaid, but to be converted into an equity participation in the start-up at a later stage.



OLNS #3 — Employment Law for Tech Companies December 2019 (revised edition coming January 2023)

Young technology companies are focused on developing their products and bringing VC investors on board. Every euro in the budget counts, personnel is often limited, and legal advice can be expensive. For these reasons, legal issues are not always top of mind. But trial and error with employment law can quickly become expensive for founders and young companies.



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Corporates are under massive pressure to innovate to compete with new disruptive technologies and a successful CVC program offers more than capital – access to company resources and commercial opportunities are key features that justify CVC's prominence. This guide serves to share best practices for corporates and start-ups participating in the CVC ecosystem and also to ask important questions that will shape future direction.



OLNS #5 - Venture Financings in the Wake of the Black Swan April 2020

In the current environment, all market participants, and especially entrepreneurs, need to be prepared for a softening in venture financing and make plans to weather the storm. In this guide, we share some of our observations on the most recent developments and give practical guidance for fundraising in (historically) uncertain times. We will first provide a brief overview of the current fundraising environment, and then highlight likely changes in deal terms and structural elements of financings that both entrepreneurs and (existing) investors will have to get their heads around.





OLNS#8 provides a comprehensive overview of the equity-based and Employee-ownership programs (or in short "ESOPs") play a critical role in attracting and retaining top talent to fledgling young companies. Stock options reward employees for taking the risk of joining a young, unproven business. This risk is offset by the opportunity to participate in the future success of the company. Stock options are one of the main levers that start-ups use to recruit the talent they need; these companies simply can't afford to pay the higher wages of more established businesses. With OLNS#8, we want to help start-ups and investors alike to better understand what employee ownership is, structure them in a way that is congruent with incentives, and implement them cleanly.



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Founding and scaling a tech company is a daunting challenge. OLNS#9 summarizes our learnings from working with countless start-ups and scale-ups around the world. We will give hands-on practical advice on how to set up a company, how (not) to compose your cap table, founder team dynamics and equity splits, available financing options, funding process, most important deal terms and much more.



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